

Creating an app outline and co-design guidelines for artificially intelligent driven software to support CBTp practitioners working with clients experiencing first episode psychosis.

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Abstract

Psychosis presents a somewhat unique challenge to individual sufferers, the clinicians and services that support them, and the NHS broadly. This is due to the complex presentation of psychosis, which often co-occurs with or precipitates a myriad of co-morbidities, which often result in decreased quality and length of life. One of the NICE-recommended treatments for first episode psychosis is the delivery of Cognitive Behavioural Therapy for psychosis (CBTp). The delivery of CBTp is challenging and complicated, requiring fidelity to the model, treatment coordination with multiple stakeholders, and a significant administrative burden.

Artificial Intelligence (AI) was considered as a potentially valuable contribution to supporting practitioners in their work. Initial explorations identified two gaps in the research: first, there was no evidence of applications leveraging AI specifically in support of CBTp practitioners; second, there was a lack of methodological coherence in the research regarding the development of software applications in mental health contexts. To address these gaps, this research set out to develop a design outline for an AI-driven software application and in doing so, create a methodological guideline to inform future research.

An initial systematic literature review identified action research as the methodological foundation for this research project. With this in hand, a working group of CBTp practitioners was formed, and the *CBTp Companion app* was created. Positive stakeholder feedback on the app focused on its potential to enhance coordination and collaboration, help maintain fidelity to the CBTp model, and lift some of the administrative burden from practitioners. A key caution was that the app should aid but not replace practitioners. The Working Group's experience enacting a *research culture* that allowed them to wrestle with complex and sensitive issues related to professionalism, ethics, and the therapeutic relationship allowed them to develop and articulate a co-design guideline rooted in the very process it seeks to influence.

Chapter 1: Introduction

In the UK, one in four people experience mental health problems each year (Baker & Kirk-Wade, 2023), and a small proportion of these, one in thirty-five, are individuals experiencing psychosis (NHS Digital, 2014). Psychosis occurs when an individual loses contact with reality through the experience and belief in hallucinations or delusions (NHS, 2023). Despite the relatively smaller proportion, the cost of psychosis to society stands at a disproportion of £11.8 billion compared to £117.9 billion for all mental health issues (NICE, 2016; McDaid et al., 2022). This results from psychosis being difficult to treat due to individuals being prone to relapse and often having comorbidities with other mental and physical health issues. Further exacerbation stems from individuals often having poorer educational and occupational outcomes and a greater likelihood of detention under the Mental Health Act 1983 (NCCMH, 2022). In human terms, for those living with psychosis for a prolonged period, the statistical reality is again disproportionate with a greater likelihood of preventable diseases for which one is three times more likely to require an A&E visit, five times more likely to need an emergency admission (Jacobs et al., 2020). Overall, the result is death on average 15-20 years younger than the general population and over 10 years younger than individuals suffering from other mental health issues such as anxiety or depression (Pratt et al., 2016).

It is important to note that “patients with first episode psychosis respond much better to all treatments if the duration of untreated psychosis (DUP) is reduced to a minimum” (Maj, et al. 2021, p.17; NHS England, 2023). The NICE recommended early intervention for psychosis is for individuals aged 14-65 to receive a package of care within two weeks of referral to services. The package consists of oral antipsychotic medication in conjunction with 16 weeks of CBTp (Cognitive Behaviour Therapy for psychosis) alongside a family/carer intervention delivered through integrated service provision, often involving psychologists, care coordinators, nurses, and psychiatrists (NICE, 2014). A systematic review of CBTp research found that individuals who receive CBTp had “fewer hospitalisations with a higher

number of voluntary hospitalisations as compared to patients with usual care”, with some studies finding it can dramatically reduce the likelihood of a “transition to first episode psychosis” for those at risk. The overall result is increased quality and length of life (Agbor et al., 2022, p.1 & 6). However, research on the efficacy of CBTp is conflicting, for example Jones et al. (2019) found that whilst CBTp was found to be “slightly” more effective, “results were not robust enough to make firm conclusions” (Jones et al., 2019, p.2). Whilst research by Mei et al. (2021) found evidence to support the implementation of CBTp, they also speak to the pitfalls of relying on meta-analyses when they state that “there is robust evidence in support of its use in reducing rates of transition to psychosis at 12-months and up to 18-48-month follow-up, but not at 6-months (only one missing trial could render the end-of-treatment results non-significant)” (Mei et al., 2021, p.10). As noted, based on the evidence that exists, CBTp remains the primary psychological intervention for first episode psychosis according to NICE recommended guidelines.

Challenges in the delivery of CBTp

Complex presentation of psychosis

Similar to the above, wherein psychosis results in a disproportionate impact on society and the individual, for the clinician delivering CBTp, the complex and individually variable nature of the condition makes treatment challenging (Chandra et al., 2018; Morrison, 2017). For example, people experiencing psychosis often have difficulty distinguishing between what is real and what isn't. Reality testing and insight generally, are central to cognitive restructuring, which is a cornerstone of CBT and CBTp. Here, insight helps individuals with psychosis to identify and reflect on thought processes and emotional patterns: to treat thoughts as hypotheses and through collaborative empiricism/Socratic questioning, clinicians help individuals change the maladaptive thoughts and behaviours which often underlie and maintain psychotic symptoms (Addington & Gleeson, 2005; Clark, 2013; Farhall & Thomas, 2013; Kazantzis, 2018).

Further, as mentioned above, there is the co-morbidity of other physical and mental health issues which complicate the treatment process, with anxiety disorders, depression, and drug abuse all being common comorbid challenges that themselves are usually treated with CBT, but again, CBT that leverages collaborative empiricism and cognitive restructuring (Achim et al., 2011; Clark, 2013; Kazantzis, 2018; Morrison, 2017). Heightening the need for bespoke clinical intervention, associated risk profiles that include possible suicide (Coentre, 2021) or violent behaviour (Wasser et al., 2017; Douglas et al., 2009) must also be managed before, between, and within sessions. To this end, alongside CBTp, multi-disciplinary teams are leveraged to support everything from medicinal and therapeutic care to housing and crisis care (Chandra et al., 2018).

Whilst not coordinating all activities, the CBTp practitioner providing care for the client must keep track of and help coordinate many different factors when tailoring complex treatments for clients. As noted, it is imperative when intervening in First Episode Psychosis that interventions are early and tailored to co-morbidities (Griffiths, 2022; Maj et al., 2021). The impact of this complexity, challenge, and risk may result in stress and burnout for the practitioner, which is a potentially significant issue limiting the overall quality and efficacy of service provision when working with individuals with psychosis (Kim et al., 2018; Reid et al., 1999; Rupert & Morgan, 2005; Yanovitch, 2018).

Fidelity to the model

The complicated nature of the presenting pathologies detailed above requires that “individually tailored” and evidence-based treatments are followed, with failure to maintain fidelity to the treatment model potentially resulting in a “potentially harmful” outcome for the person experiencing psychosis (Morrison, 2017, p.2). Specific scales exist that measure clinician’s competence in adhering to CBTp models, with the ability to do so with complex cases in a multi-disciplinary manner being another key clinical competence (Haddock et al. 2001; Roth & Pilling, 2007). On the point of tailoring, to help ensure effective outcomes, it is important to remember that although treatment protocols need to be adhered to, individual

differences in presentation and lived experience require for example, treatments tailored for adolescents (Langman-Levy, 2023), or for cultural sensitivity (Jagtap, 2024; Rathod et al., 2013).

Access to CBTp interventions

Audits show that access to CBTp is largely dependent on where one lives with CBTp being “offered in 80% of cases in the Midlands, compared to 93.5% of cases in London”, in Wales only 12% of individuals in need received CBTp provision. Ethnic disparities also exist with Black individuals being less likely to be offered CBTp despite being more likely to accept when offered (Royal College of Psychiatrists, 2025, p.9). Adaptation of interventions is crucial for the effective, access, engagement and retention of minority groups and young people and offers the potential to increase overall access rates (Griffiths et al., 2023; Habib et al., 2015; Jagtap et al., 2024; Langman-Levy, 2023).

A potential solution

The use of technology in the form of software applications has been identified as a valuable tool in meeting the demands of modern mental health provision. An initial scoping review found that although researchers in the US (e.g., John Torous & David Mohr) and in the UK (e.g., Dame Til Wyes & Shon Lewis) have written hundreds of articles on the subject of utilising software to support individual’s mental health, it did not find research focusing on software applications leveraging AI in supporting CBT or indeed CBTp practitioners with their clinical practice in relation to managing complex caseloads, stress and burnout, and improving quality of service (Baker, 2021; Kim et al., 2019; Omylinska-Thurston & Frost, 2022).

A report commissioned by the Health and Care Professions Council (HCPC) and conducted by Newcastle University highlights what technology-based support for clinical practice might include: the report highlights clinical and peer supervision as having the

primary function of reducing stress and anxiety and improving service quality (Rothwell et al., 2019). In terms of what common features of clinical or peer supervision are understood to make it 'work', the report states that it needs to be experienced by the supervisee as being understanding, tailored to their specific context and needs, to be clear, boundaried, and structured through rules and tasks (Rothwell et al., 2019). When focusing specifically on supervision for CBTp, case conceptualisation is key, and supervision's boundaried nature is also important; here, boundaries, rules, and tasks are central to maintaining fidelity to the model, which is central to the effectiveness of the intervention (Milne, 2008; Milne & Dunkerley, 2010; Morrison, 2017; Yang & Hayes, 2020).

The advancement of Artificial Intelligence (AI) technologies has led to innovative solutions for various fields and already offers the NHS a valuable tool for meeting the mental health needs of the UK (Rollwage et al., 2023; Rogan et al., 2024). When seeking to replicate the responsiveness and reflexivity coupled with task orientation and structure required for the delivery of CBTp, AI presents itself as a viable option. If one considers ChatGPT as the seminal AI interface, what sets it apart from earlier iterations is its seemingly reflexive, interpersonal nature, something that might replicate the interpersonal nature of the practitioner-supervisor relationship (de Gregorio, 2023; Pang, 2023).

In terms of support of tasks and administration, there are a plethora of tools online that have combined basic task management programmes with a thin layer of AI to improve user experience and interface. Research has already begun to look at AI's application for task management in healthcare settings which might help with some of the administrative burden inherent in the delivery of CBTp interventions (Glover & Zhi, 2022). The Electronic Patient Record systems that support practitioners in managing their caseloads might take some inspiration from Customer Relationship Management systems in how they have leveraged AI to increase communication and engagement with clients, all of which are time and effort-intensive activities for CBTp practitioners, and central to a client's positive mental health outcomes. Companies have successfully utilised AI as chatbots and virtual assistants

for customers, to give personalised recommendations, to analyse transcripts to ascertain sentiments, or to predict behaviour and retention (Ledro et al. 2023).

The above represents a significant gap in the literature: research addressing the potential of AI to support many of the complex, labour-intensive tasks required for the delivery of CBTp. These include the need for tailored treatment, the management of complex caseloads, maintenance of fidelity to the model, and increased access and retention. All of which might have the effect of improving efficacy and reach of CBTp whilst also reducing the potential of practitioner burnout.

Designing digital innovations in healthcare settings

There is a large body of research on the development and/or implementation of digital innovations in healthcare settings, with participatory design being a frequently used approach (Hamzah & Wahid, 2016; Vandekerckhove et al., 2020; Vial et al., 2022). Participatory design is an umbrella term for a group of design process often used interchangeably and encompasses co-design, co-creative design, or co-operative design. The shared principle is that the individuals and relevant stakeholders (family members, carers, practitioners) for whom the software is intended have an input into the design process and, in doing so, draw on their experience and understanding in defining problems and potential solutions.

In healthcare settings, participatory design represented a shift in development away from “‘designing for the user’ to ‘designing with the user’” (Sanders, 2002, as cited in Hamza & Wahid, 2016, p. 60). This approach to working with patients, carers, and healthcare professionals in the design process helps ensure that services and products meet the needs and preferences of those who will ultimately use them and results in solutions that are often more practical, usable, and effective in real-world settings, with user engagement also increasing the likelihood of efficient and sustained adoption (Hamzah & Wahid, 2016; Vandekerckhove et al., 2020; Vial et al., 2022).

Despite the clear benefits of participatory design approaches the researchers note further that for research that claims to design with the user, there is little generalisability between studies in terms of methodological approach that could act as a “common framework” to guide future design activities in healthcare settings (Hamza & Wahid, 2016, p.4). Vandekerckhove et al.’s (2020) review of 69 studies addressing participatory design in health intervention again points to the importance of participation in design and also noted a lack of clarity on “principles... used to substantiate the criteria chosen” concerning the methodological approach, which again makes generalisability and replicability difficult to achieve (Vandekerckhove et al., 2020, p. 7).

Looking more closely at mental health contexts, research by Orlowski et al. (2015) scoping the potential of mobile software applications for mental health contexts also noted a lack of participatory methodological process specification for developing software applications (Orlowski et al. 2015, p. 401). A more recent research review by Vial et al. (2022), again in mental health settings, notes that while generally developers and designers recognise the value of designing with stakeholders, “rarely are end users involved” in developing software in mental health contexts.

Further, and in line with the above, Vial et al. (2022) notes that whilst studies addressed did involve stakeholders, the “theoretical underpinnings of the design approach” was described in just over half of the studies reviewed, and that overall “it was not possible to link the use of an approach to its influence on...steps conducted through the process or the actors involved” again making it difficult to replicate methodologies for future research and development activities (Vial et al., 2022, pp. 1, 5, & 7). When addressing key software design texts beyond specific research on co-design, such as Hu’s *Introduction to Software Design* (2023) or Weyers’ *The Handbook for Formal Methods in Human Computer Interaction* (2017), again there is an absence of guidelines for participatory approaches (Hu, 2023; Weyers et al., 2017). Finally, if one considers investigations into the co-design of Ai-driven software solutions, scoping or systemic reviews into medical co-design (Jiang et al. 2025) or

mental health co-design (Chinsen et al., 2025) point to a nascent field where “most co-design interventions had not been evaluated” which again leaves principles, practices, or guidelines unavailable to researchers engaged in this context (Chinsen, et al., p.413).

The importance and lack of participatory design guidelines that involve stakeholders in developing software interventions for healthcare settings is clear from the research above; its necessity is reflected in guidance from the NHS, the Royal College of Psychiatrists, and the British Psychological Society (NCCMH, 2019; NHS England, 2025; Vikram et al., 2022), and central to the commitments of the UK government’s National Institute for Health and Care Research with regards the participation of stakeholders in service design (NIHR, 2024). Service and clinical practice development and improvement are also core competencies as detailed by Division of Clinical Psychology and the Health and Care Professions Council (BPS, 2010; HCPC 2023). As such, a further gap in the literature is identified: research seeking to develop AI-driven software that is explicit in its methodological approach to participatory design involving relevant stakeholders that can serve as a framework or guidelines for future participatory design activities in mental health contexts.

Research Questions:

Above, the impact and burden of psychosis were outlined, and a lack of research demonstrating the potential of AI-driven software in supporting CBTp practitioners in supporting individuals was identified. A look at research into the needs of mental health practitioners generally, and CBTp practitioners specifically, demonstrated that software leveraging artificial intelligence might have a valuable part to play. Despite this potential benefit, there is a gap in research that addresses it. A further gap was identified for research that explicitly defines a participatory design approach that might guide further research and development. To address these gaps this research will embark on a process of co-design to envision an AI-driven software application to support CBTp practitioners in the delivery of CBTp. Drawing on the experiences of the design process, the research will also seek to create co-design guidelines that might serve future efforts in similar contexts. In addressing

these gaps this research seeks to provide valuable resources in support of the delivery of CBTp and co-design activities whilst also furthering the co-participation values of the NHS, NIHR, the Royal College of Psychiatrists, and the British Psychological Society.

To address these gaps, the research questions are:

- R1: How might AI-driven software applications support practitioners delivering Cognitive Behavioural Therapy for psychosis?
- R2: What design guidelines can be derived from a development approach rooted in the principles of participatory action research?

In support of the main research questions, the research addresses the following sub-questions:

- S1: What are the key functionalities of the AI-driven software in the context of CBTp?
- S2: In what ways is AI-driven software being used in other relevant settings that might be transferable to the delivery of CBTp?
- S3: What are the strengths and limitations of employing AI-driven software in the context of CBTp?
- S4: What are the ethical considerations of employing AI-driven software in the context of CBTp?
- S5: What are the strengths and limitations of embedding participatory action research principles in designing an AI-driven app to support CBTp practitioners?

To answer these questions, the research draws on the experiences and expertise of relevant stakeholders from the Essex Partnership University Trust to bring together a working group, focus group, and questionnaire respondents. This collaboration aimed to create a dummy prototype of an AI-driven software application and design guidelines, and in doing so, to contribute to the growing body of knowledge on AI-driven applications in mental health and

inform decision-making by mental health care professionals, policymakers, and software technology developers.

In line with the research questions, the aims and objectives of the research are as follows:

Aims

- To create a dummy prototype application to support CBTp practitioners.
- To create guidelines based on participatory design principles for use in the design of AI software applications aimed at supporting CBTp practitioners.

Objectives

- To understand the support requirements of CBTp practitioners.
- To find which of these requirements might be the most efficiently and effectively served by systems leveraging AI.
- To identify considerations that participants would recommend to future designers.
- To identify the strengths and limitations of the approach.
- To identify and explore ethical considerations.
- To disseminate guidelines to relevant stakeholders.

In order to begin the process of meeting the research aims and answering the research question, it was first necessary to decide on a methodological approach. To this end, an initial literature review on how participatory design approaches have been used to develop software applications in similar contexts was conducted.

Systematic Review: A look at Participatory Design Methodologies for Developing Software Applications in Mental Health Settings

Abstract

Rationale:

Participatory design approaches are increasingly more widely used in software development in mental healthcare settings. One concern, however, is that the theoretical underpinnings of the participatory design approaches are poorly explored and/or detailed within the literature. One of the key theoretical underpinnings of participatory design approaches is action research. This review has two aims: first, to address whether action research principles were present in the methodologies of the studies addressed. Second, to gauge if principles were present to the extent that would justify their adoption within the wider research methodology seeking to create a dummy prototype application to support CBTp practitioners and the creation of an accompanying guidelines for use in the future design of AI-drive software applications in similar contexts, in doing so it also seeks to further the co-participation values of the NHS, NIHR, the Royal College of Psychiatrists, and the British Psychological Society (NCCMH, 2019; NHS England, 2022; NIHR, 2024; Vikram et al., 2022).

Objectives:

The objectives of this review were to identify the presence of (1) explicit reference to action research principles in relation to the research methodology and (2) indication of action research principles by implication of similarity of approach intent. The final objective was to assess if the presence of action research principles or similar approach intent reached an extent that justified action research being adopted by the wider body of research.

Search Methods:

The literature search took place in July 2024 using the following repositories: EBSCOhost (Medline, CINAHL, APA PsycINFO, Library Information & Technology Abstracts, PsycArticles, PubMed), ACM, Web of Science, IEEE Xplore, Scopus. Search terms were

guided by the employment of the SPIDER framework and the PRISMA 2020 Flow Diagram and Cochrane guidance informed the process.

Eligibility Criteria:

Studies were included if: (1) The report must take place within a mental health (or synonymous) context. (2) The report must detail the application of participatory design (or synonymous) principles to the development of software. (3) The report must detail the carrying out of qualitative research. (4) Must be a primary study.

Outcomes:

Outcomes were the explicit presence of action research informed principles, or presence of qualities coded as implicitly action research qualities: iteration, collaboration, centring stakeholders, centring co-generated learning, centring of power and tension.

Risk of Bias:

As the review was carried out by a single researcher, various subjective biases (selection bias, coder drift, personal values) were acknowledged and discussed. Triangulation and other mitigation efforts were employed and discussed.

Synthesis Methods:

A directed content analysis was employed. This makes use of both qualitative and quantitative data. Codes were created a priori and applied to the data after which the strength of the presence of codes was analysed and categorised as strong, moderate, or weak. Categorisation was arrived at through quantitative tallying of qualitative codes which supported transparency and rigour.

Included Studies:

1883 records were screened with 70 studies being included.

Synthesis of Results:

Eight studies explicitly referenced action research. Of the remaining 63, 72.9% (46/63) were categorised as have a moderate to strong presence of action research principles in their methodological underpinnings. 'Iterative' (56.3%), 'Centres stakeholders' (47.8%), and 'Collaborative' (36.6%) were the principles more prevalent across the studies addressed.

Authors' Conclusions:

The results revealed a consistent and significant presence of action research principles both explicitly and implicitly across the studies addressed. This supports the use of action research principles to inform the participatory approach taken by the wider body of research. Importantly, action research principles were more often employed in studies focused on serious mental illnesses (psychosis, schizophrenia, suicidality), psychosis being the subject of the wider body of research.

Systematic Review: A look at Participatory Design Methodologies for Developing Software Applications in Mental Health Settings

Participatory design, often referred to as co-design, co-production, co-creative design, or co-operative design, represented a shift in the approach to software design from expert-led to one that was more inclusive of end users' perspectives and engagement (Rogers et al., 2023). At its core, it recognises that the end users for whom software are being developed should be engaged in the design process. Collaboration with end users in the design process, makes it more likely that the software developed will more effectively address the needs, solutions, preferences, and, importantly, the contexts of users (Rogers et al., 2023).

Participatory design goes beyond merely soliciting feedback from users to actively involving users in the process of articulating problems and envisioning solutions. This process requires that users take on a significant and active role in developing knowledge, including generating insights, ideas, problems, and solutions that impact the overall conceptualisation and design of the final product. In this dynamic, software designers move beyond their role of developing software to one where they facilitate a process of collaboration with the software's intended users (Rogers et al., 2023; Sanders & Stappers, 2008).

The participatory design philosophy was political in nature and grew out of the Scandinavian post-war social movements in the 1960s and 1970s most notably through the work of Kristen Nygaard. Nygaard sought to democratise industrial spaces through participatory design practices (Rogers et al., 2023; Zamenopoulos & Alexiou, 2018). At the time, Nygaard's concern was "that only the interests of management were being served by the design and introduction of new technologies" and that the advent of computers was deskilling labour, leading them to have less control over the administration and production of their work (Kensing & Blomberg, 1998, p. 170). What followed was an approach where workers were centred at all phases in the research and development process, leading to

what would be termed participatory design – and subsequently other synonymous terms (Kensing & Blomberg, 1998; Sundblad, 2011). From both a practical and an ethical perspective, the incorporation of principles of co-participation are deemed to be crucial for the effective implementation of intervention and service design activities according to the NHS, NIHR, the Royal College of Psychiatrists, and the British Psychological Society (NCCMH, 2019; NHS England, 2022; NIHR, 2024; Vikram et al., 2022).

Despite the rich theoretical foundation of participatory design, a consistent critique in the health care research literature is of the absence of a similar richness in detailing the theoretical foundations of research employing participatory methodologies, details that might support researchers engaging in similar activities (Hamzah & Wahid, 2016; Vandekerckhove, 2020; Vial et al., 2022). Furthermore, whilst key texts on the matter, such as Rogers (2023), detail the history and philosophy of participatory design and provide descriptive accounts, they do not offer specific methodologies or guidelines to follow (Rogers, 2023). Foundational works in software design, such as Hu's *Introduction to Software Design* (2023) or Weyers' *The Handbook for Formal Methods in Human Computer Interaction* (2017), give little to no mention of participatory design principles at all (Hu, 2023; Weyers et al., 2017).

Relationship between action research and participatory design

Given the lack of clarity and consistency regarding specific practices to follow, the next step is to examine the theoretical underpinnings of participatory design to determine if any principles might serve as guidance. Here, a consistency exists: participatory design approaches were inspired by action research principles (Berntsen et al., 2010; Frauenberger et al., 2018; Moltu, 2008; Zamenopoulos & Alexiou, 2018).

Action research itself is fundamentally a process of inquiry undertaken *by* and *with* people within a specific context, aiming to solve practical problems while simultaneously contributing to knowledge. It involves a cyclical iterative approach, where stakeholder participants work collaboratively with researchers to plan actions, implement them, observe

the consequences, and reflect on the outcomes to inform subsequent cycles and ultimately the 'final' output. This methodology emphasises collaboration, practical relevance, critical reflection, and centres lived experience, often leading to democratic participation and socio-technological change born of knowledge developed in practice (Bradbury, 2015a; Coghlan & Brannick, 2005).

In terms of action research informing participatory design, for Berntsen et al. (2010), it was Nygard's embeddedness in his actions for participatory design, his choice to "join the experiment", informed by Nygard's belief in "development as a social activity" (Berntsen et al., 2010, pp. 39–40).

Frauenberger et al. (2018) point to the political and epistemological nature of participatory approaches. Politically, there is the value of "people having a say or stake in decisions that affect them". Epistemologically, the "constructivism" inherent in participatory design, that knowledge is constructed in cooperation, also draws on action research (Frauenberger et al., 2018, p. 5).

Moltu (2008) also speaks of constructivism in users' participation in system design through "the concept of co-generative learning" which is achieved through "collaboration relations between employees' and employers' organisations, among researchers, and between researchers and their subjects," all central tenets of action research (Moltu, 2008, p. 157).

Finally, for Zamenopoulos & Alexiou (2018) the impact of action research is again in relation to knowledge constructed in the "polyphony and agonism between adversaries". Here, voices in tension, with a recognition and management of differing power and experiences, allow for "divergent possibilities" and is framed as the creative engine for finding solutions to problems and challenges as opposed to an obstacle or challenge in and of itself (Zamenopoulos & Alexiou, 2018, p.17).

Literature review aims

Given the alignment of the theoretical underpinnings between participatory design and action research, and indeed given that action research to no small degree informs participatory design, a participatory design approach explicitly informed by action research principles presents itself as a potentially viable methodological approach to addressing the wider research questions:

- R1: How might AI-driven software applications support practitioners delivering Cognitive Behavioural Therapy for psychosis?
- R2: What design guidelines can be derived from a development approach rooted in the principles of participatory action research?

It is first necessary to address this potential, to do so a literature review of participatory-designed software in mental health settings will be conducted to determine if action research principles are present explicitly, or implicitly by their similarity of methodological intent. Then, the data will be analysed to determine whether the presence of action research principles or principles of similar intent, in the literature reaches an extent that justifies underpinning the methodological participatory design process for the wider research project.

Literature review questions:

- LR1: Are action research principles present explicitly or by similarity of methodological intent within the given research project's methodologies or methodological underpinnings?
- LR2: Does the presence of action research principles in the literature reach an extent that justifies underpinning the methodological participatory design approach in this research?

Methods

Review guidance and checklists

To help ensure methodological rigour, transparency, and reproducibility, this systematic review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The search strategy, selection process, data collection, and analysis methods were guided by the *PRISMA 2020 explanation and elaboration: updated guidance and exemplars for reporting systematic reviews*, the accompanying checklist can be found in Appendix 1 (Page et al., 2021). Here attention is focused on factors including biases, assumptions, efficiency, efficacy, and reproducibility. While the PRISMA Checklist was “designed primarily for systematic reviews of studies that evaluate the effects of health interventions”, the authors suggest that it has applicability to other domains, for example, “social or educational interventions” (Page et al., 2021, p. 1).

In many ways, this research sits across all three domains health, social, and education: ostensibly it is addressing mental health software interventions, but rather than an intervention, this review is interested with the methodological process through which an intervention is developed and undertaken, a process that is in many ways an educational and social endeavour. What's more, the authors assure that the Checklist is applicable “irrespective of the design of the included studies” which is ideal given the wide variety of research designs potentially being addressed (Page et al., 2021, p. 1).

Search strategy

When choosing a search strategy, it's essential to understand the review's focus as drawn from the review questions (Cooke et al., 2012). The focus here is on understanding the process, methodology, and reporting, of participatory design approaches in the literature. Two tools adapt the standard quantitative literature review tool PICO (Patient, Intervention, Comparison, Outcome) to focus on aspects more relevant in qualitative research:

- PerSPECtiF (Perspective, Setting Phenomenon of interest/ Problem Environment Comparison (optional) Time/ Timing Findings)

and

- SPIDER (Sample, Phenomenon of Interest, Design, Evaluation, Research type) (Noyes et al., 2019).

It was decided that SPIDER's more concise focus on design would prove more efficient, with perspectives and findings, for example, not being as much a focus when compared to methodologies and processes (Booth et al., 2018; Cooke et al., 2012). This increased specificity of focus is one of the key advantages of the SPIDER tool over PerSPECtiF (Cooke et al., 2012; Methley et al., 2014).

Search terms

Table 1 details the literature review search terms based on the review questions, which aimed to identify the presence and extent of action research principles. Consideration was given to a complex search strategy to identify references to action research principles at the search phase, but initial searches showed that it prematurely narrowed potential results. As such, the SPIDER search strategy focused on the primary subject, namely studies in a mental health context, involving software development, being applied through participatory design (or its synonyms) principles. The SPIDER framework uses 'Evaluation' in place of 'Outcome Measures', more often employed by quantitative search frameworks. This allows for the identification of "more unobservable and subjective constructs" that might indicate the presence of action research principles and principles of similar intent, for example, knowledge, understanding, experience, and perception (Cooke et al., 2012, p. 1438).

Boolean terms were developed based upon guidance from Atkinson and Cipriani (2018), who provide a practical guide on how to carry out a literature search for a systematic review (Atkinson & Cipriani, 2018). The search took place in July 2024, with no date limits applied.

		"mobile develop*"	"cooperative -design"		
Search field	All text	All text	Abstract	All text	N/A

Sample

Research focus & Search terms: The *Sample* was defined broadly as research taking place in a *mental health context*. It is essential to note that this term was conceptualised as an umbrella term encompassing *mental health* services, *mental health* populations, or software design for *mental health*, as the review aims to understand software participatory design practices specifically within these contexts. To capture this, search terms like "mental health", "mental illness", or "psychiatric disorder" were employed.

Search field: To ensure a comprehensive identification of studies, it was decided to search 'All text' as an initial review of the literature showed that the terms above often appeared outside of an abstract that might, for example, speak more to the software being developed and a specific disorder or illness, with broader terms like 'mental health' often appearing in the report body. In expanding out to 'All text', the search strategy was better able to capture the myriad ways mental health factors might be described.

Phenomena of Interest

Research focus and Search terms: The *Phenomena of Interest* focused on research that seeks the *development of software technologies*, as the review aims to address instances where these technologies are developed in mental health contexts.

To identify such research, search terms indicating this endeavour included: "software develop*" or "information technology" or "human-computer interaction" or "app* develop*" or

"computer program*" or "mobile develop*". Human-computer interaction was included because it often indicates the development of software programmes (Rogers et al., 2023). Truncation as indicated by an asterisk (*) was employed to capture various word endings, for example, "software develop*" will return results including *software developer & software development*. Guidance on truncation was taken from Atkinson & Cipriani (2018).

Search field: As above, to ensure a comprehensive identification of studies, it was decided to search 'All text'. Here, the terms denoting the development of software, i.e. "software develop*", "information technology", "app* develop*" or "computer program*" or "mobile develop*" were often found outside of abstracts focused more on the specificity of context, product, or methodological approach. By expanding to 'All text', the search strategy could better capture terms that are more likely to be found in the detailed exposition of the report body.

Design

Research focus & Search terms: The *Design* field sought to identify research that *utilised participatory design and related synonymous methodologies* as a core approach in developing software technologies in mental health contexts.

Here, search terms include "co-design or codesign" or "participat* design" or co-creat* or "cooperative design" or "cooperative-design". Of note, it was decided to use 'co-creat*' as a search term instead of 'co-creative design', which is one of the participatory approaches noted in the above introduction as synonymous with participatory design. The reasoning was that 'co-creat*' captures because 'co-creative design', whilst also capturing co-created and co-creative without the presence of 'design', but often used in language denoting participatory approaches.

Search field: Here, the aim was to narrow the focus and precision of the search by targeting studies that explicitly employed participatory design or synonymous approaches as a feature of the research methodology. To this end, the search field parameters were

narrowed to solely address the 'Abstract'. The strategy was to retrieve studies where these methodologies were a key feature of the research, and as such, would likely be addressed in the Abstract.

An initial search that did not employ this narrowing returned almost four times as many results (1,480 as opposed to 395) for the database EBSCOhost, if this had held for the remaining of the databases as will be seen in the next section, it would have taken the amount of studies returned far beyond the amount addressable with the time and resources of this literature review. This narrowing is a key trade-off in considering quantity versus quality of returned results, or in other terms, the trade-off between sensitivity (capturing as many relevant studies as possible) and specificity (filtering out irrelevant studies) (Lefebvre et al., 2024, p. 4; Methley et al., 2014). The Cochrane handbook estimates 1-2 abstracts per minute; however, given the complexity of the search at hand, the lower end of this estimation is optimistic, making the narrowing necessary from a labour perspective as well as a specificity perspective (Lefebvre et al., 2024). Considerations of specificity and sensitivity will be discussed later in the Reflexivity section.

Evaluation

Research focus & Search terms: The Evaluation field was created to help identify research outcomes that are “unobservable” or “subjective constructs”, which covers aspects of the research that *addressed people’s perspectives and/or experiences* (Cooke et al., 2012). A foundational principle of action research is the participants' subjective experience of the research process: knowledge development and creation, perception are all functions within this process (Coghlan & Brydon-Miller, 2014). To this end, “knowledge or understand*, experience*, or perce* (perception and perceive) were employed to capture instances of authors reporting on these phenomena.

Search field: Given the nature of these phenomena, it was felt that these terms would most likely be present outside of the abstract when reporting the analysis, or in

discussion of the results or the research process. To this end, the search field was widened to 'All text'.

Research type

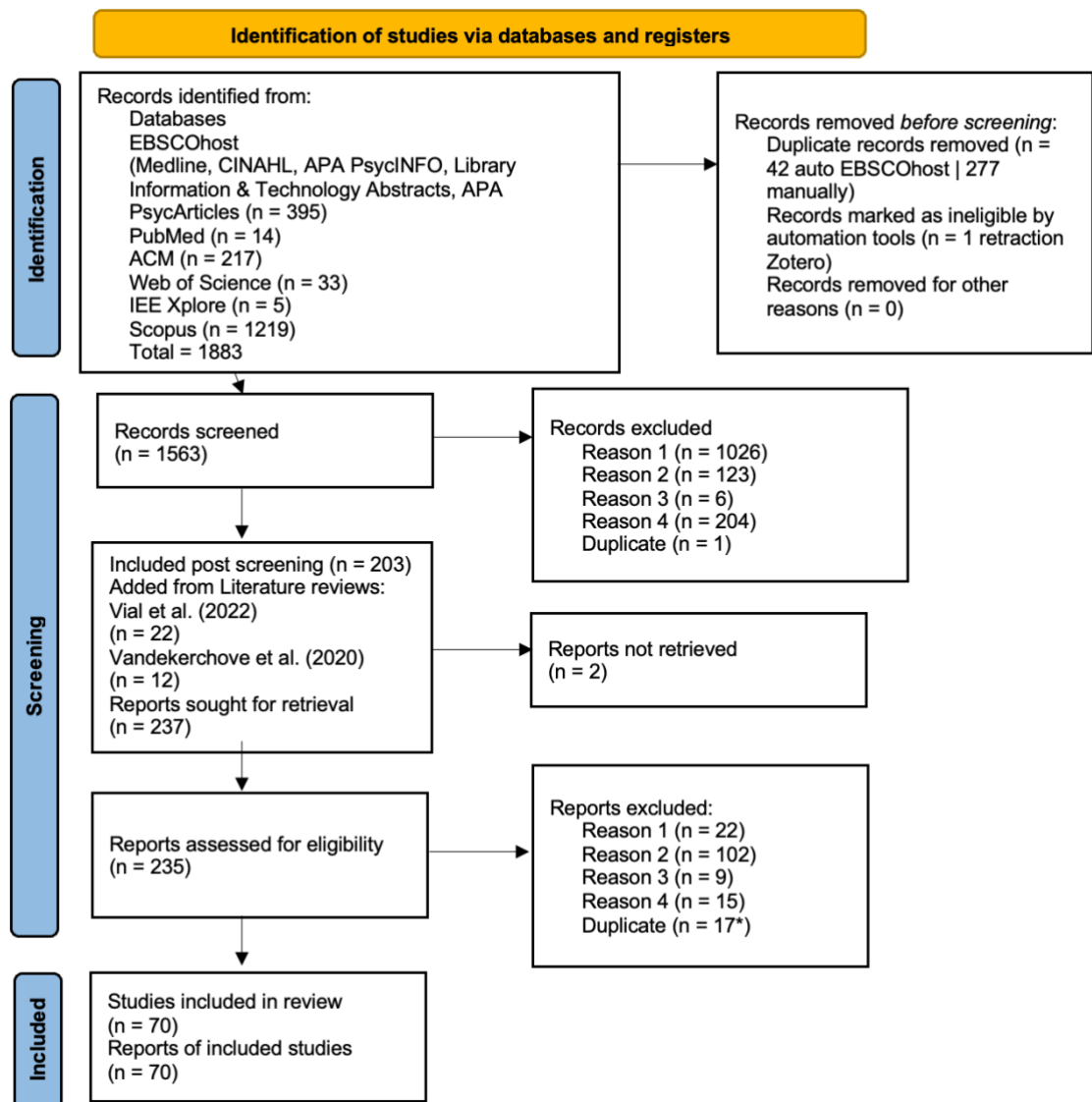
An initial search found that the addition of 'qualitative' as a search term decreased the number of studies by approximately 1%. As many of the researchers authoring the research studies would be computer scientists not used to qualitative framing, it was decided that the potential of wrongfully excluding appropriate research outweighed the additional labour during the screening process. As such, this aspect of the SPIDER was not employed as a search parameter.

Selecting journals and databases

To ensure a broad reach, the literature review addressed databases and journals searched by Vandekerckhove (2020): MEDLINE Ovid, Web of Science, and CINAHL EBSCOhost; and Vial et al. (2022): JMIR Mental Health, Frontiers in Psychiatry, Internet Interventions, and the Journal of Technology in Behavioral Science. Figure 1. shows that all but two (OVID and EMBASE, addressed by Vandekerckhove, 2022) were accessible. To further extend the research of the review IEEE Xplore and ACM Digital Library were added as they are two highly used computer science databases (Paperpile, 2025; Zhang et al., 2011). APA PsycINFO, Library Information & Technology Abstracts, APA PsycArticles, and PubMed were also added, as these are widely used psychology research journals.

Figure 1

PRISMA 2020 flow diagram for new systematic reviews which included searches of databases and registers only



Note. *Nine reports from Vandekerchove et al. (2020) six reports from Vial et al. (2022) and two duplicates missed on the first pass for duplicates equalling 17 in total.

Source: Page MJ, et al. BMJ 2021;372:n71. doi: 10.1136/bmj.n71.

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Selection process

Due to the nature of the focus on methodologies, it was decided to move beyond title and abstract screening to include screening of the sections of studies relevant to understanding the underlying principles, i.e. the Introduction or Methods sections. Further analysis would then address the presence and extent of action research principles in answering whether an action research approach would be justified in carrying out the research at hand.

All 1883 records were exported from databases and imported into reference management software Zotero. Forty-two duplicates were removed automatically upon export from one of the databases, EBSCOhost, and one record was identified as having been retracted upon import into the reference manager. Following this a further 277 records were identified as duplicates within Zotero, leaving 1563 records to be screened. The abstract review resulted in a further 1360 records being excluded, and 203 remaining.

Following this initial screening process, it was decided that the reviews by Vandekerckhove et al. (2020) and Vial et al. (2022) would be addressed to see if any further studies might be identified to further expand the reach of the review.

Vandekerckhove et al. (2020) examined participatory design methodologies for the development of digital health interventions broadly but did not identify the specific health context (Criterion 1, see below); therefore, the reference list was addressed for the presence of mental health terminologies. From this, 12 studies were identified (three of which were not found in the initial literature search of this review).

Vial et al. (2022) specifically addressed participatory approaches to developing digital mental health interventions, identifying 22 studies (16 of which were not found in the literature search for this review). This meant that 237 reports were sought for retrieval, two

could not be retrieved, leaving a total of 235 reports assessed for eligibility based upon the following criteria:

1. The report must take place within a mental health context.
2. The report must detail the application of participatory design principles to the development of software.
3. The report must detail the carrying out of qualitative research.
4. Must be a primary study

Following the exclusion process, 70 studies were included in the review. Fifty-three were identified from the initial literature search, three studies made it through from Vandekerckhove et al.'s (2020), and 14 from Vial et al.'s (2022), see Appendix 2 for a list of included studies.

Analytic Approach

The goal of this review is to identify the presence and qualities of action research principles within the studies collected. Complicating the task is the fact that the review is not only looking for explicit mention of action research and related principles, which would be easily identified, but also methodological principles that might imply a similar intent to those contained within action research. This qualification presents another condition under which action research principles might be present and turns the exercise into one that includes postulation and speculation, a subjective pursuit. By incorporating a further condition that the implicit presence “reach[es] an extent”, the review seeks to provide some gauge by which it justifies the application or not of action research principles in underpinning the methodological approach the wider body of research this review sits within.

The conditional nature of the review questions that contain an element of qualitative analysis of methodological approach and quantification in terms of judging the extent of presence requires an analytic strategy that can address both elements. Whilst a mixed methods approach dealing with both separately would be one way to achieve these aims,

Qualitative Content Analysis offers a robust framework by which it can be achieved within a single approach. Qualitative Content Analysis is an established analytical approach for the subjective interpretation of text data through systematic classification of themes or patterns (Hsieh & Shannon, 2005) and is used in systematic review contexts (Barnett-Page & Thomas, 2009).

Hsieh & Shannon (2005) describe three forms of Qualitative Content Analysis: conventional, directed and summative. A conventional approach is employed primarily for a study aiming to “describe a phenomenon”, and often in contexts where research in the area is limited, it offers an inductive approach from which new insights emerge. The directed approach is concerned with incomplete theories or theories that “would benefit from further description”, with the goal being to “validate or extend” a theory, or to address “the extent to which data [is] supportive” of a theory being investigated (Hsieh & Shannon, 2005, p. 1277). It is deductive in that codes are predetermined, and the data is addressed with these in hand (Hsieh & Shannon, 2005). The summative approach is concerned with the identification and quantification of certain words with the “purpose of understanding the contextual use of the words or content” (Hsieh & Shannon, 2005, p. 1283).

Directed content analysis

Given that this review is seeking to validate the existing theory, the directed approach will be employed. The theory, as detailed in the introduction in reference to Berntsen et al. (2010), Frauenberger et al. (2018), Moltu (2008), and Zamenopoulos & Alexiou (2018), is that participatory methodology has its roots in action research. Common practice within content analysis gives insight into how to create the coding categories, for example whereby the topics of specific interview questions are used to determine the coding categories to address the data (Schreier, 2012).

The interpretation of coding categories and allocation of codes is subjective, the “data never ‘speaks for itself’, it does not ‘have’ a specific meaning” (Schreier, 2012, p. 2). The

coding categories below seek to represent key qualities of action research four of which were drawn from the researchers listed above, and two from general action research theory. As Schreier (2012) notes, it is essentially a tautological exercise, the hope is that the reader understands, or perhaps even agrees with the interpretation, the first step being the interpretation of codes that follow:

1. Iterative

“Through action, knowledge is created, and analyses of that knowledge may lead to new forms of action” (Bradbury, 2015a, p. 7; Gaventa & Cornwall, 2008, p. 470). This “emergent” process is at the centre of action research, each action phase building upon reflections on the last (Bradbury, 2015a, p. 7; Gaventa & Cornwall, 2008, p. 470)

2. Collaborative

“Collaboration relations between employees’ and employers’ organisations, among researchers, and between researchers and their subjects” (Moltu, 2008).

3. Centres experience

A defining characteristic of the action research process is the epistemological position that goes “beyond privileging cognitive propositions to acknowledge the importance of experience...” (Bradbury, 2015a, p. 6). This is a key consideration in mental health research in terms of leaning from individuals (Hawke et al., 2022), or in terms of recognising the impact of individuals experiences of participation (Richmond et al., 2023)

4. Centres stakeholders

Recognition of the political/democratic dimension of action research requires that people have a “say or stake in decisions that affect them” (Frauenberger et al., 2018).

5. Centres co-generated learning/knowledge sharing

The “concept of co-generative learning” takes place as part of the collaborative process (Moltu, 2008).

6. Centres reflection on tension and/or power imbalances

“Argumentation and mutual learning is biased by pre-existing power relations. In such cases, co-design has the duty to facilitate polyphony and agonism between adversaries that would lead to diverse knowledge and possibly variety of different actions” (Zamenopoulos & Alexiou, 2018)

One of the clear limitations of the directed approach is the “strong bias” one brings to the data, meaning one “might be more likely to find evidence that is supportive rather than non-supportive of a theory” (Hsieh & Shannon, 2005, p. 1283). To mitigate this, the directed approach allows one to report “the incidence of codes” which, while allowing for a gauging of the extent of the presence of implicit principles, also supports the reader in reflecting on the material (Hsieh & Shannon, 2005, p. 1283). The incidence of codes will be given as a number and percentage of studies coded for each category.

To systematically gauge the presence of action research principles within the gathered literature, the review employed a three-tiered categorisation framework: weak, moderate, and strong. The assignment of categories was based on the number of incidents of the key qualities listed above. A weak categorisation was given for studies that had zero or one incident, a moderate categorisation was given for studies that had two or three incidents, and a strong categorisation was given for studies with four or more incidents. Studies that explicitly mentioned action research as informing the approach were given a categorisation of N/A (Explicit).

Data extraction

Once the final selection of 70 studies was identified, a structured data extraction process was undertaken to systematically gather relevant data in pursuance of the review questions The Cochrane guidelines offer general and specific guidelines on data extraction,

noting that the method of qualitative data extraction should be tailored to the method selected, and that “contextual and methodological information” should be extracted “irrespective of review type” (Noyes et al., 2018, p. 53). The directed content analysis approach provides a priori categories, which are based on the presence and/or extent of action research principles, which, alongside Cochrane guidance, informed the data extraction approach (see Appendix 3 for data extraction and coding). It is important to note that where discussion of the theoretical underpinnings of the methodological approach was not present in the methods section, data from sections where it was present were used.

Analysis

This section presents the findings from the directed qualitative analysis of the 70 identified studies. In line with the review questions, the analysis aimed to determine the presence and extent of action research principles within the studies. The section follows guidance from Schreier (2012), who gives a detailed account of standard practices on analysing and writing up qualitative content analysis. As stated, the analysis was deductive, with the six coding categories being drawn from relevant research and theory on action research and its influence on participatory design principles and systematically applied to the data (Schreier, 2012).

Characteristics of included studies

An overview of the primary characteristics of the 70 studies, which were published between 2008 and 2024, is provided below to contextualise the findings:

Participatory Method Used

Co-design was the most frequently employed participatory approach being identified in 39 of the 70 studies (55.7%). The other common approaches were Participatory Design, which was used by 16 studies (22.9%), and User-Centred Design or User-Centred Iterative Design, which eight studies employed (11.4%).

Presence of action research principles

Eight studies referred to action research in relation to their underlying principles (11.4%).

Mental Health Focus

Studies addressed a wide variety of mental health contexts, and there is some overlap in the focus recorded in the data extraction. For example, Hetrick et al. (2018) was concerned with CBT for Anxiety, whereas Patterson et al. (2022) was concerned with Anxiety and Depression. As some readers might be interested in software development focusing on the delivery of CBT as a modality, and others more interested in various software support for mental health conditions, some studies will be counted twice, i.e. in a CBT category and an Anxiety category.

Nine of the studies (12.9%) focused on the development of software-supported therapies for service users: Cognitive Behavioural Therapy (7), Acceptance and Commitment Therapy (1), and Art Therapy (1).

In terms of mental health conditions, 15 focused on general mental wellbeing, support, and access (22.4%), 9 on differing levels of depression (12.9%), eight on anxiety and eight on psychosis or schizophrenia (11.4%), and six focused on suicide prevention (8.6%).

The administrative side of mental health service support was also a significant area of focus, with eight studies addressing administration, including assessment or mental health e-clinics (11.4%).

Of the eight that referenced action research, three focused on schizophrenia, three on general mental health, one on assessment, and one on suicide prevention.

Research setting

In terms of research setting, 39 took place in clinical settings (55.7%), nine were carried out in university settings (12.9%), and eight in community and community mental settings (11.4%). Ten studies did not indicate the setting in which they were delivered (14.3%).

Of the eight studies employing action research, four were carried out in a clinical setting, two in a university setting, one covered both clinical and university research, and one was in the community.

Software platform

Mobile phone-based applications were the predominant platform, with 35 using mobile phone-based applications (50%), and 20 using web-based applications (28.6%). Five studies designed applications for websites and mobile phones (7.1%).

Of the action research studies, six developed mobile phone-based applications and two web-based applications.

See Appendix 3 for Study ID Numbers, Authors, Titles, Codes, Explicit Mention of Action Research, Implicit Action Research Evidence (Weak/Moderate/Strong), Participatory Method Used.

Theoretical Underpinning of the Methodological Approach

This section will move beyond the characteristics of studies and outline the results of the analysis of data more directly related to the review questions. Whilst maintaining alignment with directed content analysis in providing quantitative results, insight into the interpretation of data and coding from which the quantitative results are drawn will be outlined.

Detailing of methodological underpinnings

Fifty-one out of the 70 studies failed to detail the theoretical underpinnings of the methodological approach (72.9%). A study was considered to have addressed its methodological underpinning if it gave insight into *why* a particular method was being employed. For example, Ben-Yehuda et al. (2022) states that: “Participatory design involves potential users in eliciting requirements (the first stage of agile development) and evaluating their implementation. Participatory design has often been used to develop mHealth apps. Different participatory design techniques exist. We used focus groups, persona development, user feedback, and a questionnaire, as detailed in the next sections.” (Ben-Yehuda et al., 2022, p. 5) Whilst Participatory design is mentioned and techniques indicated, there is no reference to principles or framing that might give insight into why the particular approach is employed; accordingly, this and similar examples are denoted as not containing a discussion of the theoretical underpinnings.

On the other hand, Peters et al. (2018) gives the following definition: “Participatory design, as a methodology for involving users in the design process, provides a set of methods and user-centred orientation for eliciting user perspectives, preferences, and ideas for the codesign of technologies. Participatory design is also increasingly used as a method for the design of health and mental health technologies to empower patients or end users by involving them in development and to ensure tools are more likely to be engaging and effective. Furthermore, participatory methods provide a way to create a democratic and destigmatised space in which to discuss mental health issues. Previous qualitative studies have shown that when men are provided with relevant information in a safe space, they can be willing to discuss mental health issues.” (Peters et al., 2018, p. 2). In this extract, there is clarity as to why the approach was employed in terms of eliciting perspectives, preferences, and ideas. Further, this is contextualised with reference to the empowerment of participants within a democratic, destigmatised, and safe space.

Explicit reference to action research principles underpinning the methodological approach

All the studies that explicitly referred to action research principles discussed the study's theoretical underpinnings. For example, Aryana and Brewster (2020) state that "action research involves changing practice and improving knowledge about a practice or social system, in which the action researcher is also a practitioner", stating further that in using the approach they "were able to examine the design process as observers engaged in the process, considering its feasibility and effectiveness." (Aryana & Brewster, 2020, p. 1210). Here the level of methodological reflexivity goes beyond Peters et al. (2018) who reflect on the environment and the space that participatory approaches can create to one where the researchers are seeking to understand themselves within the process both observing and engaging.

Analysis of implicit reference to action research principles underpinning the methodological approach

In this section, each of the codes representing action research principles will be addressed in turn. The number of studies that contained codes for each quality will be given, along with an example or multiple examples of text coded for that quality. To contextualise the qualities and codes, each will be accompanied by an excerpt from authors contained within the Sage Handbook on Action Research (2015). This was employed as a form of triangulation by the researcher and sought to move the research review beyond the *tautological exercise* by contextualising codes within the literature. The presence of codes across the reviewed studies can be found in Table 2 at the end of this sub-section.

Iterative

Forty studies (57.1%) contained qualities coded as iterative. In most cases, this was through explicit reference to the term itself; in others, it was the use of cycles of design with each building on the last. For example, Collie and Čubranić (2002) state that "there were three phases to our participatory design process" which was coded as *Iterative* (Collie &

Čubranić, 2002, p. 161). This was because the final product was arrived at through an “emergent” process with each phase building upon the last, a central tenet of iteration in the action research process (Bradbury, 2015a, p. 7).

Collaborative

Twenty-six studies (37.1%) contained qualities coded as Collaborative. Similar to above, the majority of codes were ascribed to sections of text that explicitly referenced collaboration as a methodological approach. Anekar et al., (2024) speak to the principle within their methodological approach that involved a “moving away from the conventional approach of expert-led growth work, in which interferences are produced ‘for’ youth rather than ‘with’ them” (Anekar et al., 2024, p. 284). This approach aligns with action research theorists who point to “collaborative, inquiring power, with others” as required to “spot, articulate, and correct incongruities among the four territories of experience (visioning, strategizing, performing, and assessing outcomes)”, all central to collaboration within the action research process (Erfan & Torbert, 2015, p. 73).

Centres lived experience

Twenty-three (32.9%) contained qualities coded as *Centres lived experience*. In contrast to the above, approximately half of studies explicitly referenced lived experience. An example of a study where *Centres lived experience* was coded without being explicitly mentioned is this passage from Kornfield et al., (2022) who reflect that “whereas mental health treatment experts bring knowledge of mental illness and evidence-based treatment strategies, they may have gaps in their understanding of users’ experiences of their health conditions, self-management approaches, goals and values, and habitual uses of technologies” and continue and by promoting “the user as essential to designing useful and usable technologies” (Kornfield et al., 2022, p. 2). Writing on the centring of experience in action research Falkembach & Carillo (2015) speak to the above when they note that “Systematization is a movement aimed at capturing in words the meanings and feelings

manifested in lived experience, transformed into an object in support of knowledge and action” (Falkembach & Carillo, 2015).

Centres stakeholders

Thirty-three studies (47.1%) contained qualities coded as *Centres stakeholders*. Twenty-four of the 33 studies explicitly mentioned stakeholders and were coded accordingly. Whilst not expressly referencing the term Werner-Seidler et al., (2017) alludes to the importance of stakeholder engagement by pointing to a trend whereby “there has been increasing recognition that involving users in the development of health information systems increases technology adoption, user satisfaction, as well as trust and ease of use of specific programs” (Werner-Seidler et al., 2017). Mejia (2015) speaks to the above notion when reflecting on their action research journey. They found that effective stakeholder engagement in project processes “can determine initial stakeholder buy-in, subsequent participation in the project, and probability of successfully using” project interventions, in line with Werner-Seidler et al., (2017) the reasoning is that as stakeholders, the process of buying in results in a sense of ownership and enhanced engagement (Mejia, 2015, p. 667).

Centres co-generated learning/knowledge sharing

Sixteen studies (22.9%) contained qualities coded as *Centres co-generated learning/knowledge sharing*. Of the 16, there was no explicit mention of either term. Examples of data coded for this quality are Buus et al., (2019), who stated that “democratizing knowledge and ensuring the relevance of research and design to end users are key elements of user involvement”, their research sought to culturally adapt a software application where sharing cultural knowledge was crucial to the endeavour (Buus et al., 2019, p. 2). Povey et al., (2020) reflect on sharing knowledge on how best to implement aspects of the project: “data collection methods were refined along the way in collaboration with education providers, members of the ERG, Indigenous Research Officers, community elders and participants” (Povey et al., 2020, p. 3). Collie & Čubranić, (2002) speaks to co-generating learning as key theme underpinning their participatory approach, namely “mutual

reciprocal learning, in which users and designers teach one another about (respectively) work practices and technical possibilities through joint experiences” (Collie & Čubranić, 2002, p. 161). The above examples well aligned with action research practice and the importance of knowledge “sharing and learning” for “collaborative action” (Coghlan & Shani, 2015, p. 50).

Centres reflection on tension and/or power imbalances

Twenty-two studies (31.4%) contained qualities coded as *Centres reflection tension and power imbalances*. Peters et al., (2018) speak of participatory design being “increasingly used as a method... to empower patients or end users by involving them in development and to ensure tools are more likely to be engaging and effective” part of this process is “to create a democratic and destigmatized space in which to discuss mental health issues” democratising and destigmatising both acknowledge and address interpersonal tension and the power imbalance inherent in representation (Peters et al., 2018, p. 2). Writing on the subject of volatility and uncertainty and the “ubiquity of hierarchical structures”, Krot and Stefanac (2015) note that it is in these very situations of tension and volatility, the intersection of power imbalance that “participation is even more essential because anyone may have a point of view that is needed to clarify the immediate next steps” (Krot & Stefanac, 2015).

Table 2

Presence of codes across studies

Code	%
0 Codes present	11.4%
1 Iterative	57.1%
2 Collaborative	37.1%

3 Centres experience	32.9%
4 Centres stakeholders	47.1%
5 Centres co-generated learning/knowledge sharing	22.9%
6 Centres tension and/or power imbalances	31.4%

Analysis of the strength of action research principles underpinning the methodological approach

Table 3 details the strength of the implicit presence of action research using the three-tiered framework. As noted, of the 70 studies in the review, eight studies (11.4%) explicitly identified action research principles. Of the remaining 62 studies, 46 (74.2%) were rated as having a strong to moderate presence of action research principles. Whilst 17 (25.8%) were rated as a weak presence of action research principles.

Table 3

Strength of Action Research Principles

Strength	Incidence of Implicit Principles	Number of Studies	Percentage of Studies
Strong	4 or more	26	37.1
Moderate	2 - 3	20	28.6

Weak	0 - 1	16	22.9
N/A Explicit	N/A Explicit	8	11.4
Total		70	100

Discussion

This literature review aimed to explore whether it would be appropriate to employ action research to inform the theoretical underpinning of the wider research project that seeks to create an AI-driven software application and accompanying design guidelines for others engaging in similar endeavours. In seeking to meet this aim, the following questions were asked: first, are action research principles present explicitly or by similarity of methodological intent within the given research project's methodologies or methodological underpinnings? And second, does the presence of action research principles in the literature reach an extent that justifies underpinning the methodological participatory design approach in this research?

In answering the first question, given the review covered research employing participatory methodologies for software design, finding Collaboration (37.1%), Centres Stakeholders (47.1%), and Iterative (57.1%) as the three highest qualities present in studies is not remarkable. These align with the fundamental principles of collaboration/stakeholder engagement and iteration at the heart of participatory design principles (Vandekerckhove, 2020; Vial et al., 2022). However, what makes these findings encouraging is that if one looks at the opening paragraphs to the first chapter in the SAGE Handbook of Action Research: *How to Situate and Define Action Research*, it states that action research “brings together action and reflection” the iterative cycle that sits at the centre of the approach that helps researchers enact “appreciable, positive impact through the *collaborative* character” of the

work (Bradbury, 2015a, p. 1). Elsewhere in the literature on action research in organisations which is pertinent for this current research project “iterative cycles...collaboration” and the centrality of stakeholders is also pre-eminent (Coghlan & Brannick, 2005, p. 4).

‘Centres lived experience’ (32.9%) is also a key quality in research addressing mental health, which is a qualitative experience. This quality also figures early in Bradbury’s (2015) opening definition of action research, which seeks move “beyond privileging cognitive understanding” and instead “draw and contribute to an ever-increasing repertoire of experiential practices at personal, interpersonal, and/or collective levels”; here, both the centring of lived experience is enshrined in the approach (Bradbury, 2015a, p. 1). Here again Coghlan and Brannick (2005) state that for action research that seeks to engage participants in organisational research as this research seeks to do, the “lived experience of [ones] own organisation” is crucial, especially when seeking to leverage both “explicit and tacit knowledge” which as will be discussed below, is a valuable asset in the design process (Coghlan & Brannick, 2005, p. 61).

‘Co-generated learning/knowledge sharing’ (22.9%) is clearly a key component of the participatory design which privileges designing with and not for participants, a pursuit that requires knowledge transfer and learning in both directions (Hawke et al., 2022; Morrison, 2005). However, whilst being second to last in prevalence of qualities, it features in the opening paragraph of the definition of action research that states: “Action research is a democratic and participative orientation to knowledge creation” with the paragraph ending “action research is a pragmatic co-creation of knowing *with*, not *about*, people” (Bradbury, 2015a, p. 1).

Finally, ‘Centres tension and/or power imbalances’ (31.4%): issues of power are part of ongoing discussions within software design and are a large part of the reason behind the employment of participatory approaches (Alidoosti et al., 2022; Widder et al., 2023). What is clear is that contending with power is clearly not privileged in the studies at hand. For action research, and perhaps because it is often left unacknowledged, a focus on power is apparent

in the reference to democracy and knowing *with*, not *about*, people, above. And, as well as being referenced in the opening paragraph, a focus on power is clear in the closing paragraph to the definition that states, “Action researchers understand that partnership and participation are central to our work. As important is reflexivity, i.e. taking a critical stance on what limits and enables our own and others’ participation” (Bradbury, 2015a, pp. 1 & 3), here a critical focus on limits and enablers of self and other makes it clear the “basic (power) orientation” within this methodology (Bradbury, 2015a, p. 2).

Coghlan and Brannick (2005) speak to both ‘Co-generated learning/knowledge sharing’ and ‘Centres tension and/or power imbalances’ when they speak of how action research challenges normal research practices by “sharing the power of knowledge production” and in doing so it “subverts the normal practice of knowledge and policy development” and note that participatory action research approaches are concerned with “empowering people to construct and use their own knowledge” in the pursuit of change (Coghlan & Brannick, 2005, p. 7 & 15).

Overall, there is a broad prevalence of action research principles across the studies reviewed. To give a further layer of triangulation with regards to similarity of methodological approach intent, it is worth returning to Vandekerckhove et al.’s (2020) systematic literature review on participatory design approaches to software development in health contexts to see how they align with the codes derived for this research. In their research, they discerned four guiding – Democracy, Mutual Learning, Tacit and latent knowledge, and Collective creativity:

- “Democracy: ...stakeholders including non-designers and future users who will be affected by new technologies...can become part of the design team as *experts of their experiences*.” (Vandekerckhove et al., 2020, p. 2).

Here, there is collaboration and the privileging of lived experience, as well as stakeholder acknowledgement through the political reality within democracy that requires each be afforded a stake in their process.

- “Mutual learning: Participants (both designers and nondesigners) learn from each other, but they also learn from themselves when reflecting on their own work” (Vandekerckhove et al., 2020, p. 2).

Here, co-generating learning and knowledge sharing are clear, as is a sense of iteration in action and reflection.

- “Tacit and latent knowledge: To assess the needs of people beyond the observable or easily detectable...defined tacit needs as being conscious but not expressed and latent needs as subconscious needs that cannot be expressed in words. This deeper knowledge includes explicit and implicit day to day technological expertise from present, future, and past” (Vandekerckhove et al., 2020, p. 2).

Whilst not speaking as explicitly to any of the qualities in this review, the privileging of tacit knowledge is central to carrying out action research within organisations, as noted by Coghlan and Brannick (2005), tacit knowledge and lived the lived experience of one’s organisation are inextricably linked (Coghlan and Brannick, 2005).

- “Collective creativity: PD [Participative Design] is considered to be essentially a process of collective creativity...Creativity facilitates a design process from which values emerge and become inscribed in the product or service. Everyone is assumed to possess some creative ability” (Vandekerckhove et al., 2020, p. 2).

This final guiding principle covers all of the above, in that each is necessary to create the ethos to facilitate creative efforts in search of design solutions to complex problems. Returning to Bradbury’s opening chapter, she states of a key underlying principle of action research: “We know ourselves as creative beings; we innovate beyond current conditions with varying degrees of awareness and success, toward ways of living that are somehow better for more of us” (Bradbury, 2015a, p. 5).

The second question of this review offers a final form of triangulation: does the presence of action research principles in the literature reach an extent that justifies

underpinning the participatory design approach in this research? Whilst the more practical process-oriented principles are more prevalent (Collaboration, Iteration, Centres lived experience, Centres Stakeholders, and Centres co-generated learning/knowledge sharing) across the studies, the role of power does figure within some of the research and its absence in others might be more a result of the expertise of methodologists in recognising its importance and giving it appropriate prominence because as demonstrated it is a significant feature of both participatory design theory and action research. The analysis identified 54 studies (77.1%) of studies methodologies either explicitly referring to action research principles or as having a strong to moderate presence of action research principles i.e., principles deemed to be of similar methodological intent, there is evidence to justify the underpinning of the methodological approach of the wider research.

Another interesting finding is that of the studies that referenced action research, three out of eight (35.7%) focused on schizophrenia or psychosis. Though a small sample, it is an over-representation given that of the entire body of studies, those focusing on schizophrenia and psychosis account for eight out of 70 (11.4%). Veteran mental health and suicide prevention were two other areas of focus for studies that reference action research in relation to the theoretical underpinning of the research, two populations which also often require complex and co-ordinated care provision (NHS England, 2023; Williamson et al., 2023). A scoping review on the appropriateness of action research in working with individuals with serious mental illness speaks to many of the reasons listed within this research, i.e. action research it seeks to “build capacity, balance power distribution, create collaborative environments, promote peer support, and enhance their engagement as co-researchers” (Thomas et al., 2024). Seeing action research principles being applied in similar contexts to that this research project which also seeks to address psychosis, lends further credibility to employing it as a methodological approach.

Which participatory design approach?

Vial et al. (2022) note that co-design “refers to a specific form of participatory design that is much closer to co-creation” and is used in instances where designers are seeking to “improve and evolve [an] initial idea” and requires that “participants can transform this idea in a meaningful way” (Vial et al., 2022, p. 4). As the introduction to this thesis shows, the catalyst for this research was based on the lead researcher’s initial idea that artificial intelligence might have some utility as a supervisory support for Cognitive Behavioural Therapists working with patients experiencing first episode psychosis. The goal of the research is to see where participants might take this initial idea. Seeing as “action research is a pragmatic co-creation of knowing with, not about, people”; this sentiment is very well aligned with the definition of co-design above (Bradbury, 2015a, p. 1).

Conclusion

In conclusion, the review revealed a broad prevalence of action research principles within the participatory approaches of the studies addressed. In terms of the subject of the wider research project which focuses on a serious mental illness, the values, principles, and aims of action research are particularly well suited. As such action research merged with co-design value as described by Vial et al. (2022) set the stage for the exploration of this research’s methodology in the next chapter.

Reflexivity

Conducting the systematic review as a sole researcher presented both challenges and opportunities for reflexivity. Throughout the process, I was keenly aware that I was alone in the endeavour which is something cautioned against for systematic reviews of this nature. The core reasons are to help ensure the academic rigour of the work through mitigating bias for example through “independent searches” carried out “in parallel” (Lefebvre et al., 2024, s.4.2.2), or reaching consensus through discussion (Belur et al., 2021), or mitigating ‘coder drift’, the process by which “small decisions made individually over time, without correction,

can result in unreliable decision-making”, e.g. losing sight of the initial search strategy is mitigated through regular team meetings (Polanin et al., 2019).

One of the key areas of tension for me that I feel would have been a fruitful area of discussion with co-authors was the trade-off between specificity and sensitivity. The decision to narrow the search field to *Abstract* for the *Design* field of the search strategy was one that I spent a lot of time thinking about and put in a good deal of work searching and looking through results of *All Text* returns. Having co-authors to discuss with may have allowed us to perhaps make the decision sooner, or if not, perhaps be more confident in it when made.

In writing about screening large-evidence systematic reviews, Belur et al. (2021) speak about some of the other benefits of having others involved in the screening process and state that whilst having others to work alongside in the process does not “eliminate subjective bias” it can help restrict the extent (Belur et al., 2021). Here, I was somewhat fortunate that Vandekerckhove et al. (2020) and Vial et al. (2022) had engaged in a similar process before me. In gauging my results against theirs I was able to see that Vandekerckhove et al.’s (2020) search strategy returned 3031 reports, whilst Vial et al.’s (2022) search strategy returned 1,035, with my search strategy returning 1883 reports with far broader search terms. I gained confidence due to the fact that even with the far narrower search terms encouraged by the SPIDER framework, my search returned 40+ studies within the dates used Vial et al. (2022) who identified 22, and 30+ within the dates used by Vandekerckhove et al. (2020) who identified 12.

Further, the process of subjecting Vial et al.’s (2022) studies to the eligibility criteria provided me with an opportunity to address my initial assumptions regarding what constitutes a ‘mental health context’. They chose to include Terlouw et al.’s (2020) research, which sought to design a digital comic character to facilitate the social skills of autistic children. The language of the text itself might have led them to conceptualise autism as a mental illness, or indeed a disorder as the text itself uses the term *autism spectrum disorder* (a DSM categorisation) as opposed to Autism Spectrum Condition which is a term gaining traction

and advocated for by autism charities and interest groups (Terlouw et al. 2020). Having originally chosen not to include the study, I re-evaluation of my decision but ultimately, I decided to keep it as the study made no substantive mention of mental health.

Finally, my attempts to mitigate bias and drift by not only benchmarking my results against Vandekerchove et al. (2020) and Vial et al. (2022), whilst also the employing the PRISMA and Cochrane guidelines was good practice. The use of Directed Content Analysis to provide quantitative gauging, and the further degrees of triangulation using the SAGE Handbook of Action Research to contextual codes within the theory was also a novel attempt mediating the tautological nature of coding or at least affording the reader insight into the triangulation process to help draw their own conclusions. However, I wonder if my attempts at mediation attempts resulted primarily in overcomplication. That said, I feel grateful to be afforded the opportunity to challenge my assumptions surrounding often value laden subjects like mental health versus neuro-divergence, and further, given the subject of the review itself which spoke to a lack of detailing of methodological considerations, I feel it appropriate I went to the lengths I did.

Limitations and Strengths

One of the key limitations has been noted above and that is the inherent subjectivity involved in interpretative in qualitative content analysis, the absence of multiple reviewers and coders is clear, this is especially the case when seeking to infer methodological intent. While efforts were made to mitigate the success of these efforts is itself open to interpretation, and ultimately, it is not possible to replace inter-rater reliability.

Another limitation is that whilst the review identified the *presence* and *extent* of action research principles through the use of codes, it did not assess the *quality* and *rigour* in the application of said principles. Employing the Critical Appraisal Skills Programme (CASP) or GRADE-CERQual (Confidence in the Evidence from Reviews of Qualitative Research) would have helped mediate this. However, these are more suited to situations where policy or

treatments depend on the outcomes of the review, as this review was scoping the potential for employing well used principles in a relatively new context, it was felt that the level of rigour achieved was appropriate.

A final limitation was the failure to obtain the two missing reports which might have easily been obtained using inter-library-loans services.

The review has several notable strengths. First is the scale of the research which is a good deal larger than that of Vandekerckhove et al. (2020) and Vial et al. (2022), by extending beyond the scope of each to including computer science repositories, the research potentially benefits from academic perspectives with more of a computer science background.

Second, the review's use of PRISMA Protocol and Checklist and Cochrane guidance helps ensure methodological rigour, transparency, and reproducibility. A clearly systematic approach was taken and justified at each step of the way. However, the review was not pre-registered which would have further supported a reduction in bias and an increase in transparency.

Finally, the steps in support of triangulation strengthened the research rigor: the employment of directed content analysis, benchmarking against similar reviews, and contextualisation of codes not just within the data but within action research literature, make it an easier document to address and access.

Method

Introduction

DeLong 2004 writes that “capturing knowledge developed in practice by specialised professionals and experts has always been very difficult” (DeLong, 2004, p.136). In seeking to create a dummy prototype and a design guideline based on the process of making that prototype, the capturing of this sort of knowledge, tacit knowledge, is central to the process. DeLong was concerned with what he described as the threat presented by an ageing workforce and the industries reliant on their knowledge and experience. The contention was that over a lifetime of practice, a “tremendous amount of knowledge” is accrued and then lost through retirement, and especially tacit knowledge that is often “so intangible and complex” and thusly difficulty to capture and share (DeLong, 2004, pp. 3-4).

Whilst not seeking to capture the knowledge of an ageing workforce for transference to their younger colleagues, much of this research project seeks an equally difficult process of capturing the knowledge also developed and acquired over time that is required for complex clinical tasks, and to assess what aspects might be supported by AI software functions. Michael Polanyi, who coined the term tacit knowledge, puts it best when he says “*we know more than we can tell*” (Polanyi, 2009, p. 4). Tacit knowledge is particularly important in clinical contexts where subjective experience, personal technique, clinical judgement, and attitude come together into individual practice (Berg, 2008; Reinders, 2010; Stiles, 1995).

This chapter delineates the epistemological position and methodological framework by which this complex process was attempted. The literature review set the stage for the use of an action research approach informed by co-design principles; in order to determine the form of the approach, this chapter will begin by outlining the epistemology of the research whole. Here, John Law’s contention that methodologies don’t just describe realities, but impact them, will be explored with a particular focus on relational and constructed knowledge

in relation to the findings of the literature review and the current research context (Law, 2010).

In closing out the epistemology, the Actor-Network Theory will be addressed in terms of its focus on the construction of knowledge through relational networks. This position rebuffs any overarching theory of knowledge or understanding, or indeed the potential that knowledge is some fixed entity to be discovered; it offers instead the possibility of arriving at a *knowledge* situated in context and relationship (Law, 2010).

This epistemological position that “science produces its realities as well as describing them” aligns with Bradbury’s assertion that “action research is a pragmatic co-creation of knowing with, not about, people”, that it is subjective and relational enterprise of co-creation (Bradbury, 2015a, p. 1; Law, 2010, p. 13). The chapter goes on to explore the above parallel in introducing a pragmatist research design approach that incorporates the constructivist epistemological stance of ANT, which centres non-human actors, with ethnography and Participatory Action Research that both centre the human experience. Ultimately, Ethnographic Action Research will be identified as the methodological vehicle for the research, with ANT providing a framework to help “overcome the a priori division of the social and the technical” in supporting a relational co-constructed process (Øien, 2023, p. 166).

The procedure of the research will then be presented with a specific detailing of the Action Research Spiral that will guide a series of workshops and feedback activities around which the research body sits. Here, the chapter will delve into the roles of each of the research participants and entities, including that of the author, which will include a discussion of recursive reflexivity and the author's embeddedness in the research. In detailing the implementation of the methodological approach, practical and ethical considerations of moving away from experts with ‘power over’ others for example through expert knowledge to supporting participant ‘power within’ the research process, which are foundational concepts in Action Research, will be explored. This will focus the research project and help ensure that its output was a result of the people most impacted by its potential, i.e. service users,

practitioners, supervisors, commissioners, and software designers (Gaventa & Cornwall, 2006).

The chapter goes on to outline the sampling method for obtaining stakeholders' input and the qualitative and quantitative measures that will be employed to address a wealth of participant data from workshops, interviews, questionnaires, focus groups, and journals. The analytic approach is detailed with an overview of the thematic analysis approach. The chapter concludes with a detailed discussion of ethical considerations that address trauma-informed practices as well as the potential dissemination avenues.

Epistemological position

In his book *After Method*, John Law states that often investigations which seek to decipher reality do not only describe, but shape, that which is under investigation. That, "in one way or another" the process of investigation will "always make a difference" to that being investigated i.e., the process of seeking knowledge influences that which is subsequently known (Law, 2004, p. 7). For Law, the engagement of a method in understanding a phenomenon creates a reality, and that indeed other realities may have or might yet exist if "the apparatus of reality-production had been very slightly different" (Law, 2004, p. 34). He takes the position that in accepting one cannot disengage this relationship, then one should embrace the entanglement and focus on how to "make good differences" based on the methodological and intentional position (Law, 2004, p. 7). Law proposes that knowledge is produced in the following ways which illuminate the entanglement:

Knowledge is *constructed* through practices and beliefs, for example, by a group of clinicians about their work, contained within a specific historical, cultural, and institutional context. This construction is active and for Law, it is "wrong to imagine that nature somehow impresses its reality directly on those who study it if they just set aside their own biases", instead there is a complex interplay of affecting factors that include everything from what is in the minds of the researchers to the tools used to study (Law, 2004, p. 19). Looking back to

the literature review this aligns with the epistemological position of participatory design approaches as informed by action research (Frauenberger et al., 2018; Moltu, 2008; and Zamenopoulos & Alexiou, 2018). as well as the position of (Bradbury (2015) mentioned above.

Knowledge is *relational*, for Law, reality itself is composed of sets of relations, the process of science seeks to “make relations” and in doing so the sciences “also make realities” (Law, 2004, p. 29). A phenomenon cannot be understood in a vacuum, building on the above, Law proposes that we “need to think hard about our relations with whatever it is we know, and ask how far the process of knowing it also brings it into being” e.g., internal biases or institutional context (Law, 2004, p. 3).

Importantly, if creating knowledge is a relational activity, then careful attention should be paid to the tools through which *knowledge* is brought into being. This process is referred to as ‘method assemblage’ and includes attending to factors impacting all aspects of methodologies, including that which might be “tacit, unclear, and impure”, e.g., lived experience, biases, culture, context (Law, 2004, p. 42). An important idea is that when thinking about knowledge and relation it is important to note that “what is being made and gathered is in a mediated relation with whatever is absent, manifesting a part while Othering most of it”, that is to say, just because something does not make it into the investigation, it does not make it unrelated, and indeed its absence may make the relationship starker through Othering (Law, 2004, p. 146).

The implication for the methods at hand is a recognition that they are not neutral, and as such, methodological transparency is paramount for the reader to address validity or simply track the theoretical underpinning in order to consider alternatives. Mechanisms for shared learning, reflection, and reflexivity help to support participants (including the reader) to consider biases, assumptions, and values that have shaped the research process. Later in the chapter, Gaventa and Cornwall’s (2006) ‘*Dimensions of participatory research*’ and

Kemmis & McTaggart's (2007) '*Action Research Spiral*' give practical frameworks for how this was achieved (Gaventa and Cornwall, 2006; Kemmis & McTaggart, 2007).

A Pragmatic Approach and Actor-Network Theory (ANT)

Law's conceptualisation of knowledge and reality builds on the work of Michel Callon, Madeleine Akrich, and Bruno Latour, who developed Actor-Network Theory. (Law, 2010). The Actor-Network Theory propose that knowledge and reality itself are *constructed* through interdependent and interconnected relational *networks* between various actors (Callon, 2007). Ontological categories like society or technology, or indeed clinician or patient, are understood to be resultant of these actor-networks, the occupants of which can take any form from a human actor to a machine or software, to a micro-organism: anything at all provided it is able to impact on the world.

Rather than providing an overarching theory of understanding, which it inherently rebuffs, ANT offers an approach to "sociotechnical analysis" that supports a "sensitivity to materiality, relationality, and process" (Law, 2010, p. 157). Law states that "the distinction between truths and other goods is at best pragmatic. All sorts of [method] assemblages resonate to produce truths in one way or another" (Law, 2010, p. 154). The implication is a focus on "procedural issues... about which *goods* to build into particular studies and in which forms", here Law refers to a need to "enact particular commitments" for example to "truth, or elegance, or politics" within a particular investigation that at the very least allow for transparency and in a sense accountability about what is being presented as *good* (Law, 2010, p. 154). This is essentially what takes place in the introduction of a thesis as the writer justifies the thesis aims, but here Law seeks to encourage a more conscious and transparent exercise.

Action research is based on the "fundamental pragmatism about what can and must be done", about what is *good*, which needs to be determined in conversation with "the people who actually face the problems or opportunities in question" (Pedler & Burgoyne, 2015, p.

179). The procedure therefore becomes one of how to work with others as it “is never possible or desirable to justify action research solely as offering solutions to currently perceived problems, it is essential to establish that such practical benefits are bound up with the ethical project in engaging with people in the enhancement of their lives”, a way to discern what is *good* and why, in practical terms this is achieved for example through research information sheers that state what benefit might exist from the research and through participants engagement in the research, a key component of research ethics (Reason & Canney, 2015, p.557 & 558).

To achieve this, action research enacts a “political action, replacing methodological individualism with a collaborative epistemology”, this means “moving from a vision of research as mapping to one of world making, and the priority of pragmatics in evaluating research outcomes over vindicating theory” (Gergen & Gergen, 2015, p. 401). When making that world, ANT and indeed action research pay attention to not just individuals but to systems - including technological systems (Burns, 2015; Lau, 1997; Law, 2010; Moltu, 2008). It follows logically that to identify the inhabitants of a given world is to understand and indeed identify the relationships within, and, from here, to identify the problems and opportunities that are the focus of the intervention.

That is the core of the epistemological foundation of ANT and action research, which this research is also seeking to make clear and enshrine. This is where the power and tension lie. In returning the literature review it aligns well with the quote from Zamenopoulos and Alexiou (2018) when asking key questions of co-design: “*Who* is engaged, *How* and *Why?*”, they state that “co-design has a duty to facilitate polyphony and agonism between adversaries that would lead to diverse knowledge and possibly a variety of different actions. To reach these ends, they first point to democratisation and empowerment, stating that “co-design is a mechanism for empowering people, namely a mechanism for taking control over their own futures by developing their own ideas, knowledge and skills to respond to a given situation” (Zamenopoulos & Alexiou, 2018, p. 23).

Collaboration and stakeholder engagement were key qualities of the studies addressed for the literature review, as was an iterative approach which often entailed both action and reflection not only on the product or output but the research whole. The contention is that this research was able to draw on these key aspects of co-design and action research methodologies to enact the epistemology of Actor-Network Theory and participatory action research. Before the chapter addresses the specific methodologies that were employed, it is important to turn to the complexities of capturing the types of knowledge central to this domain of professional practice, namely tacit knowledge.

Capturing Tacit Knowledge

As well as the above, ANT also helps to frame *tacit knowledge* as an area of focus. It allows researchers to address how “the tacit knowledge of the various communities of practice out of which large sociotechnical networks are constructed is articulated in the course of routine organisational operations”, e.g., within the NHS (Kagan & Bowker, 2001). Addressing tacit knowledge is crucial in understanding organisational operations because it focuses on actors’ conceptualisations of their role within that organisation, regardless of it being informed by knowledge gained within or without the organisation (Kagan and Bowker, 2001). As noted, tacit knowledge is ambiguous, often unspoken, and may be inaccessible to managers, policy makers, commissioners, or indeed theorists. Given its impact on organisational operations, it is a clear area of focus for sociotechnical research such as this present research (Kagan & Bowker, 2001; Law, 2004).

The constructivist epistemological position outlined above lends this research a philosophical foundation wherein what is known and what is real is understood to be a result of complex relationship networks inhabited by various actors. As an approach to sociotechnical analysis, ANT has been used by health researchers as a way of reconciling the tension between “technicist” and “social” views of health interventions (Bilodeau & Potvin, 2016; Troshani & Wickramasinghe, 2014), as a framework for (re)considering patient experience (Desai et al., 2017; Schladen et al., 2021), or as a way of evaluating the

implementation of IT or e-Health (Cresswell et al., 2010; Heinsch et al., 2021; Troshani & Wickramasinghe, 2014). It is understandable how a lens which focuses on materiality, relationality, and process would be useful to the researchers above, and it is certainly relevant in the current context; however, as this research seeks to implement it, it must move beyond theory, or indeed, analysis, to application. To this end, ANT and action research combined have been successfully employed in both organisational settings (Moltu, 2008), importantly in addressing information and computer technology (ITC) contexts (Tacchi, 2015) adding pragmatic applicability to what might otherwise be a theory laden enterprise.

Bringing all the above together, a pragmatic epistemological position, which is a commonly used approach in health social care research, will be employed (Allemang et al., 2022; Dolan et al., 2022; Kaushik & Walsh, 2019). It will be rooted in DeLong's emphasis on the challenge of capturing tacit knowledge from specialised professionals and ANT's "sensitivity to materiality, relationality, and process" (Law, 2004, p. 157). ANT will frame these complex interrelated systems, recognising both human actors (e.g. CBTp practitioners, service users, supervisors) and non-human actors (e.g. software, artificial intelligence, clinical guidelines), that come together to construct reality and, in so doing, construct the knowledge and data this research seeks to extract and apply.

Methodological Approach

Pragmatism allowed the research to keep the constructivist elements of ANT as well as a focus on tacit knowledge outlined above and incorporate action research methodological apparatus that support action and contextualisation (Creswell, 2009). A criticism of ANT is that it is overly descriptive and lacks details on how it should be applied, Creswell et al. (2010) advise that ANT be "used pragmatically with an appreciation of its shortcomings" and "may be best used in a combination with other theoretic approaches" (Creswell et al., 2010, p. 1 & 6). In line with Law in rebuffing the idea of ANT being a theory, Callon states that it is in its not being a bounded theory that gives it its "strength and

adaptability” (Callon, 2007, p. 284). Participatory Action Research and Ethnography are two approaches that, when brought together in Ethnographic Action Research, offer a tried and tested methodological approach grounded in ANT principles to focus on tacit knowledge which as noted has been applied in an ICT context (Øien, 2023; Pan, 2021; Pink et al., 2016; Tacchi, 2015; Tacchi et al., 2003).

Ethnography

This study used elements of ethnographic theory and practice to explore the *how* and *why* of practitioners' work to identify what aspects might be served through the development of AI driven software applications (Hughes et al., 1995; Sharp et al., 2016). Ethnography seeks to examine and describe a phenomenon in context by exploring “crucial aspects” of the world within which the work takes place (Hughes et al., 1995, p. 58). Due to the multifaceted reality within which CBTp takes place, Ethnography being nested within the philosophical underpinnings of ANT will help ensure that as many actors as possible were identified and encouraged an addressing of potentially complex relationships between actors as well as the knowledge and realities they create, which influences the ‘*how*’ and ‘*why*’ of practitioners’ work.

The uncovering of this tacit knowledge is a key feature of ethnography which is also used to explore knowledge and practice in health research settings for example looking at how tacit knowledge influences individual decisions within A&E (Brummell et al., 2016), decisions across teams (Quinlan, 2009), or decisions in cancer research (Mnasri & Jovic, 2023).

In returning to the literature review, whilst it was noted that many of the studies were not explicit about the underlying methodological underpinnings, some studies explicitly employed ethnographic principles. Aryana and Brewster (2020) employed auto-ethnography as a tool to research participants to “gain profound understanding of the self and others... consider systemic relationships, [and]...identify solutions to problems” that were then used to

inform app design requirements (Aryana & Brewster, 2020, pp. 1211 & 1212). Barry et al. (2017) referenced ethnography in terms of it being able to illuminate not just “scientific and technical ‘know how’” but also the “form of knowledge...understood as the wisdom or practical judgement acquired through contextual experience”, what might otherwise be described as tacit knowledge (Barry et al., 2017, p. 2709). Returning to the identification of problems, which again the literature review identified as a key consideration in the category ‘Co-generating learning/knowledge sharing’, Hardy et al. (2018) spoke of employing ethnography to identify problems as part of the “discovery phase” of their research using observational exercises where designers learnt from observing sessions in order to bring them closer to “problem contexts” (Hardy et al., 2018, p. 3).

Addressing other categories within the literature review, ‘lived experience’ sits at the very centre of ethnography with its focus on natural settings, participant observation and reflection, immersive fieldwork, and reflexivity (Atkinson et al., 2014). In dealing with the tension between emic (insider’s perspective) and etic (outsider’s perspective) approaches within ethnography, it encourages the researcher to consider many aspects related to stakeholder engagement considerations in terms of the relevance of stakeholder perspectives (Keating, 2014), including perspectives within systems and systemic design (Murphy, 2018).

Ethnography is also concerned with considerations of power and power imbalances in similar ways to those that came up in the literature review. Power is understood to be central to “knowledge” and, importantly, “representation”; tensions here relate to the power of setting the agenda or to put it another way “who has the right to interpret another’s reality, to define what should or should not be excluded” within a research process (Murphy & Dingwall, 2014, p. 345). These concerns led to the “growing enthusiasm for auto-ethnography” which sought to centre the researched and researchers in tension and interaction, out of which valuable data may be gained provided “researchers...take responsibility for the interpretative processes they engage in” and in doing to take

responsibility for the ultimate power that comes with interpretation of data (Murphy & Dingwall, 2014, p. 346). This also speaks to some of the cautions within ANT and the inevitability of bias within the method assemblage and the impact on data and other outputs raised at the start of this chapter.

What is also important to note is that traditionally when ethnographers speak of immersive fieldwork they consistently refer to it in terms of immersion by researchers in the participants' context, and this is the case for the above as it is understood of course that people are already immersed in their lives so it follows that it's the ethnographers who need to become immersed, later in the chapter other forms of immersion will be addressed. A criticism of the ethnographic approach is power imbalance inherent in the "by demonstrating ways in which participant observer is an unequal power relationship", in recent years ethnography took what is described as a "reflexive turn" and auto-ethnography and the centring of power are some examples of this resolution (Venkatesh, 2013, p. 4). This idea of a reflexive turn inwards to address power, relationship will also be returned to later in the chapter.

Participatory Action Research

Participatory Action Research (PAR) is "increasingly used in health research" due to a push in recent years for empowerment and inclusion of service users and a centring of their experience that has been found to support efficient and effective innovation (Baum et al., 2006, p. 854). As described in the literature review, co-design and other participatory approaches either implicitly or explicitly contain many of the principles of action research. PAR is about doing research with participants and not *on them*. PAR requires that participants are present in all aspects of the research process, and the process itself should be co-designed, monitored and, if needed, adapted as the process unfolds (Baum et al., 2006; McIntyre, 2008). What is important to note is that due to the cyclical nature of action research, analysis is ongoing as part of the action research process. As the research draws to a close, formative evaluation that spirals throughout the process will become summative

as the researcher takes an overview to draw together data from the whole research into design guidelines (Coghlan & Brydon-Miller, 2014, p. 239).

In the literature review, whilst authors like Terp et al. (2016 & 2017), Brown et al. (2020), Biernesser et al. (2023), Barry et al. (2017) indicated that action research principles influenced participatory approaches, for others, action research played a more direct role in the methodological approach. For Sigurðardóttir et al. (2022), they employed action research to underpin the entire co-design process drawing key principles related to “researcher-client agreement”, “theory and theory development”, “change through action”, and “learning through reflection” (Sigurodardóttir et al., 2022, p. 43). For Severes et al. (2024) action research’s combination of “systematic collaboration with scientific inquiry to produce tangible results” was central to their approach and encouraged actions “grounded in the challenges individuals face in their daily life” (Severes et al., 2024, p. 4). For this research this positioning supported the process of identifying which *goods* this research would focus on.

Rizia et al. (2015) synthesised participatory action research and in particular “where users take part in the development of a product” to create a “collaborative process” where designers and users worked side by side in activities including design sketching and “choosing items for system elements” i.e., shaping what is *good* (Rizia et al., 2015, pp. 3 & 4). Aryana & Brewster (2020) focus on the role of the action researcher who “is also a practitioner...designer, and an ethnographer”. They note that in using this approach they were “able to examine the design process as observers engaged in the process”, this was encouraging for this research given that as well as designing a software application, participants were also reflecting on the design process to create their design guidelines (Aryana & Brewster, 2020, p. 1210).

Ethnographic Action Research

Ethnography supports an in-depth understanding of a phenomenon that is rooted in context and culture; the insights and ideas of the researchers are eschewed where possible so that the locally present ones might emerge. Action research supports this process through paying attention to and working with power, relationship, and other participatory principles as insights and ideas are turned into actions which in turn bring forth yet more insights and idea in repeating cycles towards a project outcome (Øien, 2023; Pink et al., 2016; Tacchi, 2015; Tacchi et al., 2003).

Whilst novel in health research, the Ethnographic Action Research (EAR) has a lineage going back two decades in Information and Computer Technology for Development (ICT4D) research (Slater et al., 2002; Tacchi et al., 2003). The benefit of EAR when devising guidelines for the development of AI driven software to support CBTp practitioners personally and with their often-complex caseloads is that it pays attention to the wider framework within which the research sits by attending to the “formal and informal...[the] technical and social” aspects of the phenomena to understand “opportunities and barriers” (Tacchi, 2015, p. 220).

Further, both components of the approach are committed to addressing and unpicking cultural differences, whilst promoting the welfare of the groups they work with which is ideal in the current research setting where cultural and idiosyncratic sensitivity is required for a nuanced understanding of the ethics and practices required when addressing psychosis with or on behalf of relevant stakeholders (Eisenhart, 2019; Jarvis et al., 2020). This is one of the core strengths of EAR, its capturing of data that can be missed as a result of traditional approaches, which “tended to focus on predetermined indicators of change”; EAR instead focuses on the more nuanced phenomena by centring shared understandings embedded “within broader social structures and relationships” (Tacchi, 2015, p. 222).

Participatory research that is underpinned by ANT has been used in various relevant contexts for example public health (Clavier et al., 2012), the adoption of digital tools (de la

Harpe, 2014; Piovesan, 2022) and indeed one piece of recent research employed both EAR and ANT to address knowledge production between academia and health practices in support of the delivery of a project on lighting in a low-vision rehabilitation centre (Øien, 2023).

Who is immersed in what?

A key aspect of ethnography is the application of a "range of key methods or 'tools' used by EAR researchers to uncover and explore different kinds of knowledge" (Tacchi, 2015, p. 224). These tools include:

- **Participatory techniques:** methods like mapping and sequencing help research quickly gather data supporting understandings of the research context. Maps and sequences may be returned to throughout the project to explore topics, test ideas and insights gained along the way, and ultimately to build knowledge consensus.
- **Observation and field notes:** this involves researchers recording their observations, both what they see and their own reactions.
- **In-depth interviews:** detailed, guided conversation with stakeholders, consistency between interviews based on a set list of topics.
- **Questionnaires and surveys:** short questionnaires and surveys allow researchers to gain information from larger numbers of people, including quantitative information.
- **Self-documentation and feedback mechanisms:** a variety of stakeholders' views and perspectives should be addressed on a range of relevant issues. Various methods to log reflections should be employed.

(Tacchi, 2015, pp. 224 & 225)

Whilst EAR was developed for ICT4D it is what it is was responding to that demonstrates its usefulness in designing software for mental health context. EAR was

developed in response to the belief that development is best understood in terms of technological development, and the measuring of development using quantitative metrics was the ideal way to assess development progress. EAR was seen as an antidote to measurement frameworks that at the time that paid little attention to the richer experience of individuals and groups in their day to day use of ICTs (Slater, 2013; Tacchi, 2015).

EAR moves beyond simply measuring the uptake or impact of a media or technology as proof of technological development. Instead, through inviting the stories of how people employ said technologies, the culture of usage, it is possible answer potentially more important questions like “what kinds of maps, connections, mobilities, could people enact” as part of their development agenda? (Slater, 2013, p. 24). This richer way of conceptualising development questions offers more in terms of development potential but only if the participants are recognised for the considered and expert operation of their technologies than they traditional quantifying frameworks have given “credit for” (Slater, 2013, p. 25).

For Tacchi (2015), there is a similar focus on addressing how individuals utilise technologies, for example, how communication technologies might be employed depending on the theme of that being communicated, or to accomplish certain technology-dependent communicative tasks. By considering along these lines it is possible to build a picture of “which channels and flows are used and why” and from here in understanding the technological ecologies one can begin to envisage “other possible uses [and] where there are [other] opportunities and barriers” (Tacchi, 2015, pp. 220 & 221).

This move beyond quantitative metrics to an emphasis on holism, ecologies and cultures of action, relationships, and networks, requires a depth of immersion and understanding to ascertain this information makes clear the need for what EAR theorists call a “research culture” to be created within the research process (Bath, 2009, p. 219; Raiden & Manu, 2024, p. 239; Slater et al., 2002, p. 53; Tacchi, 2015, p. 225). The result is the immersion of participants within the research as researchers influencing, or indeed leading on, research aspects including “interpretation and representation of key concepts” (Bath,

2009, p. 220). It encourages the wider institution within which the research takes place to see itself as a research operation (Slater et al., 2002) and encourages participants to understand themselves as reflective practitioners able to contextualise their work and tools in relationship with self and others providing rich data in the process through responsibility for research administration practices like journaling, observations and recording, or field note taking (Raiden & Manu, 2024; Tacchi, 2015). A key aspect of action research that supports immersion is the requirement that participants are included in the planning of the research process (Pink et al., 2016; Raiden & Manu, 2024; Tacchi, 2015).

It is clear to see how the EAR further supports the reflexive turn within ethnography through the processes above that invite participants in to shape the research process. In this research also, the enactment of a research culture with its focus on immersion had the added benefit of deepening participants reflection on the process itself and provided rich data that was used to inform the design guidelines. The employment of the various tools and positions used to uncover and explore different kinds of knowledge in aid of immersion that were noted at the outset of this section and will be returned to later in the chapter.

For the lead researcher also, whilst a background in delivering CBTp was the genesis of the research, at the time of research they were no longer embedded in the discipline - a fuller detailing of the project genesis appears later in the chapter. In embedding alongside fellow participant researchers, EAR's reflexive processes invited the lead researcher to draw upon their experiences of delivering CBTp throughout. Further, in returning to Law's contention that methodology impacts the reality, the approach outlined below in inviting participant researchers to shape the methodological process encourages a level of reflexivity wherein the impact on the methodological approach if made explicit can be harnessed in pursuance of the development of the design guidelines.

Power and EAR

Power as a key consideration is not lost in the synthesis of action research and ethnography. For Øien (2023), power was wrapped up in the relational dynamic between the researcher and other stakeholders and she argues “that the power of knowledge productions is shared and distributed”, and that actors and networks are best understood in relationship so follows that researchers should “anchor the project to different fields of both research and practice” (Øien, 2023, p. 13). For Tacchi et al. (2003), considerations of power need to be made concrete for example by looking at “particular meanings of empowerment” (Tacchi et al., 2003, p. 10). What this means in relation to this research context will be answered in the next section.

Study Design and Procedure***Recursive Reflexivity***

Before beginning this section of the chapter, it is important to note that it will be written in the first person. The reason here is that I am very much foregrounding my role as a participant in the research.

If I return to Law’s (2004) method assemblage and include myself as being part of that assemblage, “tacit... [and] unclear”; I drew upon two complementary threads in support of bringing explicitness to my part in the assemblage, that of facilitating my own and other’s process and learning (Law, 2004, p. 42). This was further informed by my learning at master’s level from my thesis supervisor, who wrote of and encouraged me to reflect on and be explicit about the values that I bring to my practice. These might play out in dialectic with those I work with as a facilitator, where I seek both to facilitate my agenda whilst also supporting their agenda on a given project (Laidlaw, 1994). Or recognising my work as an extension of my wider “living theory”, my lifelong project, the embodiment of my values in action, my process, but a process that takes form and grows in contact and relationship with others as part of a “social activity” (Laidlaw, 2015, p. 47).

Central to action research is the process of reflection and reflexivity (Brydon-Miller et al., 2015; Coghlan & Brydon-Miller, 2014; Gonnerman et al., 2015; Ripamonti et al., 2016). This is because action research is very much focused on power and social change, which require both critical (Aragón & Castillo-Burguete, 2015; Coghlan & Brydon-Miller, 2014; Kemmis, 2013; Kemmis et al., 2015) and ethical (Brydon-Miller et al., 2015; Coghlan & Brydon-Miller, 2014; Gelling & Munn-Giddings, 2011) reflection and reflexivity. I found that Brydon et al.'s (2015) framework for 'Structured Ethical Reflection' (Appendix 4) was instrumental in helping me make my values and assumptions, those often-unclear tacit factors, clear, and make them clear to me most importantly of all in relation to each stage of the research process (as denoted by the columns).

The SER was a challenging but ultimately rewarding process. Appendix 4 shows the breadth of reflection on values and related assumptions encouraged by the framework; it encourages both a "reflection-in-action" and "reflection-on-action" (Yoo et al., 2020, p. 420). A few stand out as being key inflexion points for me in framing this research, for example the focus on developing partnerships was very helpful for me, I understood stakeholders as being potential partners and the different Values supported me consider each from their perspectives, for example considering Joyfulness and a responsibility to present and enjoyable proposition. Here I reflected on being fun and opportunities for humour, without this process this may have been missed and research shows that humour is a useful tool when working on potentially sensitive topics or where power imbalances may be at play (Browne, 2016; Robinson, 2009; Wilkinson et al., 2007).

Brydon-Miller et al. (2015) encourage a key way of framing reflections on each value at each stage thusly: "as a researcher I am..." (Brydon-Miller et al., 2015, p. 604). I found it helpful also to consider what the entirety of the value framework tells me about myself as a researcher in this project; the answer for me is that, as a researcher, I am a reflexive practitioner. I work in community and dialogue with my work and participants. To do so, I cannot but ensure as much as I can that participants are present in all aspects of the

research. There is a circularity to action research here: my values draw me to action research, and being exposed to action research shapes my values. The implications of this for the research project are clear, but again, a return to Law and others reassure that one cannot help but be shaped by the approach, and that lack of reflection or transparency on one's practice is where the pitfalls lie (Adelman, 1993; Brydon-Miller et al., 2015; Coghlan & Brydon-Miller, 2014; Laidlaw, 1994; Lewin, 1946; Schön, 2016; Yoo et al., 2013). As noted above; in taking this approach and being explicit in reflecting alongside participant researchers I am also able to explicitly feed into the aim of creating guidelines for future use.

Project Genesis

This chapter is intended to equip the reader with everything they should know in order to replicate the study. There is a level of recursive reflexivity that benefits from making the subjective explicit, what Coleman (2015) terms “knowing-in-process”; to help the reader replicate it, I need to detail the “unfolding experience” that is “central to...action research” (Coleman, 2015, p. 394). The research concept is deeply rooted in my personal and professional journey. A core value threaded throughout my life is the transformative power of conscientisation, of praxis that comes from “reflection and action upon the world in order to transform it” (Freire, 2000, p. 51), what would later find expression in reflective practice, my learning about being able to develop my practice and in doing so, wishing to support individuals to develop their critical thinking skills, which they can use to chart their own path through life.

I spent most of my career in youth work and working with at-risk young people in educational settings, or working in mainstream educational settings, teaching development education. I have also worked with marginalised adult entrepreneurs seeking to develop their business ideas through personal development. In all of these settings, as well as theorists like Freire (2000), I drew on my learning of key psychology theorists like Bandura who proposed that people's perception of their capacity what a crucial factor in the ability to “persevere in the face of adversity”, that the primary way to build people's perception is

“through mastery experiences”, those experiences wherein someone succeeds in a wanted goal through their own learnt capacity and efforts, or through observing people they see as similar in capacity to them succeeding through sustained effort, what is known as “vicarious experiences” (Bandura, 1997, p. 2 & 3).

Similarly, Lev Vygotsky also emphasised the social component of learning and proposed the Zone of Proximal Development (ZPD) (Abtahi, 2014, 2018; Abtahi et al., 2017). This guided my efforts around the importance of creating learning environments that scaffold an individual's learning in a way that takes into account their learning needs. My role in this research as the more knowledgeable other (MKO) is an important one in supporting someone towards mastery whilst remaining within their ZPD, where development is most efficient. However, building on the work of Vygotsky, Tudge (2004) cautions against the primacy of ZPD and the MKO stating that whilst both are valuable, the learner's active role in terms of their motivation and their reflections on their practice takes place in a social world such that “competence or understanding is thus simultaneously entirely individual and entirely social” (Tudge, 2004, p. 198). In practice this requires a process of group engagement as well as self-directed exploration and reflection which will be explored later in this chapter when detailing research activities. Social learning theory, including recognising people's inherent motivations as to what might compel them to engage, matches closely with action research and ANT principles mentioned earlier in this chapter.

Whilst the above demonstrates how early professional and learning experiences align with action research and ANT in terms of methodological approach for this research, the inception of this particular idea of using AI to support CBTp practitioners was when I first used Chat-GPT in 2023, whilst studying clinical psychology. I had an aha moment and thought that it would be a potentially valuable tool in supporting CBTp practitioners - like myself at the time - to deliver and develop their work and practice effectively. It could be an assistant psychologist, supervisor, and administrative support all in one place.

This research was about seeing if others agree and what might come from exploring the idea. Rather than developing an application and seeing if others thought it was valuable, I decided to go back a step and see first if they felt the very idea of using AI was worthwhile. If they did, then they would be invited to form a working group and come together to develop an application and, in doing so, gather experiences and insights from which a guideline for other designers partaking in similar pursuits would be created. In a further level of recursivity and to aid validity, other stakeholders were then invited to address and feedback on the output of the working group. Put simply, it looked like this:

My Idea → Their Idea (Working Group) → Others' Appraisal (Stakeholder feedback)

→ Synthesis of research body (Researcher) → Final Product (Publication for reader appraisal and reflection)

The concept of recursive reflexivity has been helpful for me to understand the complete body of work. This was my initial idea, which came about as part of a process of action and reflection. Then, to explore the concept further, a group was formed to act, reflect, and create. Following this, feedback group(s) were identified/formed to reflect on the creation of the initial working group. It is recursive because at each point of reflection, there is a return to the initial idea that AI might be beneficial in support of clinicians. Finally, the genuine engagement of participants as researchers, who themselves are engaged in processes of recursive reflexivity in terms of their practice and considering the app in relation to their work, and as participants engaged in a research process that requires their input and reflection on the process itself, gives a further research output (guidelines). As a whole the process seeks to meet Vial et al.'s (2022) proposition that when seeking to "improve and evolve [an] initial idea" participants are invited to "transform this idea in a meaningful way" (Vial et al., 2022, p. 4).

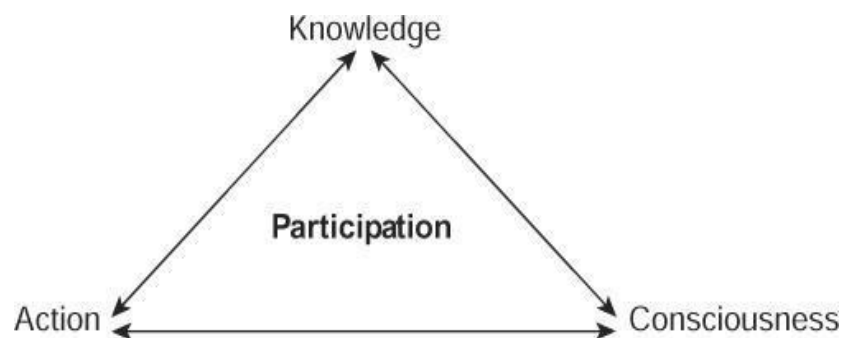
At the end, two products (the app and guidelines) may continue the process of recursion by way of the research project write-up being taken up and reflected on academically, or the guidelines being acted on within the design industry. The initial idea sits at the beginning of a much larger process, within which far more perspectives, inputs and insights, and ultimately actions, are needed to explore it.

Power and action

As evidenced by the SER, the aim for power to be deliberately shared between the researcher and the researched was a key consideration for me from the outset. Gaventa and Cornwall (2006) offer a much-cited framework for addressing power in relation to participations (Bradbury, 2015; Coghlan & Brydon-Miller, 2014a). Figure 2 details the three dimensions of participatory research: Knowledge, Consciousness, and Action.

Figure 2

'Dimensions of participatory research'



From Gaventa, J., & Cornwall, A. (2006). Challenging the Boundaries of the Possible: Participation, Knowledge and Power. *IDS Bulletin*, 37(6), p.125.

I held these interrelated aspects of the approach where knowledge, action, and consciousness are contingent upon each other in mind for research participation. As noted, in practice, this meant that participants were invited to form a working group with the

researcher and to shape all aspects of the research process, and wider stakeholder groups were formed to give feedback on the research output. Gaventa & Cornwall (2006) encouraged me to move from 'power over' to supporting participants' 'power within' the research process (Gaventa & Cornwall, 2006, p. 123). Returning to Baum et al. (2006), they note that for participatory research to be effectively engaged it is necessary "for power to be deliberately shared between the researcher and the researched" and in doing so there is a blurring of "the line between them until the researched become the researchers" (Baum et al., 2006, p. 854). A key step from the outset of the research was to detail the methodological approach and make clear what role participants might take in participating.

Research framing

Detailing the methodological approach and the implications for participants, key points in explaining action research to the Working Group:

- Action Research = Participants are very much invited and encouraged to shape the research process, here I'm sharing those aspects of the principles of action research that empower participants - giving them the authority they might need to press for change: "I really want us to work together. We might decide, 'Hey, let's never have another session again.' We can do the rest of this through emails", - power within the research process, and an invitation to completely change the approach (Hayden).
- Ethnographic = In explaining ethnography and centring tacit knowledge, I state, "This is an approach to research that requires a deep exploration of the cultural and social context. So, we wanted to get really into the nuts and bolts of the culture of the NHS, the culture of EIP. What does it actually mean?... What are the values that would be shared by people who are in that world?... We really value your guys' knowledge as the people who are doing this every day" (Hayden). Here I am legitimising their knowledge and expertise and

demonstrating the types of insider knowledge that a researcher often cannot have, again bolstering their power within the research.

- Transparency = another point early on was honesty about my having a “fantasy” of the app we would build, that of course the research came from an initial idea, but regardless the research process would be such that participants can take that idea whatever direction they see fit, in speaking with participants in the first session when answering what the app might look like I respond that it is “in your hands to decide” (Hayden). This was an unequivocal and strong statement to the group, letting them know that the outputs of this research would be shaped by them. In being transparent in my thinking and reflections, I was also seeking to model action research reflection and reflexivity. Here I am also enacting the broadening of the conceptualisation of EAR discussed earlier in the chapter in terms of immersion in the research process.

Whilst Action research generally encourages reflecting on and finding ways to balance power in pursuit of authentic participation, this principle needs to be taken seriously within the research process by empowering participants to own engage in and take ownership of the research process, it encourages immersion from where participant researchers were then able to reflect on the research process in support of creating their Design Guidelines (Gaventa & Cornwall, 2006).

Drawing upon the co-design principle of ‘nothing about us without us’, the fuller participation of participants was supported through my seeking to facilitate participant learning about relevant aspects of application design and AI potential in a way that was understandable to a ‘layperson’, such that they could engage in the research and co-design process (Bell et al, 2023). Participants were invited to journal and share their work experiences and reflections to not only provide knowledge of the practice of CBTp, but also to help bring into consciousness aspects of their work and experiences that might otherwise

have gone unnoticed. Within sessions, participants were encouraged to reflect on what key themes or ideas were becoming apparent to them. This forms part of the formative evaluation that was referred to above when detailing participatory action research, with participants invited to log and informally analyse their work. Later the practical implication in shaping the research as it was underway will be detailed.

Participants

Working group

Purposive sampling was employed inviting participants from Essex Partnership University Trust. Participants were required to be currently practicing CBTp with clients experiencing a first episode of psychosis. Potential participants were identified with support from EPUT administration staff based upon knowledge of their being CBTp practitioners. Emails containing a research flyer, information sheet, and consent form were sent to potential participants by EPUT administration staff (see Appendices 5, 6, & 7).

In Action Research the number of participants varies depending on context, in this instance addressing context and knowledge specific phenomena “it is not uncommon to have a sample size of one to four individuals”, three participants were recruited for the working group and sits within this range (Efron & Ravid, 2020, p. 62).

Stakeholder groups

To gain feedback on the dummy prototype functions, purposive sampling was employed inviting participants from Essex Partnership University Trust stakeholder groups. The goal was for 6-8 participants to be recruited from each group, this target was not achieved with service users (n=1), CBTp practitioners (n=4), and supervisors (n=3) attending each group. Potential participants were identified with support from EPUT administration staff based upon knowledge of their being CBTp service users, CBTp practitioners, or CBTp supervisors. Emails containing a research flyer, information sheet, and consent form were sent to potential participants by EPUT administration staff: besides slight differences in

wording e.g. 'questionnaire feedback' as opposed to 'working group participation', Appendices 5, 6, & 7 may serve as examples for stakeholder group materials).

The original intention was for all feedback to be in the form of questionnaires, however, in the case of the Service User group, despite multiple attempts to recruit, there were no acceptances. Upon further consideration, it was determined that a focus group would be a more effective and appropriate way to receive feedback as this was the identified group's usual form of engagement with Essex Partnership University Trust. It was decided to use the questionnaire as a script for a focus group. An initial session detailing the research was carried out to help boost recruitment, of this group, six expressed a wish to join, two attended the focus group, and one withdrew consent to share their transcript data after the focus group such that whilst two attended, this research counts one participant due to having data for one participant. No reason was given by the participant for their removal.

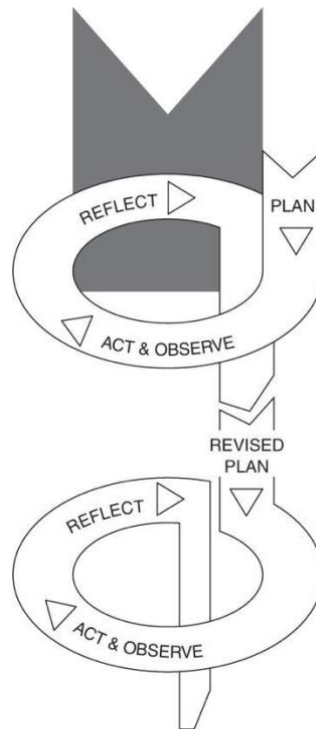
Finally, it was hoped to gather a Commissioner Group, but upon the advice of EPUT staff, this was not deemed to be feasible.

The Action Research Spiral

Whilst Figure 2 was held in mind almost as a touchstone when considering actions and activities. Figure 3. details the discrete but connected phases of the Action Research Spiral that represent the concrete participatory action research framework that has been used in healthcare settings, and which was used at each stage of the research to develop the dummy prototype and design guidelines (Kemmis & McTaggart, 2007). Together, Figures 1 & 2 were the values and actions of this research.

Figure 3

The Action Research Spiral



From Kemmis, S., & McTaggart, R. (2007). PARTICIPATORY ACTION RESEARCH. In *Handbook of Qualitative Research*, p. 278.

Working group

The working group were approached with the initial study aims:

1. To create a dummy prototype of an AI-driven software application to support CBTp practitioners in their work.
2. To create guidelines for the future design of AI-driven software applications to support CBTp practitioners.

Whilst ideally the entire research plan would be agreed with participants, due to the requirements of the NHS ethics process, it was necessary to submit a broad outline of the research plan, which included related materials, for example, session plans for the first three out of four sessions, and feedback and reflection materials. It was made explicit in the ethics application that sessions and indeed the research as a whole would be subject to change in line with working group participant wishes.

Sessions

Four workshops were carried out over the span of three months, with a workshop taking place approximately every 4 weeks to allow time for observation and reflection activities between workshops:

1. AI framing
2. Science-fiction prototyping
3. Dummy prototype
4. Design guidelines

Example session plan

Led by the researcher, the PAR working group *planned* how they went about each aspect of the research process before carrying out *actions* and *observations*. It then *reflected on (analysed)* the output to feed into the next phase. It is important to note that phases may overlapped and were revisited as the spiral continued as for example initial plans became “obsolete” when revisited in light of future actions and learning (Koshi et al., 2011, p. 6). An example from the research is as follows:

Session 2 Science-fiction prototyping (The first session was planned by the researcher)

Plan:

Planning began at the end of Session 1, with the lead researcher inviting participants to reflect on the session and any feedback to guide the session ahead. Plans for reflection activities were then set.

Act and Observe/Reflect:

Act

Workshop 2:

A brief recap on the previous session. A general conversation about participants' reflections on the AI media set during session one. In keeping with the idea of consciousness, knowledge, and action, science fiction prototyping was not simply introduced; it was justified as an approach. The theory behind it was explained so that participants would have a deeper understanding as to why it was being done and to invite any alterations of approach. After the science fiction prototyping, there was then a more in-depth round of persona creation (Dirks, 2020): Service users, Family members, Clinicians, Supervisors, Wider service colleagues, including Care Coordinators were personified. Figure 4 shows a care-coordinator persona that was created by the group on the day.

Figure 4

Care-coordinator persona

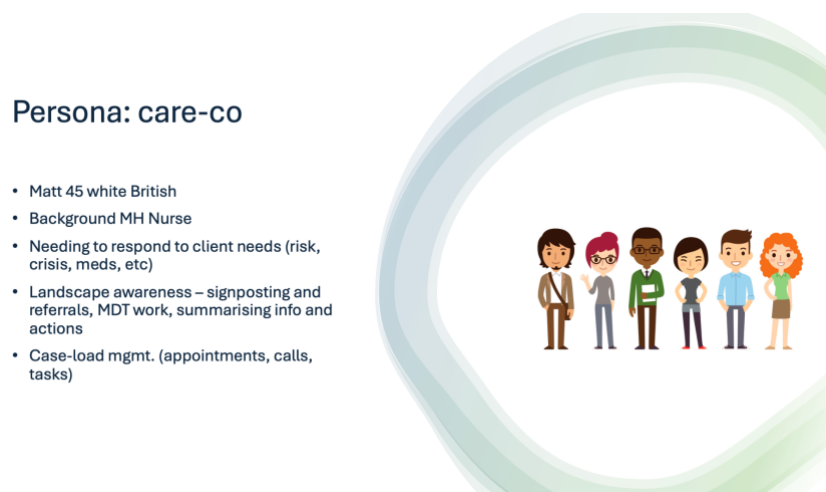


Figure 4: Session 2 presentation slide (Hayden)

After this, there was a brainstorming activity to look at what the app might look like, personal reflections and persona perspectives were drawn on to support initial brainstorming. This was followed by a look-ahead at Session 3 and a conversation about ways in which participants could capture observations and reflections on their work throughout the week. At the end of the session, there was a question again to invite deeper participation,

reflexivity, and consciousness: "What has been missing today?" This also supported my planning for the next session (Hayden).

Observe & Reflect

As noted above, between sessions, participants were invited to journal about their day-to-day activities, reflecting on what they had learnt about the potential of AI and software applications and how it might be leveraged in support of their endeavours. After the consultation on capturing observations, it was decided that the lead researcher would create a live online document with insights and questions from the sessions that participants could respond to and add to, in the form of comments, as they observe and reflect on their clinical practice throughout the week.

Revised Plan

The above change from the intended individual journaling to group reflections online is an example of a revised plan that shaped future phases of the action research spiral. Another was the addition of a set of one-to-one reflective interviews held between the lead researcher and each workshop participant. In reflecting between sessions, the lead researcher noted a key theme of power and the professional hierarchy within the group in terms of seniority; for example, one member was supervised by another. The one-to-one reflective interview were an acknowledgement of the power imbalance and an opportunity for individuals to perhaps speak more freely. These sessions took place between working group Session 3 and Session 4, which was the final prototype session and allowed the lead researcher to make final amendments to the prototype as well as get initial reflections on the process whole to inform the creation of design guidelines in Session 4. This ongoing revision is an example of the formative evaluation referred to earlier in the chapter.

Data Collection Methods

Reflective log: autoethnography

Lead researcher

Øien (2023) points out that in the facilitation of ethnographic action research, the researcher, in embedding in the study, needs to “demonstrate their role in knowledge production” through “choices in reflexive reporting” and that autoethnography offers “a way of assessing a phenomenon through the researcher’s self-awareness” (Øien, 2023, p. 4). Throughout the process, the lead researcher kept a reflective journal to track reflections that were used to reflect on and inform the research process, including the guidelines. The above example of incorporating the one-to-one reflective interviews is a good example of this process at play, see Appendix 8 for the Interview Schedule.

Participant researchers

Participant researchers were invited to reflect on their journey using personal reflective journals, reflecting on their day-to-day work and drawing upon insights and invitations from the workshop sessions. The online group reflection activity was a further extension of this process and their invitation to evaluate and impact the research process was an example of the enactment of a research culture.

Usability testing

A key step in application design is usability testing. The group created a low-fidelity dummy-prototype, the CBTp Companion app (see Appendix 9) that was essentially a list of application features that was shared with relevant stakeholders (potential users, supervisors, clients). To obtain feedback on the prototype, questionnaires were sent to supervisors, CBTp practitioners, and service users. In the case of service users, the initial intention was for them to fill out questionnaires, but this proved untenable, planning and task completion is a known challenge for individuals experiencing psychosis (Haatveit et al., 2015; Joyce et al., 2002) so adjustments were made, and a service user feedback group were approached. A focus

group was carried out using the questions from the questionnaire to guide the discussion.

The overall process was essentially a hypothetical exercise with questionnaires for each stakeholder group (that served as a schedule for the focus group) supporting participants to reflect on the usability of the dummy prototype - see Appendix 10 for an example questionnaire.

Analysis

Reflexive Thematic Analysis

Beyond the ongoing formative analysis and evaluation that was employed for each stage of an action research spiral by the research group, Reflexive Thematic Analysis (RTA) was employed by the lead researcher for the summative analysis that drew together data from the research process, and to address feedback from stakeholders. This multifaceted data analysis aimed at assessing the viability of the CBTp Companion App and adding depth and context to the research guidelines (Coghlan & Brydon-Miller, 2014). Reflexive Thematic Analysis provided a means by which the data was addressed through paying attention to the “contextually situated experiences, perspectives and behaviours” of participants, it takes the stance that a pre-existing theory is used as “a lens through which to interpret the data” (Braun & Clarke, 2022, p. 6).

The result is an inevitable deductive - top down - approach wherein subjective bias is understood to be inevitable in the interpretation of the data such that the “analysis and interpretation of data cannot be accurate or objective, but can be weaker (e.g., underdeveloped, unconvincing, thin, and superficial, shallow) or stronger (e.g., compelling, insightful, thoughtful, rich, complex, deep, nuanced)” which will be demonstrated and subsequently assessed by the reader in the addressing the robustness and rigor of coding and theme development, which are “not waiting in the data to ‘emerge’” but are “conceptualised as produced by the researcher” who is “theoretically embedded and socially positioned” as they engage systematic analysis (Braun & Clarke, 2021, p. 90,

2022, p. 7). This acknowledgement of the interplay between the researcher and the data sits within the wider epistemological framework of ANT and action research which serves as the lens to address the data. The subsequent transparency allows the reader to address the process which is also in line with steps within this chapter to illuminate the researcher's perspective for example in detailing the genesis of the research whole.

In the current context addressing stakeholders experiences and perspectives within a mental health context this approach was deemed to be ideally suited and has been employed elsewhere to address the experiences of mental health staff with regards to their feelings of their support services for wellbeing and burnout (Clarkson et al., 2023), the engagement of stakeholders in the development of digital mental health strategy (Kennedy et al., 2025), and the perspectives of mental health service provision (Allen et al., 2024). It has also been used to address the implementation of digital tools in mental health contexts (Brotherdale et al., 2024; Funnell et al., 2022; Tong et al., 2023).

The goal of the analysis whole is addressing the research questions and sub-questions which as noted in the introduction are:

Research questions:

- R1: How might AI-driven software applications support practitioners delivering Cognitive Behavioural Therapy for psychosis?
- R2: What design guidelines can be derived from a development approach rooted in the principles of participatory action research?

Sub-questions:

- S1: What are the key functionalities of the AI-driven software in the context of CBTp?

- S2: In what ways is AI-driven software being used in other relevant settings that might be transferable to the delivery of CBTp?
- S3: What are the strengths and limitations of employing AI-driven software in the context of CBTp?
- S4: What are the ethical considerations of employing AI-driven software in the context of CBTp?
- S5: What are the strengths and limitations of embedding participatory action research principles in designing an AI-driven app to support CBTp practitioners?

The workshop and one-to-one interviews with the working group participants were analysed separately to the stakeholder feedback data, the first analysis sought to draw working group participants' insights from the research process, and the second analysis sought to draw insights from stakeholders' reflections on the research process output i.e., the CBTp Companion App.

Working Group sessions and one-to-one interviews

The four working group sessions and three one-to-one reflective interviews were transcribed and along with the workshop output (image) were addressed using RTA. The analysis sought to specifically answer the research questions:

- R1: How might AI-driven software applications support practitioners delivering Cognitive Behavioural Therapy for psychosis?
- R2: What design guidelines can be derived from a development approach rooted in the principles of participatory action research?

And sub questions:

- S3: What are the strengths and limitations of employing AI-driven software in the context of CBTp?

- S4: What are the ethical considerations of employing AI-driven software in the context of CBTp?
- S5: What are the strengths and limitations of embedding participatory action research principles in designing an AI-driven app to support CBTp practitioners?

Importantly, the reflexive and contextualising nature of RTA was crucial in unpacking the “how” of R1 and in providing a reflexive analysis of the process of answering R2 which added depth in the context of reflecting on S4 and S5.

Stakeholder feedback

Qualitative

Data from stakeholder questionnaire responses was collated along with the transcription of the service user focus group session and analysed to answer the following research questions:

- R1: How might AI-driven software applications support practitioners delivering Cognitive Behavioural Therapy for psychosis?

And sub questions:

- S1: What are the key functionalities of the AI-driven software in the context of CBTp?
- S3: What are the strengths and limitations of employing AI-driven software in the context of CBTp?
- S4: What are the ethical considerations of employing AI-driven software in the context of CBTp?
- S5: What are the strengths and limitations of embedding participatory action research principles in designing an AI-driven app to support CBTp practitioners?

Comparative analysis

A second component of the analysis was the carrying out of a comparative analysis of the dummy prototype and a sample of existing similar applications available on the market. The analysis addressed areas of convergence and divergence in terms of the key functionalities apparent across software applications and sought to answer the following sub-questions:

- S2: In what ways is AI-driven software being used in other relevant settings that might be transferable to the delivery of CBTp?
- S3: What are the strengths and limitations of employing AI-driven software in the context of CBTp?
- S4: What are the ethical considerations of employing AI-driven software in the context of CBTp?
- S5: What are the strengths and limitations of embedding participatory action research principles in designing an AI-driven app to support CBTp practitioners?

Design Guidelines

The development of the Design Guidelines is best understood by returning to the conceptualisation of recursive reflexivity, the project genesis (the initial idea), and understanding the research whole as macro–Action Research Spiral as opposed to the Action Research Spirals that ran throughout the Working Group sessions. The initial project genesis is the Plan phase of the spiral. Acting and Observing is the research itself, the combined activities of the Working Group, Stakeholder Groups, and Lead Researcher including the Lead Researcher’s administration of the analysis and interpretation of research data. The Design Guidelines, which are essentially a ‘how to’ for future actors, represent an invitation and a Plan for future work and are the culmination of the Lead Researcher’s

process of recursive reflexivity. As such, the Guidelines will be presented as they were developed by the working group in the Discussion Chapter in answer to Research Question 2.

Data Collection

Working group

Data was gained through the recording and transcribing of each of the working group workshops and one-to-one reflective interviews. Image data was analysed and interpreted.

Stakeholder groups

Questionnaire responses from stakeholder groups (CBTp practitioners and supervisors) were collected via emailed responses. The focus group (service users) was recorded and transcribed.

Data protection

Participants contributions were anonymised through coding in the transcriptions. Data was stored online and password protected using Microsoft OneDrive.

Ethical considerations

Trauma informed interviewing

Reflecting on traumatic events has been shown to have the potential to retraumatise individuals (Tong et al., 2019). Tong et al., 2019 state that supporting the recounter to be “in control of how [potential] trauma memories are shared” and point to motivational interviewing as a mode of support (Tong et al., 2019). Whilst traumatic memories may be triggered research shows that telling one’s story may help an individual from a ‘victim’ position to a ‘survivor advocate’ position, in this research participants were encouraged to draw on their experiences in support of their and colleague’s efforts in creating tools to ameliorate the negative factors impacting said experiences (Delker et al., 2020). Participants were

encouraged to access appropriate support if triggered by any of the content as part of the onboarding process through the research Information Sheet.

Reasonable adjustments

As noted above adjustments were made to support service users to better engage with the though the creating of a focus group session which meant that participants were afforded another way of engaging that removed the administrative burden of responding to emails and filling out and returning a questionnaire.

The creation of the online form was a response to working group participants' contention that requiring the maintenance of a reflective journal would add to an already heavy administrative workload. In supporting the group to reflect together online motivation was shared and participation increased.

Anonymity

Pseudonyms were employed to protect participants anonymity.

Benefits of participation

All participants received an Amazon voucher in return for their participation (£20 for Stakeholder Group participants and £50 for Working Group participants). The opportunity to engage in the development of an intervention aiming to have utility in improving the work-life of practitioners and service user was also stated as a benefit that might be off merit for potential participants.

Funding

The research received funding from the University of Essex for participant incentives.

Ethical approval

The research received ethical approval from the North West - Greater Manchester South Research Ethics Committee (see Appendix 11). See Appendix 12 for a copy of the

Ethics submission form detailing the initial research proposal. EPUT did not require Research and Development approval for this research.

Bias

Given the nature of ANT and Action Research outlined in the Epistemology section of this chapter, this research does not assume objectivity when it comes to the potential for researcher bias as. Instead, steps taken for transparency in relation to recursive reflexivity (e.g. reflexive journal and Reflexivity sections), methodological transparency and shared authorship, sought to illuminate bias as an inherent part of the co-production method within research process.

That said, the lead researcher sought to withhold their assumptions of what the functions the app might have but again a degree of biasing was inevitable throughout the workshop process and as noted above was discussed within the various reflexivity activities and sections. Validation testing in the form of stakeholder surveys served as a further layer of recursive reflexivity in inviting further stakeholders to engage with/bias the research process and output.

Dissemination

Journals

The following journals will be approached for publication:

The International Journal of Action Research

The Journal of Health Research

The Journal of Public Health Research

The National Institute for Health and Care Research

Conferences

The following conferences will be approached for showcasing:

The European Conference on Mental Health

The Collaborative Action Research Conference

Presentation

A presentation will be given at Essex Partnership University Trust

A presentation will be given to the service user advisory group from which the focus group member was recruited.

Results

Approach to Reflective Thematic Analysis

This chapter presents the findings of the thematic analyses of transcripts from the Working Group, and the transcript and questionnaire responses from the stakeholder groups: service users, CBTp practitioners, and CBTp supervisors. As noted in the Methods chapter, a reflexive thematic analysis was conducted in line with the guidance of Braun and Clarke (Braun & Clarke, 2006, 2021, 2022, 2023, 2025). That said, Braun and Clarke present a state guidance that should be “followed openly, loosely, knowingly” once “embedded within the research values and understandings” much of which is gathered by “learning the craft skills and theory *by* and *while* doing” (Braun & Clarke, 2021, p. xxix).

Whilst I have experience of carrying out Reflexive Thematic Analysis (RTA), my approach to RTA is very much a “theory in practice” and as such a layer of reflexivity will be woven throughout this chapter detailing reflections and considerations from various points and stages to give insight into my interpretation and learning as I shaped codes and subsequent themes (Braun & Clarke, 2021, p. xxix). This will hopefully be helpful for the reader, and it was certainly beneficial for me in dealing with a very complex dataset and an ambitious analytic approach, given the multiple research questions.

Stages of analysis

Braun and Clarke describe 6 phases of RTA (1) dataset familiarisation; (2) data coding; (3) initial theme generation; (4) theme development and review; (5) theme refining, defining and naming; and (6) writing up (Braun & Clarke, 2021). It was during the familiarisation stage, when the whole data corpus of transcripts and questionnaire responses was first addressed, that I attempted to give as much space as possible for what I held in my head as ‘taking an inductive pass’ of the data. Here I jotted down “notes about any analytic ideas or insights” whilst trying to remain neutral in relation to the research questions. I found that being very quick and just writing what first came to mind was helpful in this regard, and

more of the semantic data that Braun and Clarke place on the inductive side of the spectrum was more likely to emerge. Whilst, when making later passes and beginning to apply “analytically meaningful descriptions” to the data as part of coding and theme generation, which required a slowing down, a more deductive analysis that drew on the theoretical underpinnings of the research naturally arose and was supported by my also having the research questions opened on a portion of my computer screen – see Appendix 13 for Codes and Themes (Braun & Clarke, 2021, p. 35).

Research questions:

- R1: How might AI-driven software applications support practitioners delivering Cognitive Behavioural Therapy for psychosis?
- R2: What design guidelines can be derived from a development approach rooted in the principles of participatory action research?

Working Group themes

When addressing the data, I am keeping in mind which primary research question I am seeking to illuminate. Here I am looking to explore *R2: What design guidelines can be derived from a development approach rooted in the principles of participatory action research?* While the working group itself created a design guideline, as well as the CBTp Companion app functions list, this analysis will help not only in exploring the process of their development, it will also support me in providing a facilitator's commentary to augment the guidelines.

The analysis identified four themes: *The Learner's Journey* captures the process of mutual exploration and reflexivity as the lead researcher and participants engaged in the research process. *The Research Culture* explores how participants immersed themselves in the research and began to enact agency in shaping the research as well as occupying positions of vulnerability and creativity in reflection. *Power and Participation* highlights the values and conceptualisations of participants in consideration of their impact on others and

the degree to which it is important or indeed possible to have wider representation. Finally, *Ethical Dilemmas* captures the limitations of AI in context and the implications for employing it for service users themselves and on the therapeutic alliance. It addresses core therapeutic qualities like trust, authenticity and how participants grapple with considerations of responsibility and delegation.

The appropriate number of themes was a key consideration. Braun and Clark (2021) note that "too many sub-themes and the analysis will likely start to feel fragmented and thin", Two or three sub-themes were identified for each theme, which sits within the average range (Braun & Clarke, 2021, p. 88).

In line with guidance Braun and Clarke's (2021) considerations on thesis research regarding taking of a predominantly descriptive or analytic approach, the narrative in the results below leans more towards the descriptive side in nesting quotes and themes in methodological context, as well as giving some interpretations and reflections. In the "separate general discussion chapter", there will be further opportunity for a deeper interpretation of themes, relations between themes, the research as a whole, and the literature (Braun & Clarke, 2021, p. 131).

Theme: The learner's journey

Subtheme: Socialisation to the model

Early on in the first session I sought to model an openness and authenticity when stating: "I don't have a set... no, that's a lie, I'm not gonna start with a lie. I do have fantasies of what this might look like, but I don't have a set idea of what this should look like" (Hayden, WG1). In ANT, this is the 'Enrolment phase' of an action sequence (Blok et al., 2023), here, I am giving an insight into my thinking as it happens; importantly, by stressing the idea of should, I am also making it clear from the outset that this process is open to change; also key

features of the action research model in terms of reflexivity, horizontalisation, and openness (Coghlan & Brydon-Miller, 2014; Gaventa & Cornwall, 2006; Kemmis et al., 2007, 2015).

Later in the first session, in response to a question on what the proposed application might look like, I respond that the idea is for researcher-participants to become “active participants in the research process...to authentically impact what direction this takes...I really don’t have a clue of what way it’s going to work, or if it’s going to work. The idea is that together we come up with something that is real” (Hayden, WG1). These opening statements early on set the stage with two fundamental values within action research, reflexivity, and power-with through an invitation to collaborative engagement (Bradbury, 2015; Coghlan & Brydon-Miller, 2014).

After detailing the action research model wherein I note concretely that “the approach has within it that the plan can change depending on the participants” (Hayden), I seek to encapsulate three core elements of the action research cycle (planning, observation and reflection, and action) in context and centring participants in the research development process: “So, I did the first planning, but at the end of this session, we’ll hopefully plan the next session together. And then between sessions, we’ll do some acting, which will be you guys going away and having to think about your practice as you work and maybe like logging a few ideas and observing yourselves” (Hayden, WG1). And again, there is a clear invitation to co-creation within the research process as it unfolds.

Subtheme: Learning through action

A key step in the working group learning journey was familiarisation with the potential of AI, after an initial activity looking at various ways AI is being used in the mental health space a participant notes “it’s one of those things that I can see, like immediately thought of people who would absolutely love it and equally people who would be like, that is not for me, yes” (Alice, WG1). Here, the act of engaging with software applications allows the participant to draw on their experience with service users and to reflect on how they might feel in using them. In engaging in a meaningful way with the tools, it becomes clear to Alice what tensions

may exist as they take differing perspectives into account. Viewed through the lens of ANT, this demonstrates Alice drawing upon their tacit knowledge borne of experiences with patients, where they may have communicated mistrust or not, of new technologies. As noted in the literature review, it is these tensions that create a richness which fuels the recursivity within the action research cycle as they are explored (Zamenopoulos & Alexiou, 2018).

A key benefit of having an open approach to the working group process was clearly demonstrated when, as part of a later conversation about Dall-E, the AI image creation tool, one of the participants said that it is something they have been wanting to try. Again, seeking to model a reflexivity in the research process, I responded, “Let’s – why don’t we just do it now? As an experiment. We’ve got a little bit of time before we finish up” (Hayden, WG1). The group tried the experiment, which was to see how Dall-E might be used to help a service user visualise and share something with the clinician that might otherwise only be contained in words. This experimentation is a key component of ANT in the collective imagining of what the future might look like (Blok et al., 2023; Michael, 2017).

This is a key instance of action by the group, and following reflections demonstrate the iterative nature of action research as participants act and then reflect on their learning in imagining potential new applications and solutions: “Yeah, I think it’s something I don’t know much about. And so I think, yeah, it’s really helpful to know where we might use it” (Sophie, WG1) whilst another has a similar reflection “I don’t know a lot about you know - I feel I know way more, a lot more than I did before” (Mina). The process of experimentation is also a key element of ANT where the role of the researcher “is to cooperate with actors in a process of experimentation, innovation, and learning”, all three of which are apparent in the above engagement (Asdal et al., 2007, p. 43).

In engaging in these activities, participants are well on their way in the process of world-making as participants attend not just to their own experiences, but also in acting as mediators between technologies and potential service users; they are filling out the world with other actors, i.e., service users, clinicians, and technologies (Gergen & Gergen, 2015).

Importantly, once created, it was not the case that the inhabitants of the world remained indelible for participants. When reflecting during the one-to-one session between working group sessions three and four, Alice notes, “when we started to look at the personas, I think I found it helpful because I was thinking, ‘Oh yeah, this is good to think about, kind of who’s bringing in’. But then I think later on, when we tried to go back to it, it felt like it lost something a bit.” (Alice 1-to1). Here, Alice shares a sense of loss at the fading of personas the group created to fill the world; it speaks to the importance of attempting to ensure that perspectives are maintained as the research journey progresses.

The overall theme of the learning journey encapsulates how both participants and the lead researcher engaged in a process of mutual orientation within the research, shaped by experimentation, perspective-taking, collaboration, and reflexivity. The theme captures the transition from initial contact and uncertainty with the AI landscape to one of working reflexively in consideration of self, others, and technologies and participants engaged in world mapping activities.

Theme: The Research Culture

Subtheme: Balancing immersion

This subtheme captures explores my role as the lead researcher and the participants’ emerging agency, a core aspect of establishing a collaborative research culture, a core tenet of Participatory Action Research. “So, it’s been quite guided in a lot of ways, hasn’t it? Which I think helped, particularly at the start ... But I think, yeah, the combination of you presenting things and then being able to just have quite open forums, and being able to then go away in the week, come back, and think about things that we’ve noticed” (Alice, 1-to-1). The quote speaks to a core aspect of the method assemblage, one that is made far more complex by the recursive reflexivity within this research design.

The lead researcher recognises they are a part of the methodology and, in this context, seeks to support participants to do the same. To this end, I sought to balance

guidance with space for participants to immerse themselves in the process, and the participants chose, or not, to step into that space. This is in line with Kemmis and McTaggart's (2007) assertion that the lead researcher should not take seek to take on the role of the "process consultant' with pretensions or aspirations to expertise" about the methodology which they deem as being "inconsistent with the commitment to participants in the personal and social changes in practice that had brought participants together" (Kemmis & McTaggart, 2007, p.285)

Alice's reflection on the "open forums" and returning to work and to observe their practice, to "think about things that we've noticed", shows that she recognises her own agency within the research and how the balancing of guidance with openness helped foster a sense of safety, a springboard from which these activities took place. Interestingly, Alice's quote, which contains the initial question and then a qualification, reveals that the subtle tensions within this approach, of my not always being sure of how much space to take and to give, are not lost on her. Encouragingly, Alice, in seeing her daily work as an opportunity for observation and reflection in contribution to the research, demonstrates that the research successfully blurred the lines between the researched and the researchers (Baum et al., 2006).

A quote from Sophie further illuminates the balancing on my part as the researcher, she states that "after somebody says something, you really summarise it and you like sort of add clarity to it...not just clarifying, but you sort of use different words sometimes and you really, I don't know, offer your own reflection, I guess, and check that out with us, and I think that's been really good. (Sophie, 1-to-1). Again, the qualification here is an important one; it again speaks to a tension, a balancing act, she is reflecting on a process of not just paraphrasing, but actively entering into the group process with my own reflections, but again, in doing so, being sure to check my reflections with the group. Her final qualification, "I think", reveals that she is aware of the tension, suggesting she was conscious of the power dynamics and balancing inherent in the relationships at play.

These two examples for the subtheme bring the concepts of mediation and moderation of the independent and dependent variables to mind. Here, the independent variable is participant researcher engagement, and the dependent variable is confidence in engagement, both of which describe a process whereby the balancing of engagement on my part moderates the confidence with which participants engage.

Subtheme: Vulnerability in the group process

Teamwork was a key element of the working group process. In this quote, Mina shares their reflections on safety in the space. Interestingly, there is the sense that it may not have always been the case or indeed that it might not be the case in other team settings, as she reflects, “Hmm. I think it's been really like a sort of safe space, I guess, because I kind of know the other members as well, and I've worked with them. So for me, it has been sort of collaborative and, you know, comfortable to share ideas that might be a bit out there, maybe, more creative.”. (Mina, 1-to-1) My interpretation is not based merely on the qualifications but also on Mina's statement about feeling comfortable sharing ideas that might be a bit *out there*; this is a key concern in working group activities, and though tentatively, here Mina is showing what difference a supportive team environment meant to her.

Also reflecting on the group process, Alice notes that “we've all sort of moved through the process together. And there is that kind of group, I guess, like you would in any therapy group or something, you go through those, you know, group processes together as well, don't you? And there's some kind of shared learning and shared experience, I think, which is really valuable” (Alice, 1-to-1). Alice's reflection also speaks to the depth of emotional impact of working as part of a group. In likening it to a therapy group, Alice speaks to a perhaps underserved aspect of group facilitation, which is that of facilitating the group's emotional state as opposed to focusing primarily on task and performance. In placing both the learning and the experience together as really valuable, Alice is making the case for these key aspects to be attended to.

Overall, the theme demonstrates how a number of deliberate practices were crucial in creating a collaborative, reflexive, empowering, and creative environment, which made up the Research Culture. The balancing on the part of the lead researcher in facilitating both support and learning through presentations, paraphrasing, and checking reflections with the group, were key moderators of this process and enabled participants to step into their role as co-researchers confidently. A safe and supportive teamworking dynamic allowed for vulnerability and openness that not only encouraged creativity and idea sharing but was also an explicitly emotionally valued aspect of participants' experience. This sentiment was reflected upon by the whole group, a shared consciousness, Kemmis and McTaggart speak of "political agency" being a "corollary of heightened understanding and motivation" and that both action and research (observation, [group] reflection) is the enactment of this process, here enacted through immersion out of which the research culture and the politics of that culture emerged (Kemmis & McTaggart, 2007, p. 288). For action research, and especially within organisations where power and relationship are overtly intertwined, the "quality of relationship is a function of "trust, concern for other, equality..., common language", all are implicitly and explicitly present in participant reflections surrounding vulnerability in exploration (Coghlan & Brannick, 2005, p. 13).

Theme: Power and participation

This theme took longer to come together; the "organising concepts" around which the other themes formed flowed from the texts with far greater ease, and "shared meaning[s]" were easier to find (Kemmis & McTaggart, 2007, p. 288). It is likely the case that power and participation represent more abstract value-based conceptions. Braun and Clarke (2021) caution against naming themes in ways that "simply captures the topic or concept, without telling us anything analytically useful about it" (Braun & Clarke, 2021). However, in line with later guidance above, where a values-based approach to qualitative research is brought to the fore, it feels appropriate to speak to the values of power and participation that underpinned and shaped the research and were apparent within the transcripts.

Subtheme: Power as a potentially stifling force

In this subtheme, the potential of a senior clinician being a stifling force is reflected upon. “I wondered when I joined it, and then I hadn't really realised, to begin with, who was joining, and then I suddenly thought, ‘Oh, I don't want that to be a barrier for either Sophie or Mina to think, “Oh no, maybe I can't.”’ But, like I say, I think we've got quite good relationships anyway. And I do think that, yeah, I didn't think it would, but you never know where there's going to be a bit of an unconscious kind of barrier or...” (Alice, 1-to-1). Here, Alice reflects on different aspects of her professional reality. On the one hand, she is someone who wishes to engage with a topic that she finds interesting, an intrapersonal engagement - self and self-interest. With the arrival of others, Alice understands herself interpersonally as a person of seniority and power with the potential to impact others' engagement negatively. In reflection, she is willing to proceed based upon her understanding of the relational dynamics as they exist on the surface, but remains open to there being another layer of potentially unconscious relational dynamics where one never knows. This speaks strongly to the conscious and unconscious dynamics of “bias, defensive reasoning, or various forms of cognitive distortions” at play that mediate and moderate all team dynamics (Coghlan et al., 2024, p. 29). Whilst some of the themes above speak to the positive working relationship achieved within the Research Culture, this is a powerful illustration of the underlying dynamics at play and begs the question of how Alice might have stifled herself in holding others in mind.

In explaining what else might be positively mediating the power dynamics, Mina notes that “you need that coming back and that validation from others that ‘this is how my emotional reaction was’. Which makes me think about...because we're all in similar professions, and if we were from a different professional background, would we be able to say, ‘oh, this is how I reacted, and it brought up this dilemma for me’. But would someone from a different professional background have that same reaction in trying out these - these different uses of AI?” (Mina, WG4). This is quite a complex and layered reflection from Mina.

Mina speaks to the very human need for validation in sharing one's emotional experience and perspective, and notes that a homogeneity within the group created a sense of safety for her.

In moving from emotional safety to bringing in the potential of unpacking dilemmas, I understand Mina noting that other perspectives might be a way in which they are more likely to be spoken. In writing on carrying out action research in one's organisation, which to a large degree this group was doing, Coghlan and Brannick (2005) state that "change triggers discussion, debate and arguments between people" and for groups and it is often the case that consensus within groups - what they term "power relationships" - is maintained through overt and covert power dynamics, values, rules, norms, etc. (Coghlan & Brannick, 2005, pp. 72 & 84). With this in mind, it may be the case that Mina is speaking to the stifling of voices and perspectives absent from the group and in doing so, Mina speaks to ethical issues at the heart of participatory approaches.

Subtheme: Broadening participation

This subtheme explicitly captures the need for broader participation and the importance of having first-hand accounts of people's needs and perspectives when Sophie reflects, "some of it we are guessing, aren't we? We're sort of thinking, well, this particular client might get on well with it; these might be their concerns. This is, might be, what they would want to be helpful. But it'd be helpful to hear I think from people. Yeah, I think it'd be helpful to have that co-production, I guess more." (Sophie, 1-to-1). Here, Sophie speaks to the very dynamic that participatory action research seeks to remedy, the inherent power imbalance in the absence of key stakeholders who cannot advocate on their own behalf (Baum et al., 2006). There is a clear criticism of the method assemblage within the working group setup, and the uncertainty and ethics of attempting to imagine the concerns and wishes of others. Sophie makes her values explicit as she operationalises the engagement of other stakeholders through the process of co-production, calling for a power-sharing arrangement on par with the process currently underway with the lead researcher.

Mina also speaks to this imbalance when reflecting on the learning curve required for the process she has engaged in and recognising that it might be prohibitive for certain stakeholders whose learning or emotional needs she sees as often being unaddressed. Mina says, “because people with psychosis don't, they always get left, don't they? Because they're the passive ones. They're the ones that don't voice anything. It's our job to advocate for them, and that's what this is. And hopefully it will allow them to do it for themselves.” (Mina, 1-to-1) This is a very sensitive intervention by Mina, on the one hand she is aware of her power and capacity as a mental health professional. There is a call to action from both participants that strikes at the core of action research principles in terms of representation and participation (Bradbury, 2015a). Ultimately, I see Sophie and Mina pointing to the tension between ideals of representation and opening space for participation, and pragmatics, the limitations of participatory action research, and asking the question, what are genuine impossibilities and what are simply systemic barriers borne of injustice?

Another aspect of this theme of power and participation I understood the group as speaking to was that of addressing power and its ability to invite, or not, others into the fold, what Kemmis and McTaggart refer to as “critical friends”. There is a sense of loss in the quotes, yes there is safety in homogeneity, but for the group, the recognition of who may be excluded from the mapped world clearly usurps this, beyond intellectual recognition of the shortcomings of our method assemblage, I believed it was perhaps because of the action research approach that “creates opportunities for feelings to be made accessible and explored” that this more profound feeling was brought into consciousness (Kemmis et al., 2007, p. 288).

Theme: Ethical dilemmas**Subtheme: The uncanny valley**

I found using the concept of the Uncanny Valley helpful as a metaphor for my interpretation of this theme. The idea goes that as a humanoid robot or animation's facial features increase in similarity to humans, so does our positive emotional response, and then, at a certain point approaching undiscernible difference, our appreciation of the avatar "will trigger a profound sense of unease" (Kätsyri et al., 2015, p. 1). In this quote, Alice reflects on her experimentation with an LLM and seeing what it would return by way of an ending letter for which she had given certain prompts. Her first thought was "'Oh my gosh, you can write all this for us, and it can do all this for us!' And then it actually came to me thinking, 'would I actually use that?... It just brought up so much around guilt and effort, and like, 'this feels too, I don't know, not real—maybe false.'" (Alice, 1-to-1) Alice, who had earlier been excited by the closeness to reality of image Dall-E created, is grappling with feelings again of excitement at the LLM's capacity to replicate human work, but is left feeling uneasy at it not feeling wholly real, that there is a different quality to her writing the letter as opposed to prompting an AI to do it on her behalf. Interestingly, she moves between anthropomorphising the AI by speaking by referring to it in the second-person *you* to then moving to referring to it as the non-person entity *it*. As well as this inter-personal or inter-entity tension, there is the guilt referred to, which begs the question, what is real or false, is it the letter, or the spirit of the letter, the writing of the letter? Or is it the complex interplay which outputs something worthy of "oh my gosh" (Alice, 1-to-1), but yet still doesn't feel quite right?

To continue the metaphor, Sophie also speaks to this valley with utility on one side and intrinsically human qualities on the other when she notes that "I feel like with ending letters, I feel like it could be really helpful to be able to, you know things like checking grammar or spelling, or to see if it flows, that could be really useful". She continues that the process falls short of being "able to sort of make that letter feel really meaningful and that relationship to be kind of, I don't know – respected, I guess". (Sophie, WG3) This feeling or

value of AI being able to support up to a point, the point of emotional contact, is one that is perhaps especially poignant for a professional group who will undoubtedly have received training and been encouraged to reflect on the things that support or negate the therapeutic relationship, with renowned thinkers writing at length on this subject in seminal works like *I and Thou*, which has as its counterpoint the *I/It* utilitarian relational dynamic (Buber, 2010).

This almost unquantifiable but crucial quality to the therapeutic relationship is summed up perfectly by Mina when she notes “that clients will remember their therapist and the relationship that they've developed. They won't remember all the skills and things, and conversations....They remember the relational aspects to therapy.” (Mina, WG2).

Subtheme: Extending trust

Whilst considerations of privacy are a concern generally for individuals considering information technologies in healthcare systems (Blobel et al., 2016; Rindfleisch, 1997), it is particularly relevant for this cohort, for example, a quarter of participants stated that using digital tools to communicate increased symptoms (Eisner et al., 2023). Sophie reflects on this saying, “I've thought about different clients and thought about when it would work, when it wouldn't work, specifically in terms of psychosis. You know, in terms of some people who really do overthink or really wouldn't trust apps... I've got some patients who turn their phones off in session because, you know, so people won't be listening through their phones....I've sometimes thought when it would really not work. As well as when it really would be supportive. So, I think I've been holding people in mind as we've been talking and been thinking, how could this work and who with and when.” (Sophie, 1-to-1). I interpret Sophie working hard here to balance the lived reality of her service users as they themselves cope and find safety in a world that is often uncertain and threatening, with her own fears and uncertainty of the potential impact of incorporating AI into her therapeutic practice. Not only is she holding people in mind, but she is clearly risk assessing and troubleshooting as she does

so, all while maintaining an openness to the potential benefits. The level of perceived risk and effort involved sheds light on why the uptake of new ideas and technologies in the mental health space can be a challenging process (Bucci et al., 2018; Eisner et al., 2023).

Mina notes similar concerns amongst service users before she goes on to consider the broader implications on the therapeutic relationship of which trust is a core component, what is termed the therapeutic alliance and is of particular concern with the intervention of AI as a tool (Prescott & Hanley, 2023): "I'm thinking a lot about trust... in CBTp, you work really hard to gain trust and all of the kind of relational connection side of things... so it just feels like 'how do we extend the trust from therapist to this technology as well?'" (Mina, WG1). There's a clear valuing of the relational trust developed with clients, which, though often hard to build, can be broken easily. There's a clear feeling of protection over not just the client's well-being, but the well-being of the therapeutic alliance; a review of 28 studies by Malouin-Lachance et al. (2025) shows that the participants are not alone in considering the potentially negative impacts of AI and digital tools (Malouin-Lachance et al., 2025).

In both quotes, there is a sense of the deeper meaning that trust represents to Sophie and Mina, and to their service users: the intangible human quality, and the tacit knowledge that trust is the foundation upon which all else is built. The cost-benefit analysis becomes stark when understood in these terms, as they weigh efficiency and perhaps efficacy on one hand, and trust and safety on the other, and ultimately whether their hard-earned trust can be extended to a technology they themselves are unsure of.

Subtheme: Aiding but not replacing

This theme speaks to a key value I felt participants returning to again and again when drilling down on key ethical considerations. There was almost a red line: that AI could aid but should not replace practitioners. This manifested in various ways, for example, Sophie speaks to the human connection outlined above when she speaks to her values in the therapeutic relationship, "it feels like to me like the human connection is really important, and AI can be an aid, but not a replacement." (Sophie, WG3). Sophie's use of an adverb here

speaks to a clear line that AI must not interfere with the human connection between service user and practitioner. Her qualification that it is a feeling is important too, and given the context where feeling is in many ways the guiding force for clinicians, its usage here is highly relevant (Schön, 2016).

Mina reflected on her own experimentation with an LLM. In order to check the shortcomings or potential risks of AI, Mina roleplayed as someone in need of mental health support. She recalled that whilst in the beginning the AI was seemingly quite helpful “when I started talking more [to the chatbot] about you know, feeling afraid of other people and that they might harm me, it didn't know what to say...it just made me think more and more about like what we're saying last time about trying to have something that fits everybody may not work” (Mina, WG2). This self-directed experimentation speaks to her concerns about AI as an autonomous support for service users, that it needs to be tailored for use by clinicians who understand the limitations of the AI as well as the needs of their clients.

Alice speaks to the need to strike a balance in the usage of: “I think when I first came in, I had this... maybe I still do to some extent, have this feeling of, 'OK, are we going to be out of jobs? Is AI going to take over?' Maybe not fully, but you know, there's something interesting about creating something that, in part, is doing some of our role, isn't it? And that's an interesting concept—thinking about that. So, I think maybe my shift has been more to working with AI as opposed to it being... I don't know if that makes sense, as opposed to it being a therapist or AI. It's like, how can these things work together?” (Alice, 1-to-1). Here Alice is sharing the development of her concerns over the course of the research project, from a place of fearing AI might take over and put her and others out of jobs, to one where in understanding more of the workings of AI in relation to her practice she is able to see how the two might co-exist not as an either or but as a merged psychotherapeutic asset.

Alice continues that and speaks to specific aspects where the balance should be made, here AI not replacing a core therapeutic capacity as opposed to clinicians themselves. For Alice, this core capacity is the “reflective element of it... you're not taking away

somebody's own thinking, but you're supporting them to be able to reflect and think themselves, which is the core of a lot of it" (Alice, 1-to-1). As a Principal Clinical Psychologist responsible for delivering and supervising CBTp practitioners, Alice is clearly concerned here that AI does not end up de-skilling or through the process of taking away that reflective reflexivity that is at the core of a practitioner's intervention and development. This is quite interesting if one thinks about DeLong and the need to capture tacit knowledge that might otherwise be lost through an ageing workforce. There is a sense of skills potentially atrophying if sidelined in favour of AI. The implications of AI deskilling healthcare workers generally (Natali et al., 2025; Nilsson, 2025), and mental health professional in particular (Farmer et al., 2025), has been a key area of concern and inquiry in recent years.

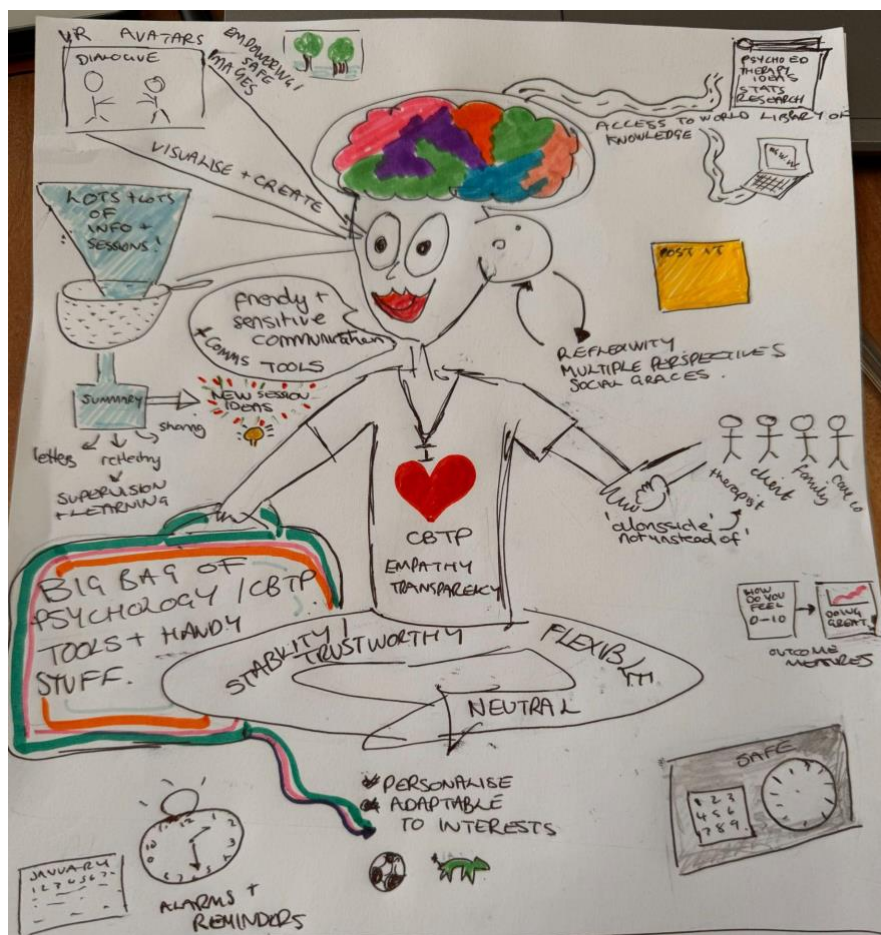
Overall, the theme of Ethical Dilemmas, considerations of ethics and trust, was a key theme throughout as participants came to terms with misgivings surrounding delegating actors' responsibilities to non-human actors; anxiety seemed to be particularly elevated, perhaps due to the fact that they were inviting the non-human actors into the network. A further layer is added through their drawing upon tacit knowledge-based not only to reflect and discuss, but to engage in experimentation, which deepened their sense of responsibility in that they are in effect birthing the non-human actor into the network, in doing so they are more able and feel more responsible to consider potentials (Blok et al., 2023; Michael, 2017). From an action research perspective, unearthing and tackling dilemmas are a key step in the change agenda and often a time when individuals will align one way or another and requires an "epistemic reflexivity" that, when correctly enacted, "incorporates challenging presuppositions", i.e. that of biases, fears, and alignment, etc. (Coghlan & Brannick, 2005, p. 67). Seen through an ANT lens, there is a clear and profound discomfort on behalf of the human actors in delegating essentially human aspects of therapeutic engagements to non-human actors.

Theme: Safety and Scale

Alice created the image below during working-group session two based on the input from the whole group. The image came out of the visualisation activity in session two and shows how the group iterated to what would ultimately become the CBTp Companion App functions created in session 3 (see below).

Figure 5

Personification of the CBTp Companion App



Artwork of CBTp Companion app (Alice, 2024)

CBTp Companion App

Reflection support:

- **Reflective Journal:** Document thoughts, observations, and reflections related to work in a dedicated journal.
- **Supervision Sharing:** Seamlessly share session recording and notes with a supervisor for easy feedback and support.
- **Learning Tracker:** Track learning and development, receive insights and ideas based on the data within your application.

Intervention support:

- **CBTp Toolkit:** Access a comprehensive library of worksheets, handouts, and resources for CBTp interventions.
- **Tailored Resources:** Library resources are adapted based on client interests and experiences, informing everything from session ideas and psychoeducation to behavioural experiments.
- **Virtual Space:** An online space to work alongside clients in creating images or avatars to carry out behavioural experiments or support reflection and client expression. And a space for richer interaction with CBTp chatbots that can support clients between sessions.
- **Communication tools:** Text, email, calling, and video call all in one place, enabling ease of scheduled communication.
- **Assessments:** Electronic versions of important assessments that can be tracked over time and accessed by appropriate people.
- **Fidelity to the model:** Analysis of session transcripts to support therapists to remain in line with CBTp protocols.

Admin Support:

- **Clinical Notes and Information Storage:** Storage and retrieval of clinical notes, client input, and relevant information all in one application.
- **Session Summariser:** Automatically generate concise summaries of therapy sessions, highlighting key themes and insights, as well as supporting with risk assessments.
- **Thematic Analyser:** Identify patterns and trends in client data, such as diaries or sleep logs to inform treatment planning.
- **Intelligent Reminders:** Ability to set reminders for appointments, follow-ups, and homework, from the app that integrates across your devices and platforms (mobile, laptop, Outlook, etc.), ensuring continuity and quality of care.
- **Collaborative Tools:** Ability to securely share session summaries, treatment plans, and resources with clients, caregivers, and colleagues, fostering transparency, engagement, and collaboration.
- **Research Support:** Access research and libraries from within the app to support therapeutic creativity, whilst maintaining fidelity to the model.

The activity of exploring the app through art demonstrates the potential of art to capture meaning and metaphor. Each of the other participants felt that the image successfully captured the groups thoughts “she captured everything, didn't she really, that we spoke about” (Mina, 1-to-1). “I mean, nothing stood out for me that's missing...It seems fairly comprehensive” (Sophie, 1-to-1).

Subtheme: What's in the safe?

What was very interesting was what the image provoked beyond the surface level that was translated into the app functions. For example, when looking back on the image, Alice, who drew it, reflects that “when I'm looking at this picture, what I've drawn as a safe. I

keep looking at it, thinking it looks like a bomb, and that's made me think, you know, is there something about that, like, sort of dangerous side of it? Like this is something we don't really know about...I think I've drawn it, the safest thing, sort of made me go, 'oh, actually, the safest thing might also be the most explosive thing'. (Alice, 1-to-1). Here, Alice, almost in a moment of reverie, is connected with her unconscious fears of what AI might hold, that perhaps believing in the safeguards themselves is where the vulnerabilities lie. What is interesting is that in the image itself, the safe, whilst appearing at the bottom of the image, is sturdy and grounded; it is the only element of the image unconnected with the others, which would seem to imply its lack of coherence with the wider gestalt. In embodying the app with the image and the safe (and indeed safety) clearly being pertinent, its disconnection from the rest of the image reflects the discomfort of its creator. As mentioned earlier in this chapter and as will be later on, this also resonates with the discomfort around safety felt by many participants.

Subtheme: It's something a bit more joined up

For Mina, the image also brought up conflicting thoughts, "I mean, it's quite broad, isn't it?... Part of me is like, is it a lot to ask for no? It may need, you know, I guess several parts to the app for different people?" What I found quite exciting at the time was that Mina resolved the tension through connections with tech she employs elsewhere in her life, she continues, "I don't know, I'm thinking like one brand—like one app but with lots of different sort of...a bit like, I guess, Meta with Facebook and WhatsApp, and something a bit more sort of joined up. Something for the client, something for family members, something for care coordinators, I don't know". I spoke about the rise of platforms or super-apps to help frame what I thought Mina was thinking of she responded, "Yeah, I guess it'd have to be something like that, wouldn't it? Because there's just so much that we want from an app" (Mina, 1-to-1).

Research shows that stakeholders are often engaged as a form of tokenism, with designers often inviting stakeholders after the fact in "improving the product" exercises as opposed to truly shaping the product itself (Ocloo & Matthews, 2016, p. 629). A systematic

review of literature on power-sharing in co-production in mental health research found that “battling to share power against a more powerful system” was a key theme across studies (Hopkins et al., 2024, p. 4). The above interactions with Mina and Alice represented key moments where I felt almost a *threat* to the research project, that the product would be deemed to be unsafe or unfeasible, these, I imagine are the moments when power seeks to defend and assert itself and its agenda, but believing in the process allows for solutions or alternatives to be found. Alice’s concerns are real and reflected broadly, and for Mina, far from feeling overwhelmed on behalf of the application, she points to a trend amongst many software solutions, that of becoming platforms or super-apps that recognise and respond to the needs of users as opposed to staying fixated on an original vision (Galloway, 2021).

Table 4*Working Group Themes*

Theme	Subtheme	Subtheme	Subtheme
The Learner’s Journey	Socialisation to the model	Learning through action	
The Research Culture	Balancing immersion	Vulnerability in the group process	
Power and Participation	Power as a potentially stifling force	Broadening participation	
Ethical Dilemmas	The uncanny valley	Extending trust	Aiding but not replacing
Safety and Scale	What’s in the safe?	It’s something a bit more joined up	

Stakeholder Groups themes

The goal of this analysis was to gain a sense of the feedback from stakeholders in response to the proposed app. As such, this component of the analysis will be far more

semantic in orientation as respondents are answering direct questions as opposed to the working group analysis of free-from transcripts above, where meaning is not so straightforward to interpret. Here, the interpretation generally kept to capturing and grouping shared sentiments in the form of themes that illuminate which aspects of the app and reflections were prominent for respondents, as well as their general sentiments on the app as an asset in supporting interventions for those experiencing first episode psychosis. The result is an analytic stance that shifts further towards the descriptive side for the majority though in relation to data from the focus group session a more reflexive and interpretive analysis is employed.

The analysis identified five themes: *'Pathways between'* explores how the CBTp Companion app was understood as bridging the gap between CBTp practitioners and supervisors or service users, as well as how practitioners might be better connected to aspects of the practice in terms of tools for intervention, reflection, and learning. *'Taking a load off'* captures stakeholders' reflections on which app functions stakeholders felt they were able to serve the CBTp practitioners in delivering their interventions. On the other hand, *'Could it have...'* addressed what functions and features stakeholders felt the app was missing. *'Is it safe?'* unpacks the varying concerns of stakeholders and covers the potential for disconnection, overreliance, and mistakes on behalf of the practitioners or the AI itself. Privacy was also a key safety concern for respondents. *'Do you think it would help?'* explores respondents' general thoughts on whether they think the app has value. Finally, *'Keeping the client in mind'* captures the first reflection from a service user on the role the application could play in supporting a service user's journey back to mental wellbeing.

Theme 1: Pathways between

This theme takes inspiration from a summation by Ben on the potential impact of the application: "it seems less time-consuming and effective to organise caseloads in a better way, also it has improved communication pathways between supervisee, supervisor and clients" (Amir [Supervisor S]). The theme captures how the app acts as a bridge between

practitioners, their supervisor and clients, and their tools. Each of these crucial dynamics is explored with considerations, whilst also considering other aspects of the practitioner's practice that shape the dynamics: data sharing and transparency, client management and collaboration, and reflection and timesaving.

Subtheme 1: Supervision

Improved quality of supervision was mentioned as a benefit of the app by many respondents in terms of transparency and efficiency of data gathering and sharing. For example, Alva a supervisor states that “so much of supervision is based on what the supervisee decides to share and in general this works well”, and notes that despite this “the quality of the supervision relies on the supervisee and supervisor being very open and reflective on the practice, and this is likely only a small amount of the [clinical] session that is discussed in supervision” (Alva [S]). On the note of data being provided more efficiently, Ben suggests that “recording and storing data...would help supervisors to access in a short period of time”. Widening out to the learning element of supervision he notes that, “There is scope of enhanced learning through thematic analyser that can add skills in addition to the feedback from the supervisor” (Ben [S])

For practitioners also, easy access to data is a benefit, but only “if [supervisors] have time to access the records prior to a supervision session” (Stella [Practitioner P]). Amina also feels that supervisors “having access to features in one place and being able to share with a supervisor feels helpful” (Amina [Participant P]).

Tara, the Focus Group participant, extends the point further to session quality and adhering to the model of the intervention. She imagines “say like a session had gone badly because they they kind of didn't follow the plan or they went off on a tangent or whatever”, with access to data from the app “the supervisor could come in and because these notes would be like really, like, detailed they could come and be like, ‘right this is the point where things started to go downhill’” (Tara [Service User SU])

Subtheme 2: Client work

Respondents reflect on how the app could support and enrich their therapeutic work with clients. Key areas of importance were supporting client management and engagement, shared understanding, and collaboration. For instance, Amir reflects on how “sharing information with the client will help them to keep track of their progress from start to end, [and] also facilitate them to feel part of the process [and] help to improve transparency of the service and practice” in the process. He continues that “other features like Virtual Space too is very helpful tool, enhancing client’s understanding more clearly with visual aids”. For Amir, these functions help keep interventions “in line with Trust (NHS) policy of care and empowering people” (Amir [S]).

Trisha felt she would employ the app “in session to plan out what we discuss to aid client understanding as well as introduce theory in a digestible way”. Trisha’s use of the word *we* speaks strongly to the collaborative ethos at the heart of CBTp (Morrison, 2017; Roth & Pilling, 2007). She explains how the app could help her “being more collaborative with clients in sessions” through “reminders and updates shared more often thus keeping them aware of their treatment, developing person-centred diagrams and formulations in the virtual space, offering a range of resources that are meaningful to the clients’ goals” (Trisha [P]). The above demonstrates that the respondents were fully immersed in imagining the potential of the app in supporting many aspects of the client-therapist relationship.

Subtheme 3: Practitioners and their tools

For many of the CBTp practitioners, the app represented an opportunity to better connect with their own practice in terms of learning, planning, and reflection. The ultimate quality of engagement, defining impact, was also highlighted. For example, Trisha was

“interested in how the toolkit might prompt different reflections or help us consider alternative approaches to our work”. She was also keen to utilise the “Learning Tracker, CBTp toolkit and resources, as well as the session summariser and thematic analyser” (Trisha [P]).

Stella planned on “accessing the materials prior to a session and using the session summariser to save time at the end of the session, by reading through and making changes to the AI-generated content” (Stella [P]). Here, Stella notes that she will not simply take output from the app without engaging and adapting it; this sentiment was shared by Amina, who takes the position that whilst “the summariser and analyser sound supportive... they will only be as good as the data entered in the first place!” (Amina [P]).

Respondents make the case that how they engage with any tool is ultimately what matters, with the implication being that the more they rely on a tool and the bigger the scope of the tool, the bigger the risk if practitioners are utilising it incorrectly.

Theme 2: Taking a Load off

This theme captures how respondents imagine the app as a support for the mental and administrative burden of delivering CBTp. Two core aspects of service delivery were widely shared as supported by the app: one was maintaining fidelity to the CBTp model; the other was ensuring the app was lifting the administrative load whilst saving time - some were concerned it might, in fact, add another time-intensive activity.

Subtheme 1: Fidelity to the model

Maintaining fidelity to the evidence-based model is the foundation of successful psycho-therapeutic intervention for first episode psychosis (Morrison, 2017). Respondents were consistent in valuing this functionality, though with some tension. For instance, whilst broadly reticent of the potential for AI “taking away my independent thought”, Alva values the potential of AI “offering suggestions of where we stray from the model” continuing she widens

the scope in reflecting that “as a supervisor it could be helpful to see all of this information in the one place and to discuss issues of fidelity that the App raises” (Alva [S]).

Yasmin, a practitioner, states that “I also like the idea of fidelity to the model”, supported through “analysis of session transcripts to support therapists in remaining in line with CBTp protocols” (Yasmin [P]). Mirroring Yasmin, Trisha states that “I also like the idea of keeping in line with the model”, but this time “through research/guidelines/tracking/sharing reflections” (Trisha [P]). What is remarkable here is that, though there is coherence about the importance of maintaining fidelity to the model, most likely reflecting their own working habits and style, each envisions differing ways in which the app would support this crucial goal.

Subtheme 2: Making time

The other key subtheme that had broad agreement was the value of support with the time-intensive activities. Amir notes that app appears to be “less time consuming and effective to organise caseloads in a better way” (Amir [S]). Time is also a concern for Trisha, who imagines “using the administrative support and intelligent reminders to improve efficacy and reduce time spent otherwise trying to contact clients and sharing information via emails or post”. She feels generally that “it could help keep my work more organised and provide access to resources from one location which would probably mean I am more likely to use them...[e.g.] notes joining up with the Trust system...so that those do not need to be duplicated” (Trisha [P]). This idea of duplication was something expanded by Alva who was also excited about “reducing the time burden of going into different systems to do all actions required for any one case” (Alva [S]).

Stella points to the apps' library of tools, which she feels “would reduce time in needing to find resources” (Stella [P]). Yasmin agrees with the benefit in terms of accessibility though she wonders in relation to other administrative requirements to utilise the app: “will it just add another thing to do? Will I still need to do all the other admin tasks required of me alongside this?” (Yasmin [P]). Mirroring the tension between input and output,

Amina reflects that “I would be looking for my time to be enhanced and not absorbed” (Amina [P]).

Theme 3: It could have...

As well as the varying ways in which practitioners and stakeholders might utilise the app, respondents also had ideas for refinements and additional features and functions. Trisha proposes that the SBARD format is added as a notes function “to encourage historical and present risk is noted to aid the session summariser”. She continues to point out that she “really like[s]” the research element of the app but is concerned “about parameters such as how recent the studies are, how applicable or generalizable they may be for our clients” and that “many researchers are White and that much of research has been conducted on WEIRD [Western, Educated, Industrialized, Rich, and Democratic] population samples”. Trisha also suggests “prompts for SOCIAL GRACES/Intersectionality or just a space to record reflections” (Trisha [P]).

Stella is far more succinct in her additional functions and lists “Outcome measures; Risk assessments; [and] Detailed session plans with scripts” as being key functionalities from her perspective (Stella [P]).

Theme 4: Is it safe?

This theme captures respondents’ more abstract considerations and reflections on employing AI when working with individuals experiencing first episode psychosis. Concerns of disconnection, overreliance and subsequent mistakes impacting service quality and safety, and general privacy concerns were described.

Subtheme 1: Disconnection

Not surprisingly, concerns that the use of AI might interrupt the therapeutic alliance were a key concern for Tara, the focus group expert by experience. She cautions that it is essential to focus on “keeping that human interaction going because as I say, the AI can be great, but also you don’t want people to drift and to feel disconnected because they feel like

most of the interaction is via the AI software rather than a person". Though there is the risk of impacting the human contact that nurtures service user engagement, Tara feels it is more about practitioners who become "solely reliant on the AI and then let other areas...slip". Tara proposes that "both areas of the practise [human connection and use of technology] are really important to get that like balanced well-rounded...service to people that need it" (Tara [SU]).

Subtheme 2: Poor quality provision

Understandably, concern for professional standards was a key reflection for practitioners. Trish worried that, as well as potentially offering the "wrong conclusions and guidance", reliance on AI could "send the message that therapists may not be needed" (Trisha [P]). For Alva, "bringing the App into the session might lead to a sense in the client that the clinician is not very skilled without the App" and states that "I would be wary of any clinician who said they wanted the AI to do some of the actual thinking for them as I would currently see this as poor professional standards" (Alva [S]). A sense of a need for balance and due diligence prevailed across most respondents as captured by Amir who, whilst acknowledging the virtues of AI, notes that "we would still need to be careful in analysing and interpreting them within the humane aspect, and not to rely on them as accurate" (Amir [S]).

The potential for inaccuracies, misuse, and mistakes was another key area of concern for respondents. Stella worried that "lazy practitioners – relying on AI tools to plan and write up their sessions – could miss important aspects of sessions" (Stella [P]). Along similar lines, Alva felt that clinicians risked "being dumbed down [through] relying too much on the App for guidance as opposed to using their own minds to work things out" (Alva [S]).

Subtheme 3: Privacy

Concerns about privacy and data protection were common amongst respondents. As a service user, for Tara, there was a requirement for "3-factor authentication" and knowledge

of what specific “security and privacy protocols are in place”. It was felt this would be particularly pertinent in instances where the service user is “someone that struggles with like, paranoia, and things like that” and might feel uncomfortable “information being shared kind of on this like platform” (Tara [FG]).

Many practitioners also spoke of their concerns for patient privacy and confidentiality, Alva was quite direct in labelling the implications of “being hacked, or there’s a data breach” stating that “there would be reputational damage for all staff and the Trust, and personal damage for the client” and asked the further question which though not widely shared is important “What are the legal implications of this data if a case were to go to court” (Alva [S])

Theme 5: Do you think it would help?

Various questions were asked to obtain the stakeholders' general feelings towards the value of the CBTp Companion app. Practitioners were asked to consider in relation to their own practice, whilst Supervisors were asked to use a broader lens to consider how the app might impact the quality of service provision. Throughout the process, I have felt varying degrees of discomfort with interpreting others' words. Interpreting the transcripts of the working group sessions felt easier because I was there, I remembered much of the sessions, and the text itself served to remind me of much else. As will be seen for Theme 5, for the focus group, again I felt more confident interpreting, though less so than with the working group, because of the stark power imbalance and the fact that it was a short 40-minute session.

For the questionnaires, I have felt far more reticent to interpret themes beyond general semantic organising around sentiment and aspect. Here, where stakeholders are being asked to give their opinion on the app as an asset for their practice, I feel unable to do anything other than order responses in full, grouped by practitioner or supervisor. One might argue that they are not strictly a theme, but they were created as the result of a choice

stemming from a reflexive process, so in terms of RTA, I feel it appropriate to include them here.

Subtheme: Practitioners

- I think the app sounds great – it could help to keep all things in one place and provide an efficient way to access the many resources CBTP offers, which I often misplace (Yasmin [P]).
- I think that the application sounds very supportive for clients and practitioners delivering CBTP interventions. I think it will be a good way for practitioners to keep their work stored together and be able to easily pick up where they left off or remind clients of the work they did together in their previous session. It will be useful to have a shared supervision platform if they have time to access the records prior to a supervision session. It would reduce time in needing to find resources if there is a handy toolkit (Stella [P]).
- The concept seems sound and could potentially enhance my practice. Having access to features in one place and being able to share with a supervisor feels helpful. I do wonder if it will be too technical to navigate (Amina [P]).
- My initial thoughts are that this tool would be very helpful for clinicians across services and levels of experience. I really like the collaborative aspect of it and the reduction in administrative burden that it offers. I also like the idea of keeping in line with the model through research/guidelines/tracking/sharing reflections; however, I am interested to see how that might take into account differences in CBT vs CBT-p or CBT-t, for example or when pulling from different models? (Trisha [P])

Subtheme: Supervisors

- Sure. It will help to improve client's needs. Keeping track of notes and having reminders will have to improve the time management, but also will help me in finding research easier. Finally, will help me to set reminders for appointments, follow-ups, and homework (Myra [S])
- My initial thoughts are that this tool would be very helpful for clinicians across services and levels of experience. I really like the collaborative aspect of it and the reduction in administrative burden that it offers. I also like the idea of keeping in line with the model through research/guidelines/tracking/sharing reflections, however, I am interested to see how that might take into account differences in CBT vs CBT-p or CBT-t, for example or when pulling from different models? (Alva [S])
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Theme 6: Keeping the client in mind

This theme is based on Tara reflecting on the trials and tribulations of her therapeutic journey and in particular, a distressing therapeutic experience that influences why she feels the app could be useful. "Sometimes we kept going over the same stuff ... And I feel like repeating that constantly isn't necessarily helpful...like dragging up things that you almost feel like you'd kind of worked through a bit better...that's one of the things that actually led to my second episode when I was admitted a couple of years ago.

“So yeah, I think maybe like retaining that data and being able to have like the smart response of like, say, the therapist puts in like, ‘this is what we're going to discuss’ and I don't know if this is possible, but the the app could say, ‘well we've already touched on this and this was the reaction, maybe we could cater it in a different way to try get a better response from the service user’. Yeah, that, it definitely did play into to me getting really unwell again, so I wouldn't want that to happen to someone else.

“So, I think if we could use technology to kind of prevent that, I think that could only be a good thing.... And then also the supervisor could also then access it and say like a session had gone badly because they kind of didn't follow the plan or they went off on a tangent or whatever, the supervisor could come in and because these notes would be like really, like, detailed they could come and be like, ‘right this is the point where things started to go downhill’. So that could also prevent like future relapses as well. So, you kind of navigate those bits together.

Tara also has cautions when she advises , “this might sound like rude or whatever, but I just think AI Workspace, when it's like the human mind and the mind of the computer working together, I wouldn't want practitioners to become like solely reliant on the AI and then let other areas that they can do themselves like more kind of practically to slip if that makes sense. So, I think kind of both areas of the practise are really important to get that like balanced... to be able to offer that service to people that need it.” (Tara [SU])

This poignant and highly consequential moment of misattunement on the part of Tara's therapist turns recovery after a first episode of psychosis into an admission for the second episode. Tara, more than most, might be reluctant to see AI employed in mental health care, and indeed, her cautions have been noted above, still, here I experience Tara as willing and making an effort to see the potential part - so long as appropriately employed - that AI can play in creating safety for the client, for her, through helping to hold her and others' healing journey in mind.

The Stakeholder Group themes will be employed in the Discussion Chapter to explore the Research Questions.

Table 5

Stakeholder Group themes

Theme	Subtheme	Subtheme	Subtheme
Pathways between	Supervision	Client work	Practitioners and their tools
Taking a Load off	Fidelity to the model	Making time	
It could have...			
Is it safe?	Disconnection	Losing [their] touch	Privacy
Do you think it would help?	Practitioners' own words	Supervisors' own words	
Keeping the client in mind			

Comparative Analysis of CBTp Companion App with comparator applications

Introduction

As outlined in the Methods chapter, the goal of this analysis is to compare the CBTp Companion App (dummy prototype) that was created by the working group against established comparable software solutions available on the market. The first goal of this comparison is to benchmark the dummy prototype against established market-standard solutions currently being employed by clinicians and organisations. In doing so, it will help address Research Question 1:

- R1: How might AI-driven software applications support practitioners delivering Cognitive Behavioural Therapy for psychosis?

This will be achieved by grounding the output from the working group in the landscape of similar applications.

Second, addressing and interpreting points of convergence and divergence will help in answering the following Sub-questions:

- S2: In what ways is AI-driven software being used in other relevant settings that might be transferable to the delivery of CBTp?
- S3: What are the strengths and limitations of employing AI-driven software in the context of CBTp?
- S4: What are the ethical considerations of employing AI-driven software in the context of CBTp?
- S5: What are the strengths and limitations of embedding participatory action research principles in designing an AI-driven app to support CBTp practitioners?

This will be achieved by identifying the functionalities employed in similar contexts to CBTp that have utility in the delivery of CBTp. Utility will be determined using the CBTp Companion, i.e. its own functions as identified by the working group, and also functions listed

on the online app that are deemed relevant through reference to the literature on general practices in CBT and CBTp not mentioned by the group.

Identifying appropriate comparators

In order to compare the CBTp Companion App, it is necessary to define it. For this, Mina's astute description of the Companion App as a *platform* that contains elements essential for the administration of the psychological intervention will be employed. In addressing the landscape of software applications that meet these ends, solutions fall broadly within three categories: practice management systems, electronic health record systems, and note-taking software.

The other notable aspect of the CBTp Companion App that is relevant for comparative analysis is the leveraging of artificial intelligence. As noted in the introduction chapter, artificial intelligence has seen growing adoption across the spectrum of activities entailed in the administration and delivery of mental health interventions (Alhuwaydi, 2024; Dakanalis et al., 2024; Olawade et al., 2024).

Search strategy

The goal of the search strategy was to gain a broad view of the market of relevant software applications. When beginning the search process, it was not entirely clear which search terms would lead to sufficient results. It was decided that Berrypicking allows for a flexible non-linear approach that recognises that in online searching, in particular, relevant information often emerges through the process of searching, which shapes that same process as opposed to a singular linear search strategy that is followed systematically, e.g. as required as part of the PRISMA protocol. In this instance, for example, it was not entirely apparent whether comparable software applications exist, what form they might take, or indeed what the names for them might be. There was some initial '*exploratory searching*' through which initial terminologies were explored and identified, along with the identification of repositories of potential comparator software applications (Savolainen, 2018, p. 581). In

essence, Berryinpicking allows for “trial and error as” during which time the “context will become better understood by the searcher” (Savolainen, 2018, pp. 581 & 585).

An initial search for similar apps supported Mina’s observation; many of the solutions available are positioned similarly as multi-functional in nature. It is likely that this happened organically over time, as evidenced by product names like TherapyNotes or BreezyNotes that likely started out as notation applications appearing in product comparison articles alongside solutions with names like SimplePractice or TheraNest, which indicate a more practice management-oriented software solution. The comparisons themselves mainly use the term EHR, indicating that this is a catchall term for software platforms supporting the administration of psychological and psychotherapeutic interventions and was employed as the primary search term in the search strategy (Boudin & Fuller, 2025; Szandrach, 2025).

Search terms and results

A Google search was carried out using the following terms:

- ‘ehr system psychology’ returned 14 relevant results from the first two pages of results
- ‘ehr system therapist’ returned an additional three relevant results from the first two pages of results
- ‘ehr system therapist AI’ returned a further three relevant results from the first two pages of results
- ‘ehr system psychology AI’ returned one additional relevant result from the first two pages of results
- ‘CBT therapist companion app’ did not return any further relevant results from the first two pages of results
- ‘therapist AI app’ did not return any further relevant results from the first two pages of results

During the search process, a number of articles comparing and listing relevant apps were returned, and it was decided to add these to the relevant results list:

- Choosing Therapy's *The Best Mental Health EHR of 2025* returned eight relevant results (Boudin & Fuller, 2025)
- Headway's *The 9 best EHR systems for therapists* returned nine relevant results (Headway, 2025)
- Medesk's Top 6 Practice Management Software for Mental Health Professionals returned six relevant results

In total, the Berrypicking exploratory search approach resulted in a dynamic and learning search process that resulted in 37 relevant results once duplicates were removed. The next step was to subject the 37 results to the following exclusion criteria: firstly, software solutions leveraged artificial intelligence, and secondly, solutions are primarily aimed at mental health professionals. Following this process, five software applications were selected for comparative analysis, see Table 6.

Table 6

List of selected software solutions for comparative analysis

Software name	Tagline	URL
Blueprint	Blueprint automates progress notes, drafts smart treatment plans, and surfaces actionable	www.blueprint.ai

	insights before, during, and after every client session.	
Clearmind	Clearmind's next-generation technology provides a complete practice management solution that connects real people with real therapists for real results.	www.clearmind.health
Mentalyc	Automated notes, treatment plans, alliance feedback, and progress tracking for mental health professionals	www.mentalyc.com
TheraPro	TheraPro safely harnesses the power of A.I. to write your notes so you never have to write another progress note from scratch again. It's no wonder that therapists who try TheraPro say they won't live without it.	www.therapro.ai
TherapyNotes	TherapyNotes® is a complete practice management system with everything you need to manage patient records, schedule appointments, meet with patients remotely, create	www.therapynotes.com

	rich documentation, and bill insurance, right at your fingertips.	

Data extraction

Data was extracted in the following ways: firstly, the CBTp Companion app was codified using the headings of the various app functions. Of note, 'CBTp Toolkit' was deemed to be specific to CBTp and was given the more generic name 'Clinical Resources'.

Conversely, 'Fidelity to the model' remains alone as a function because of its specific use of AI. As the analysis progressed, app functions from the analysed apps were added to the list of comparative functions based on their relevance for the delivery of CBTp as found in the clinical literature; here, *fidelity* was also listed under the app function 'Treatment Planning' as it would have been a point of merging if the app had employed AI to support the process. App functions that specifically leverage AI are indicated with (AI) next to the function name.

Results

Tables 7 & 8 summarise the presence of relevant functions across each of the six software solutions.

Table 7

Summary of the presence of relevant functions across each of the six software solutions

[illegible]

Table 8

Summary of the presence of relevant functions across each of the six software solutions

Name	Compliance/ Service Quality	Treatment Planning	Clinical Progress / Outcome Measures	In-session Interventions (AI)	Data Security and Control	Admin (scheduling, payments, etc)	Digital Replica of Therapist (AI)	Diagnostic Support (AI)
Blueprint		*	*	*	*	*		
Clearmind	*	*			*	*	*	
Mentalyc		*	*		*			
TheraPro AI		*	*		*			*
Therapy Notes			*		*	*		
CBTp Companion	*	*				*		

Convergence

Administration

In addressing points of convergence with the CBTp Companion App, the use of artificial intelligence for summarising sessions and informing clinical notes was widespread, featuring in three and four out of five of the market solutions, respectively. Administration was another area of strong convergence across applications, with admin tools and communication tools again featuring in three and four out of five of the market solutions, respectively, reminders was mentioned by two market solutions, showing convergence here also.

Clinical

Clinical resources and supervision sharing were areas of more moderate convergence. Perhaps understandably, neither of the solutions that likely started out as notation software featured them, but two out of the three EHR platforms did. Being more closely related to clinical notes, treatment planning saw strong convergence, with four out of five of the solutions having this function. Whilst treatment planning is not mentioned as a function within the CBTp Companion app, it is central to maintaining fidelity to the CBTp model, which was mentioned, so it is noted here as a point of convergence. Similarly, clinical progress and outcome measures were key features of four out of five solutions and is central to maintaining fidelity to the model which requires goal setting and monitoring, and between-session tasks (Morrison, 2017).

Divergence

Uses of AI

One key area of divergence is the differing use cases for AI by the marketplace solutions. For example, Blueprint plans to employ AI for in-session interventions, on the other hand, Clearmind seeks to allow users to employ AI to create a digital replica of

therapists, finally, TheraProAI offers diagnostic assistance. Whilst diverging with the CBTp Companion app, each also diverges with the other tools on the market with no two offering the same use of AI.

The use of AI to help tailor resources was a key area of experimentation and discussion for the working group and is a function of the application that was not found within the other software solutions. Similarly, the use of AI as a thematic analyser to identify patterns and trends within client data was unique to the CBTp Companion app.

Data Security and Control

Data security and control was a key area of functionality across the software solutions, and whilst not mentioned within the CBTp Companion app functions it was a key point of discussion for the working group, this inconsistency is notable and will be returned to in the discussion.

A discussion of the output of this analysis is detailed in the discussion chapter that follows. Here the CBTp Companion app is benchmarked against comparator apps, the chapter also interprets and contextualises areas of convergence and divergence of comparator apps internally, and externally in relation to the CBTp Companion app.

Discussion

The application of AI-driven software

How might AI-driven software applications support practitioners delivering Cognitive Behavioural Therapy for psychosis? (R1). This section of the Discussion chapter synthesises findings from the thematic analyses, comparative analysis, and the wider landscape of literature to illuminate research question one. To do this it will first outline some of the key functionalities detailed within the CBTp Companion app and explore how they meet the needs of CBTp practitioners and relevant stakeholders (S1). It will then establish the differing ways AI is being used in other relevant settings to benchmark the application (S2). Next it will address the strengths of employing AI-driven software in the context of CBTp by drawing on the themes from the thematic analyses including tensions contained therein which will be contextualised within the broader literature (S3.5). In completing this section, ethical considerations, which broadly speaking were also the limitations of employing AI-driven software as reflected upon by key participant stakeholders, will be explored with reference to wider discourse on AI ethics in mental health and relevant contexts (S4 & 3.5). Research Question 2 and S5 dealing with the design guidelines will be covered later in the Discussion Chapter.

Creating the CBTp Companion app

In creating the CBTp Companion app, the working group envisaged a software solution that is in effect a platform of tools and functionalities, some of which leverage artificial intelligence in support of various aspects of CBTp practitioners' delivery of CBTp interventions. Encouragingly, the comparative analysis shows that this is in keeping with software solutions for use by mental health practitioners in similar settings. Whilst an underdeveloped area of development, mental health specific platforms are seeing increased attention in recent years (Kariotis et al., 2022), with the leveraging of AI in pursuance of mental healthcare a key area of development (Timakum et al., 2022). As a platform

leveraging AI, the CBTp Companion app broadly covers three areas of utility: reflection support, intervention support, and administration support.

(S1) Reflection support

Reflective practice is the bedrock from which all practitioner's capacities stem and is the first element of support for the CBTp Companion app through the reflective journal (Roth & Pilling, 2008; Schon, 2016). In the delivery of CBT "reflection plays a significant, indeed central role" (Bennett-Levy et al., 2009, p. 115). According to the British Psychological Society (BPS), reflective practice is central to the effective delivery of psychological interventions, a sentiment shared by the British Association of Behaviour and Cognitive Therapies (BABCP) (BPS, 2024; Presley & Jones, 2024). Interestingly, the comparative analysis identifies this area as neglected by the solutions available on the market which demonstrates the app's potential to meet an area of unmet needs.

A study of trainee CBTp practitioners found that one of the core ways that reflective practice is developed is through the supervisory relationship (Harris et al., 2022). Supervision supports practitioners to reflect on "cultural assumptions, values, and biases and strive to not impose them on clients" (Ellis, 2017, p. 155). This is of particular importance when working with individuals where stigmatisation or poor rapport are key impediments to recovery (Brown & Parry, 2024; Vass et al., 2015, 2017) and the culturally sensitive adaptation of interventions are central to their effective delivery (Griffiths et al., 2023; Habib et al., 2015; Jagtap et al., 2024). As noted in the introduction to this thesis, supporting the process of supervision as an auxiliary AI supervisor was the genesis of this process. Interestingly, and indeed encouragingly in terms of demonstrating how the process evolved – as is best practice in Participatory Action Research, the vision of the working group and stakeholders is one of the apps facilitating the relationship as opposed to seeking to replicate or replace it i.e., "I wouldn't want practitioners to become like solely reliant on the AI" (Tara) and the subtheme *Aiding but not replacing*.

(S1) Intervention support

The provision of clinical tools within the CBTp companion was a function valued by stakeholders: *Practitioners and their tools*. Stakeholders felt that access to tools might inspire alternative approaches to working or save valuable time through their ease of access, “access to resources from one location which would probably mean I am more likely to use them” (Trisha). Tallon et al. (2019) note that for CBT the use of tools and activities for service users to carry out at home “is widely advocated [and] increases effectiveness” (Tallon et al., 2019, p. 463). They note further that for service users, and in line with the idea of alternative approaches to working, the availability of activities in electronic format “remove[s] some of the barriers” in completing them, or indeed allow for clients who struggle to maintain face-to-face appointments to remain engaged the therapeutic process, a known challenge for individuals with psychosis (Doyle et al., 2014; Tallon et al., 2019, p. 464). The provision of tools or indeed the novel idea of employing AI to tailor tools and material are not present in any of the comparators or indeed the landscape generally marking a clearly unmet need filled by the CBTp Companion app.

NICE Guidelines call for 16 planned sessions of evidenced based CBTp as part of the treatment regimen for first episode psychosis (NICE, 2014). The gold standard evidenced based protocol used in the treatment of psychosis states that planning and “explicit structure” which ensures “fidelity to the model” is necessary for the effective implementation of CBTp (Morrison, 2017, p. 272 & 274). As well as being key functions of the CBTp app, *fidelity to the model* and *treatment planning* were key areas of focus by stakeholders and treatment planning was pervasive across the comparative analysis apps. Broadly speaking, the provision of various tools was another area of convergence in terms of the CBTp Companion app, stakeholder themes, and the comparator software solutions. Interestingly, the working group participants identified this an area of utility for artificial intelligence with their proposing the *Thematic Analyser* could analyse transcripts to identify

and alert practitioners on the degree to which they were maintaining alignment with standardised protocols.

(S1) Administration support

Administration is an integral component of a mental health practitioner's work with a large part of work spent "completing electronic health records, report writing, etc." (BPS, 2012, p.8). Research shows that a feeling of overwhelm in relation to administrative tasks is a key driver of stress and burnout amongst mental health professionals (Reid et al., 1999; Rupert & Morgan, 2005). Support with clinical notes is a function of the CBTp Companion app and convergence with the comparator solutions, in particular its interoperability with legacy systems was a key point of interest in the stakeholder subtheme *Making time*. In the research by Reid et al. (1999), administration "adds an extra dimension of pressure...it makes it hard to do everything" required of a practitioner (Reid et al., 1999, p.305). Of note is here and in support of the writing of clinical notes is the App's *Session Summariser* which again found convergence between software solutions, this function was taken a step further in the theme *It could have...* where Trisha proposed the addition of a standardised format in presenting session summaries. Another key administrative function that was referred to under the subtheme *Making time* and appeared amongst the comparator apps also was the ability of apps to set reminders for practitioners and service users. Again, similar to the above point, the CBTp Companion app further develops this idea with the concept of *Intelligent Reminders* leveraging interoperability for reminders to operate across platforms. As well as reducing the administrative burden on practitioners and potentially reducing stress and burnout, research by Polillo et al (2022) surveying patients and family members found that for respondents, appointment reminders was a "top facilitator" in maintaining service user engagement with early intervention psychosis services (Polillo et al., 2022, p. 94).

Finally, *Research Support* was a function of the CBTp Companion app that wasn't mentioned by comparators, this is most likely due to the general applicability of those solutions. The subtheme - *It could have...* moves beyond the Research Support use cases

detailed in the app which is related to creativity and fidelity to the model, to propose that the research function could support practitioners to consider the demographics and characteristics of their patients. The “ability to work with difference” is considered to be a key clinical competence for CBTp practitioners (Roth & Pilling, 2008, p. 2). Research shows that for Black African, Black Caribbean, and Black British and “around 1.5 greater odds for multimorbidity, and around twice the odds for severe multimorbidity (i.e. psychosis plus three physical health conditions)” compared to White British people (De Freitas et al., 2022, p. 5), whilst a five-year illness trajectory study across racial groups found that “Black and Asian individuals appear to make less improvement in long-term recovery” (Griffiths et al., 2023, p. 569). A key part of lessening these disparities and inequalities is the enactment of “culturally sensitive” service provision which this app function seeks to support (Griffiths et al., 2023, p. 577; Penny et al., 2009, p. 970).

In summary, the CBTp Companion app demonstrates how an AI-driven platform of functions can support some of the most fundamental aspects of practitioners’ work in delivering Cognitive Behavioural Therapy for psychosis (R1). In focusing on reflective practice, facilitating the delivery and fidelity of interventions, and the streamlining of administration, the app reflects both stakeholder values and experiences as well as that of research, training manuals, and the best practices of industry leading software solutions, NICE guidelines, and BPS and BABCP best practices. In leveraging AI to tailor interventions individually in a culturally sensitive manner, the app responds to empirically grounded inequities in supporting practitioners to meet the needs of those for whom psychosis is most prevalent and who are often most impacted by it. In the next sections, the discussion will address whether there are any gaps in the functionality of the CBTp Companion app.

(S2) Unmet needs

The above section began the process of benchmarking the CBTp companion app against best practices, national guidelines, and feedback from key stakeholders, in addressing S2, this section draws upon the output from the comparative analysis to

illuminate how AI-driven software is been employed in other relevant setting to identify potential gaps left unserved by the CBTp Companion App. Encouragingly for the app, whilst the comparative analysis highlights some areas of divergence that might signify need unmet by the CBTp Companion app, there is little convergence amongst the comparators in this regard.

One area of convergence in the comparative analysis was *Data Security and Control* that was not a function of the CBTp Companion app and indeed data security and privacy was not a key consideration of the working group in developing the app whilst it was for the stakeholders under the subtheme *Privacy*. The absence is likely explained by the focus of the working group when deciding functions in relation to how the app might support their clinical practice with concerns related to safety coming in terms of the subthemes *Extending Trust* and *What's in the safe*. It's highlighting by the stakeholders demonstrates the importance of multiples perspectives and its likely inclusion in a later iteration of the app speaks to the importance of iteration in the design process. Functions included by the individual comparators but absent from the CBTp companion app are the use of AI in providing *In-session interventions*, a *Digital Replica of the Therapist*, and *Diagnostic Support*, this is likely due to apprehensions highlight in the subtheme *Aiding but not replacing*. Further this was an area of divergence across the comparator apps which perhaps indicates apprehension here also.

In closing, this section's exploration of comparative analysis shows that whilst working group failed to address the area of convergence of comparator apps in terms of data control, this likely reflects their attentional bias in focusing on clinical functions, the wider design process did indeed address this aspect of functionality which would have likely resulted in its inclusion in a later iteration.

(S3.5) Strengths of employing AI-driven software in the context of CBTp

This section assesses the strengths of the CBTp companion app in the context of CBTp (S3). In addressing the strengths, the section draws upon the analysis of stakeholder feedback who were called upon to assess the app and couches reflection in relation to the literature. *Pathways between* addresses how the app acts as a bridge between practitioners, their supervisor and clients, and their tools. *Taking a load off* examines how the app frees up practitioner time to most effectively make use of their time. Finally, *Keeping the client in mind* offers a powerful illustration of one of the main strengths of the app from the perspective of a service user.

Taking a load off speaks to the pragmatic strength of the CBTp Companion app in terms of its potential to mitigate practitioner burnout by reducing administrative burden as mentioned above (Reid et al., 1999; Rupert & Morgan, 2005). Moving beyond this key consideration, stakeholder supervisors and CBTp practitioners valued the potential of the app to support the user in maintaining fidelity to the model which as noted above is a crucial for the effective with failure to do so having “potentially harmful” outcomes for the service user (Morrison, 2017, p. 2). Freeing up time was another key strength of the app noted by stakeholders, got example one practitioner felt that as well as improving efficacy in contacting clients, they continued that having access to resources in all one place has the dual impact of both reducing time and making them more likely to be used due to their accessibility (Amina). Another key area of utility was the interoperability at the heart of the app which “reduc[es] the time burden of going into different systems to do all actions required for any one case” (Alva).

The above demonstrates that the strength of the app with regards *Taking a load off* is that not only does it have the potential to reduce the likelihood of practitioner burnout and increasing wellbeing through a reduction in administrative burden, but it also has the potential to increase the likelihood of practitioners making use of valuable resources. In sum, the above positions the app as a valuable intervention for practitioners, increasing the

accessibility and ease of use of resources, reducing time spent across systems, whilst also reducing the cognitive and emotional load of practitioners and freeing up time to focus on clinical contact and clinical decisions concerning their clients.

Pathways between captures the second major strength of the app, which is the app's potential to serve as a dynamic collaborative bridge facilitating the crucial relationships between practitioners and their supervisors, practitioners and service users. The facilitation of transparency in the supervisory relationship was also noted under the subtheme *Fidelity to the model* with one supervisor noting that "as a supervisor it could be helpful to see all of this information in the one place and to discuss issues of fidelity that the App raises" (Alva). One cannot overestimate the importance of fidelity to the model for psychosis and it is the reality that fidelity is important for most evidence-based approaches (Kendall & Frank, 2018; Teague et al., 2012).

The subtheme *Client work* reflects on the potential of the virtual space to serve as a collaborative environment that has the potential to support practitioners in "enhancing clients' understanding more clearly with visual aids" (Amir). In terms of CBTp for psychosis "Collaboration is central to good CBTp" and the use of visual aids in depicting formulations which "serves to socialise people with psychosis to the cognitive model" all of which is crucial to the efficacy of the evidence-based approach (Morrison, 2017, pp. 273 & 276). The facilitation of the service user-practitioner relationship whilst simultaneously enhancing service user understanding of the therapeutic model identifies another key strength of the app

Finally, Tara's experience of her therapist *unnecessarily* revisiting traumatic events serves as a compelling illustration of potentially damaging impact of therapeutic misattunement. For Tara, the app serves as a reminder of the client journey, *holding* not just their story but their challenges in the therapeutic process. Whilst research shows that Tara's experience is uncommon (Purnell, 2024), Tara's suggestion that the app could support with the monitoring and reminding of past treatment responses to inform future sessions is an

elegant one and speaks to the app potential in enhancing both rapport and collaboration within the therapeutic relationship. This support of collaboration and rapport is evidenced by the research of Tong et al., (2019), who informed the ethics of this research, their research suggests that the wider potential of the app to foster collaboration between service user and practitioner has an empowering effect which serves as a protective factor when recounting traumatic events (Tong et al., 2019).

In summary, the strengths of the CBTp Companion app lie in its capacity to hold many of the domains of a practitioner's workload in one interconnected space. As an administrative support it helps streamline the workflow of practitioners with the provision of needed tool that are accessible and interoperable. The function of service users and supervisors having access to elements of the platform facilitates crucial elements of the CBTp therapist's practice augmenting supervision and the therapeutic relationship. In doing so it supports both quality of care and service users' engagement with the therapeutic process which both improve outcomes. The app's potential to hold the client's therapeutic journey has the crucial benefit of supporting practitioners to remember key points of difficulty for the service user thereby helping to lessen the potential of misattunement and encouraging collaboration between service user and practitioner. The next section will critically explore the ethics and limitations of employing the CBTp Companion app in the context of CBTp.

(S3.5 & 4) The limitations and ethics of employing AI in the context of CBTp

What is clear from the Working Group, and Stakeholder Groups' themes is that reflections on limitations are invariably ethical concerns and judgements. The one clear theme related to AI *Aiding but not replacing* practitioners work is more related to that it should not as opposed to could not, it is thusly not a technical judgement but an ethical one. In fact, *Aiding but not replacing* was categorised under the theme *Ethical Dilemmas* during the Reflexive Thematic Analysis which further supports this interpretation. Therefore, this section will address the limitations in terms of ethical considerations (S3.5 & S4). In doing so

this section will look key themes from the Working Group and stakeholders focusing on concerns related to themes of disconnection, deskilling and the undermining of clinical standards, privacy and data security, and the inherent risks in practitioners extending trust to the CBTp Companion app. In closing, the overarching position being that AI can aid but not replace the intrinsically human qualities inherent in the delivery of CBTp will be explored.

Data and privacy

Data security and privacy was a key concern for stakeholders. For stakeholder staff there were concerns about hacking and data breaches, legal implications of data required for court, and the potential reputational damage to staff and Trust as well as personal damage for service users. The service user was also concerned with privacy and transparency with regards “security and privacy protocols” (Tara). The reality is that the LLMs that drive AI required data to be created and require data to be useful, the other reality is that no system is 100% safe and data breaches within NHS systems regularly (Ghafur et al., 2019; Stevens et al., 2017). Whilst data breaches generally within the NHS have led to perceptions that it is not a “trustworthy steward of our data” (Banner, 2022, p. 1), perhaps what sets the app apart is that it merges two worlds where there has been an erosion of trust due to data breaches and malpractice, healthcare and the only other platforms most people understand as a frame of reference and also have a history of data breaches, social media platforms. Again this is of particular importance for a cohort with a greater likelihood of mistrusting technology or indeed finding its use increases symptoms (Bucci et al., 2018; Eisner et al., 2023). Research shows that as well as taking appropriate steps to mitigate the potential of data breaches, service users can be reassured by their clinicians “candour and outlook on” the maintenance of sensitive information within systems (Shen et al., 2019, p. 8).

Disconnection

The subtheme of *Disconnection* was articulated by the Tara who cautioned against AI being overused and by sharing sentiment that for service users it should not feel “like most of the interaction is via AI software rather than a person” (Tara). This call for

temperance is reflected in the literature much of which was carried out in response to the impacts of the COVID19 pandemic which had the effects of an increase in mental health issues, the requirement for remote working, and the perceived benefits of mental health technologies as a key part of the answer (Jackson-Triche et al., 2023; Miner et al., 2020). Research shows that the impact of mental health applications on trust in the deliverance of therapeutic interventions is a key issue (Lee et al., 2025, Müller et al., 2023) and can ultimately result in disengagement if not appropriately employed (Lo et al., 2025; Wong et al., 2021). The subtheme *Extending trust* and Tara's reflection of discomfort in using tech is clearly evidenced in the literature, that said, Tara's insight on balance is reflected by Morrison (2017) regarding the need for collaboration and is relevant here also, with research showing that collaboration and reassurance as to the targeted usage of AI can result in a productive enterprise (Lee et al., 2025; Lo et al., 2025; Morrison, 2017; Müller et al., 2023; Wong et al., 2021). The potential for disconnection is a key weakness for the CBTp Companion app but the above shows that with temperance and reassurance of appropriate usage this can be mitigated.

Aiding but not replacing

The belief that "the human connection is really important" led one working group member to decide that "*AI can be an aid, but not a replacement*" (Sophie). For another it was their experiment with an AI chatbot that when faced with complex feelings "didn't know what to say" which uncovered its limitations a recognition that "trying to have something that fits everybody may not work" (Mina). Supervisors were concerned that replacing key aspects of clinical practice with AI might reflect *Poor quality provision* and run the risk of sending the message that the therapist "may not be needed" (Trisha) or "not very skilled without the app" (Alva). Other concerns around AI being overused related to the potential for deskilling due to "being dumbed down [through] relying too much on the app" and the potential to "miss important aspects of sessions" (Alva). This is an understandable concern for supervisors whose domain of responsibility it is to ensure the quality of practitioner and service, and it

reflects a key area of concern in mental healthcare (Farmer et al., 2025). However, research suggests that whilst concerns exist there is little evidence for it and in fact AI has the potential to upskill through introduction to “new techniques or tools that are relevant to their current work”; that said, due to the nascent nature of the technology this area of research is underexplored area (Nilsson, 2025, p. 5).

The above was also an area of concern for Tara who notes that she “wouldn't want practitioners to become like solely reliant on the AI and then let other areas that they can do themselves like more kind of practically to slip” (Tara). Again, wider service user research into the use of AI shows that along with worries about the loss of connection with their practitioner, overall service users see the benefit provided it is used appropriately (Lee et al., 2025, Müller et al., 2023) or as the title of one study into service users perspective on the use of chatbot in mental healthcare put it “Patients see potential, but prefer humans in the loop” (Lee et al., 2025).

These reflections and insights give credence to concerns the Working Group had when feeling that AI can *aid but not replace* the human connection, the *uncanny valley* is clearly impassable as technology stands. Stakeholder reflections further contextualise the sense of guilt described by a Working Group member when reflecting in relation to their imaginings of using AI: ‘this feels too, I don't know, not real—maybe false’ (Alice). There is research that suggests practitioner distress and burnout that is often attributed to overwhelm, does not stem from the *amount* of work, but more from the *quality* practitioners feel is possible given their workload, their sense that they know it's not the appropriate to meet their service users' needs (Dean et al., 2019). Perhaps the same is at play here, whilst being aware of the pragmatic value of leveraging there are concerns that some intangible human need will go unmet. This presents both a limitation in terms of the CBTp Companion app not being overused, but also lights the way in terms of illustrating how if used correctly the app represents a valuable tool for practitioners and stakeholders alike.

In summary, this section shows that the limitations of the CBTp companion app are primarily ethical in nature and reflect the tension between pragmatics and convenience on the one hand and deeper professional and human values and concerns on the other. The evidence suggests that the potential of the CBTp Companion app as platform creating a collaborative bridge between practitioners and their supervisors and service users, a facilitator in accessing effective clinical resources, and as a support in maintaining fidelity adherence, would likely improve the quality of interventions and subsequent outcomes for service users and perhaps lessen the likelihood of burnout for practitioners.

Concerns around data security and privacy, the impeding of the therapeutic relationship, or deskilling practitioner and undermining clinical standards are founded, however, the evidence suggests that these tensions can be mitigated through appropriate use of the app which includes a collaborative, information driven approach to assuring service users that it is an aid but not a replacement for their CBTp practitioner. Overall, the broad conceptualisation of the app as an aid but not a replacement is clear from practitioners, supervisors, and the service users, this is not a limitation as much as a triangulation of appropriate usage. In reflecting on the question of practitioners employing AI versus their embodiment as the vehicle for therapeutic change, Tara position that “both areas of the practise are really important” to provide a “balanced well-rounded...service to people that need it” is an astute one. In the next section, the strengths and limitations of the methodological approach out of which the CBTp Companion app and Design Guidelines were created will be addressed before presenting of the Guidelines created by the Working Group.

Design Guidelines

This section addresses the strengths and limitations of embedding participatory action research principles in designing an app to support CBTp practitioners. In conceptualising this section, it is important to note that “unlike traditional research approaches which aim at creating knowledge only” action research takes a dual focus on

“both an action and a research outcome”. At the risk of oversimplification, the CBTp Companion above would be considered the traditional research outcome, the ‘action’ in action research. What action research produces as another *outcome*, is “creating knowledge or theory about” the research process (Coghlan & Brannick, 2005, p. xii). This section is concerned with this outcome, the guidelines are the embodiment of the research process, a *how-to* manual or Plan for repeating the *action*. As such, before presenting the Guidelines (R2), this section will first appraise the strengths and weaknesses of this project’s action research process by returning to the themes of the Working Group and exploring them in relation to the wider action research literature (S5).

(S5) The strengths of embedding participatory action research principles in creating the CBTp Companion app

The Learner’s Journey – (Socialisation to the model; Learning through action) & The Research Culture – (Balancing immersion; Vulnerability in the group process)

The *Learner’s Journey* is the leitmotif that ran throughout the research. Similar to the advent of the internet, exploring the opportunities and potential of AI presents an invitation for learning on a global level. Learning about the potential of AI was a motivating factor for the working group participants. Research shows that curiosity and interest are key factors for those choosing to participate in research (Cromer et al., 2013; Groves et al., 2004). For action research, learning, and indeed “social learning” is the vehicle that “leads to social change and transformation” (Coghlan & Brydon-Miller, 2014, p. 712) and reflects the wider methodological influence for this research with regards social learning (Tudge, 2004).

Socialisation to the model of Action Research was a core element in framing the learning journey, a journey the whole group took together. From the outset the Lead Researcher made their having a *fantasy* of the research product clear but centred Working Group Participants’ knowledge and knowledge production in defining what the actual product would be: “We really value your guys’ knowledge as the people who are doing this every day”; it’s “in your hands to decide” (Hayden). This democratisation of the research process is

a core element of action and sets the stage for the learner's journey (Bradbury, 2015a; Coghlan 2005). The value of action research is its clarity in terms of framing all actors as learners; relevant principles such as social learning, democratisation of knowledge production, and the learning journey help set the stage and are employed by the lead researcher, who in turn models and/or frames them for the participants (Scharmer & Kaufer, 2015).

Engagement in the Learner's Journey involved a series of tangible, directed, and self-directed activities. A key strength of action research is learning through action. For this research, learning through action supported a process whereby Working Group participants' engagement in activities that required an actual or an imagining of practice, brought tacit knowledge into awareness, what is termed *knowledge in process* (Coghlan & Brydon-Miller, 2014; Koskinen et al., 2003; Yip, 2007).

The process of enacting the *Learner's Journey* through *socialisation to the model* and *learning through action* is what creates the Research Culture. Central to it is the facilitation and *balancing immersion* for action and reflection, from this comes the learning and insights, the tacit knowledge (Bath, 2009; Raiden & Manu, 2024; Slater et al., 2002; Tacchi, 2015). Alice who reflects "*it's been quite guided in a lot of ways, hasn't it? Which I think helped, particularly at the start ... But I think, yeah, the combination of you presenting things and then being able to just have quite open forums, and being able to then go away in the week, come back, and think about things that we've noticed*", shows how the Lead Researcher positions themselves in the process: presentation, open forums (plan), go away in the week (act and observe), come back and think about what we've noticed (reflect) (Alice). This reflection perfectly captures both the action research cycle, the *research culture*, and evidences the Participant Researchers' embodiment and valuing of it in supporting her engagement in learning.

As the process continues and the inquiry deepens, *vulnerability in the group process* becomes central to the exploration of values, ethics, and tensions. Mina's reflection that the

research culture created a “safe space” where it was “comfortable to share ideas that might be a bit *out there*”, a key component of this was the group process of “shared learning and shared experience” which was likened to ‘group process’ in the therapeutic sense (Mina). These values, in line with “trust, concern for other, equality..., common language”, are at the heart of engaging with vulnerability (Coghlan & Brannick, 2005, p. 13). Importantly, the group notes that the action research process creates a sense of collaboration. In writing on collaboration in action research Erfan and Torbert (2015) note that it is from a place of vulnerability that action can “transform oneself and others” (Erfan & Torbert, 2015, p. 74). Something that did not occur to the Lead Researcher at the time engagement, was the role of the feminine in the inquiry. Bradbury (2015 p. 573) writes that “vulnerability” is a feminine characteristic that is often overlooked when considering experience and the constituents of reflecting and sharing. Other research on vulnerability in research settings also speaks to its relation to women, and whilst the research notes that, regardless of gender, the inherent power imbalance should be attended to, the absence of gender as an imbalance from the Lead Researcher's initial considerations is relevant, but speaks more to a shortcoming on their behalf, as a strength of action research is the centring of such considerations (Bradbury, 2015b; Cotterill, 1992; Lykes & Scheib, 2015).

Power

The relationship between power and vulnerability is reflected sequentially within the themes. One of the key strengths of action research is that it bridges concepts and phenomena, for example in returning to Erfan and Torbert (2015) they speak of differing types of power; “Unilateral vs. Mutual Power”, for mutual power, they state that participants “influence each other in the course” engagement and in doing so they “offer one another feedback...and both listen vulnerably”, taking the concept further they illustrate how mutual trust and collaboration can create and “inquiring power” which can “transform oneself and others” (Erfan & Torbert, 2015, p. 67 & 74). In the previous section this is reflected in participants feeling of safety and comfort to inquire into the boundaries and potential of AI, to

consider things “a bit out there”. In returning to the conceptualisation the Zone of Proximal development wherein the More Knowledgeable Other scaffolds learning through bridging skills and ideas, here rather than a More Knowledgeable Other there the Group scaffolding not only knowledge, but also scaffolding safety and comfort through *shared learning and shared experience* from where Participant Researchers consider new ideas, a key strength in action research is the centring of issues of power and difference that mediate this process.

The above is further reflected *Power as a potential stifling force* wherein Alice, reflects on her position as the most senior of the group and her worry that she might act as an “unconscious kind of barrier” to others participation. ‘Power within’ is a key consideration within action research and in the initial forming of the Working Group and was present in the Lead Researcher’s invitation for Participant Researchers to shape the process (Gaventa & Cornwall, 2006). It is hoped that this modelling protected against a stifling of engagement and instead created safety for it. Both the Lead Researcher’s and Alice’s efforts are present in Bradbury (2015b) where she speaks of the need for individuals engaging in Action Research to reflect on their presence in making space for others and indeed their own “epistemological voice”. The epistemological voice for Bradbury includes “objective knowledge...subjective knowledge...and inter-subjective knowledge” all of which are necessary when uncovering tacit knowledge (Bradbury, 2015b, p. 573). The analysis showed that the action research approach supported the group to reflect on power as opposed to being stifled by it, and that the in the words of Mina, the dynamic allowed for the sharing of “*emotional reaction*” and ethical “*dilemma*” (Mina). The action research cycle supported a process whereby participants went away to act and observe and provided a space to come back and reflect: “you need that coming back and that validation in others” (Mina).

Ethical Dilemmas

The potential then, is for action research to create safety and comfort in vulnerability to enact an inquiring power as opposed to a stifling one. From here the group can explore

issues, tensions, and dilemmas. In this research, issues of falsity and intrinsic human connection, broadening participation and the service user voice, were explored with bravery and openness. This is crucial in carrying out action research in organisations, for example, in the “identification [of] dilemmas you initially identify yourself with your organisational role” as opposed to that of the researcher seeking to address the whole, the safety fostered through the action research process functions to support participants to remain in it (Coghlan, 2005, p.66).

Themes demonstrates how the group wrestled with what makes communication between service user and practitioner “really meaningful” and “respected” (Sophie) and talked about how in their experience “the relational aspects of therapy” (Mina) are most valued by service users and should not be compromised through the adoption of AI i.e. *Aiding but not replacing*. This again is a strength of action research, it creates a culture of safety or perhaps bravery to explore things that might leave one feeling vulnerable, it centres self and other when reflecting on experience and epistemology, when reflecting on one’s own power and what might stifle others’ engagement. Participant Researchers were able to reflect from positions informed by objective knowledge, subjective knowledge, and importantly, inter-subjective knowledge, in effect, their tacit knowledge (Bradbury, 2015b).

(S5) Limitations of embedding participatory action research principles in designing an app to support CBTp practitioners

For the Working Group, limitations were not apparent within the transcripts from the working group sessions or from one-to-one interviews reflecting on the process. That said, research shows that participants in qualitative research are often reluctant to be negative about the subject under review, what is known as *social desirability bias* (Bergen & Labonté, 2020; Bispo, 2022). However, a sense of safety between interviewer and interviewee in terms of apprehension of the attitude of the interviewer (Bispo, 2022), or a sense of rapport or strategies that include the discussion of social desirability bias (Bergen & Labonté, 2020) help mitigate this phenomenon.

The analysis shows that safety and rapport existed within the group, and the Lead Researcher's openness to participants shaping the research demonstrated their attitude to some extent. Further, whilst there was not a specific training on social desirability bias, as part of the one-to-one interviews, participants were asked for their views on the methodological approach used in the workshops as well as for suggestions on improving it, neither revealed any insights that would be deemed to be limitations on the approach. That said, a more robust exploration of limitations would have revealed their undoubted existence, this will be returned to later when discussing the limitations of this research process. This will be explored further when addressing the limitations of the research in the Conclusion Chapter.

From the perspective of the Lead Researcher anything bordering on a limitation of action research are the "messiness and unpredictability" of the approach (Coghlan, 2005, p.96). Coghlan (2005) notes that due to the "real life" nature of the approach, unforeseen events are likely to occur. In this research, one of two service user members dropped out, which decreased an already small pool of participation. Another example were the very strong ethical concerns from participants that grew over time, and whilst ultimately were a valuable part of the generative process, they were initially destabilising for the Lead Researcher's apprehension of the project, their fantasy. Whilst not a limitation per se, this apprehension is reflected in systems where there a clear goals and values that may not be reflected or remain reflected once the participatory action is underway (Coghlan, 2005). Along the same lines, the efforts taken within this research, for example to engage service users, resulted in significant delays to the project as we as a rethinking of the methodological approach for this research, both considerations – shifting scope and difficulty engaging, have been found to be limiting factors in the embedding of participatory principles in health research (Williams et al., 2020).

Another limitation in terms of software design is that it is a slow process. Since the action component of this research began, the potential of AI has grown exponentially with

some scientists finding that the capacity of AI has increased approximately two-fold in this time (Kwa et al., 2025; Maslej et al., 2025). This means that the session in the first Working Group session on the potential of AI would be far different now than when it was delivered just 12 months ago which would potentially change the outcome of this research. Whilst this is always the case in research, it is clearly more pertinent in a field evolving so quickly. From the perspective of the software designer, there is a perceived need for agile fast moving software development practices, the slower more reflective nature of the action research cycle, or the need to respond to the learning and engagement needs of participants, might be deemed prohibitive against a dynamic and fast-moving technological landscape (Ahmed et al., 2010; Edison et al., 2022).

In conclusion, taken together the strengths and limitations represent two sides of the same coin. Embedding action research principles in this research process fostered a research culture that made space for a deep and vibrant exploration of the potential risks and benefit of leveraging artificial intelligence in support of practitioners supporting individuals with first episode psychosis. The action research cycle that played out across working group sessions and in the process of including relevant stakeholders, helped ensure that the CBTp Companion app was the product of a process of tangible learning and insights born of professional practice that was validated by practitioner, supervisor, and service-user feedback. The trade-offs in pace of development, and complexity of approach, far from being an impediment meant that issues of power, relationship, and ethics were given time and space for deep consideration and incorporation into the final product which might represent a trade-off for developers more used to fast-paced development. In the next section, in answer to research question two, the guidelines for embedding a participatory action research principles in future projects will be presented.

(R2) Guidelines for the design of AI software applications aimed at supporting CBTp practitioners

User-Centred Design & Inclusivity

- Ensure intended users are involved from the start.
- Ensure those impacted by the app or aspects of the app have a definitive say in its design.
- Ensure a diverse range of perspectives are included and take steps to meet specific needs they may have to engage appropriately.

Group Dynamics & Facilitation

- Consider individual working group needs and promote group cohesion
- Be sensitive to the group experience to create a safe supportive space for curiosity, vulnerability, and the sharing of ideas.
- Fostering safety and transparency in the group allows for deeper discussion especially around ethical conversations.
- Be aware of the make-up of the group (perceived seniority, prior relationships etc) and how it might impact curiosity, sharing, and direction of enquiry.

Content & Learning Design

- Scaffold understanding through technology overviews and similar use-cases to allow for a more informed engagement.
- Introduce complex ideas and concepts gradually so as not to overwhelm.
- Be responsive to different learning needs and level of understanding within and between sessions – a similar level of understanding within the group may be helpful.
- Balance between meeting people where they are at, providing prompts, and ultimately supporting the group to follow its own path.
- Consider the reference needs of the group and provide non-biasing information.

- Be aware of the potentially biasing nature of science-fiction prototyping which can be alarmist or utopian.

Project scope & Management

- Invite and support participants to carry out their own explorations outside of sessions to deepen awareness and consideration and support more valid real-world insights.
- Be aware of the time commitments of participants and balance with the ideal time needed for the research with what participants can commit to, remove barriers to engagement by suggests a variety of activities or approaches for self-directed learning and exploration.
- Build excitement and enthusiasm in the group through self-directed activities that demonstrate the potential of the technology whilst not unduly biasing the research process.
- Recognise that ethical concerns and tensions come up over time through discussions, reflections, and practical use of potential technologies, ensure the project allows for this.

Conclusion

Summary of Research Aims and Outcomes

This thesis charts the journey exploring the potential of Artificial Intelligence being leveraged in a mental health context. Due to the Lead Researcher's experience with first episode psychosis, this was identified as a possible area of intervention. In exploring the impacts of first episode psychosis it was ascertained that it presents a unique challenge to individual sufferers, the clinicians and services that support them, and the NHS broadly. This was due to the complex presentation of psychosis which often co-occurs with or precipitates a myriad co-morbidities which often result in decreased quality and length of life. For the clinicians and services that support them, the result is a need for a complicated and dynamic

intervention the managing of which can result in stress and burnout for CBTp practitioners who often sit at the centre of their care.

Artificial Intelligence was explored as a potential support for clinicians, and it was found that this was an under-explored area of inquiry, it was noted further that in studies of mental health care interventions generally, there was a lack of methodological coherence from which a common framework could be drawn, this represented a further area of exploration. Co-production, being a common value within healthcare research, was identified as a foundational starting point, and action research being an approach to co-production known to the lead researcher was identified as a potential methodology for the research. Thusly, the research set out to answer the primary research questions:

1. How might AI-driven software applications support practitioners delivering Cognitive Behavioural Therapy for psychosis?
2. What design guidelines can be derived from a development approach rooted in the principles of participatory action research?

To set the methodological foundations to explore the research questions, the Lead Researcher embarked on a systematic literature review that found that action research principles were present either explicitly or implicitly within a range of studies that sought to leverage software for use in mental health contexts. With this knowledge in hand, a broader methodological exploration led to Ethnographic Action Research informed by Actor-Network Theory serving as the vehicle to create a dummy prototype of an AI-driven software application to support CBTp practitioners, alongside this a design guideline to support future endeavours was created.

The CBTp Companion app was produced by the Working Group based upon an action research process which created a research culture that supported a deep exploration of the strengths, limitations, and ethical concerns of leveraging AI in the domain of CBTp. The CBTp Companion app was addressed by relevant stakeholders who shared their

enthusiasm for the app's potential to lift some of the administrative burden of practitioners whilst also acting as a bridge between practitioners, supervisors, and service users. Enthusiasm was balanced by a caution against the app not impeding the human connection between practitioners and service users or undermining the clinical and professional competence of practitioners. In sum, the app should aid but not replace practitioners. A comparative analysis showed that the app was aligned in many ways with comparator apps and the literature found that many of the stakeholder and Working Group insights and concerns were confluent with evidenced research which also supported the app's functions in supporting CBTp.

An exploration of the analysis of the Working Group process in conversation with the literature in the Discussion Chapter illustrated that embedding action research principles fostered a research culture that made space for vulnerability and creativity in addressing both the potential of AI in supporting CBTp practitioners in their work whilst also attending to limitations and ethical concerns. The action research cycle itself allowed for a process whereby Participant Researchers were able to leverage their observations of their actions and experiences – their tacit knowledge, and their shared learning and reflections within the group process and research culture, to create a potential application that was valued by stakeholders and compared well in the comparative analysis. Out of this research culture enacted by the Working Group, Participant Researchers were further able to articulate their experiences of the research process in creation of the Design Guidelines.

Statement of Original Contribution

CBTp Companion app

The creation of the CBTp Companion app by a group of practitioners at differing levels of experiences and seniority that received encouraging feedback from the service user, supervisors, and CBTp practitioners, evidence that it represents a comprehensive and valued potential in support of practitioners working with individuals' experiences first episode

psychosis. It is also the first of its kind, the reviews and comparative analysis evidence that if created, the app would represent a unique addition to the landscape in that it is a tailored application as opposed to growing from a notation app or being a general platform applied to a specialist domain. Instead, the app represents a reflection of the needs particular to the treatment of CBTp where fidelity to the model, administrative support, increased engagement, clinical reflection, and cultural sensitivity, are of crucial significance in CBTp as evidenced by the literature. The Comparative Analysis further evidences that the bespoke creation of the app means that it meets needs unmet by other available applications.

The Guidelines for the design of AI software applications aimed at supporting CBTp practitioners

The Systematic Literature Review hypothesised and found that action research principles were either explicitly or implicitly present in the majority of studies engaged in developing software for use in mental health. The identification of this coupled with research finding that methodological underpinnings are often under-reported in studies identified both a gap in the literature and presented action research as viable methodological approach in filling that gap. In drawing upon the principles identified in the Literature Review to inform the methodological approach for the wider research project that also incorporated principles to help uncover tacit knowledge, this research's method assemblage and the research culture enacted by the Working Group allowed for the creation of Guidelines grounded in the very process they are providing a framework for. The result is a valuable and original contribution to the research landscape that supports future research and development endeavours in similar contexts.

Contribution to Clinical Psychology Practice

As noted in the introduction to this thesis, service and clinical practice development and improvement are key areas of focus for the Division of Clinical Psychology and the Health and Care Professions Council (BPS, 2010; HCPC 2023). This research contributes to service improvement and clinical practice in the following ways:

Aiding administration and potentially reducing burnout

As noted, the significant administrative load on psychological practitioners is a key area of concern that has the potential to lead to practitioner burnout and a reduction in service quality. In emphasising administrative support functions and taking a load off for example in the form of session summarisers and intelligent reminders to automate labour intensive activities, this research speaks to an area of clinical practice that has the potential to increase time for direct engagement between clinicians and individuals with first episode psychosis.

Advancing Evidence-Based Practice and Clinical Supervision

The concept of the scientist-practitioner capable of evaluating and delivering evidenced-based interventions is a core capacity of a clinical psychologist. In enshrining Fidelity to the Model through app functions such as the Learning Journal, Session Summariser, and Research Support, the research seeks to support practitioners to gain key insights from sessions with regards the degree to which they are remaining within the bounds of evidence-based frameworks whilst also helping ensure their learning is up to date with the latest evidenced best practices. In centring the supervisory relationship and supporting the sharing of documentation, this research helps to ensure that the development of one's clinical psychology competency is appropriately supported. The outcome is the furthering of the pursuit of clinical effectiveness and a reduction in potentially harmful outcomes when seeking to deliver complex interventions where fidelity to the model is paramount.

Augmenting the Therapeutic Alliance and Ethical Considerations

This research explored the essence of the essential relationship between practitioner and client. Importantly, in drawing on the experiences and perspectives of different stakeholders the research was able to unpack the complex practical and ethical tensions that emerge when artificial intelligence is introduced into a deeply relational dynamic. As the research triangulates the boundaries of AI incorporation in terms of what tasks might be

appropriate for support from AI through the exploration of subthemes like *Aiding but not replacing*, *Extending trust*, and the *Uncanny valley*, deeply felt reflections on the importance of the human to human interaction reinforce this cornerstone of clinical psychology practice. In doing so, key ethical questions were raised by the research: what are the ramifications of extending trust, what makes one's practice real, what does it mean for clinical professionalism to employ AI, and what are the impacts on human connection? These questions have relevance far beyond the bounds of CBTp.

Addressing Difference and Gaps in Access

Another key contribution to clinical psychology practice is cultural competence and the CBTp Companion's potential to support the delivery of culturally sensitive interventions through the Tailored Resources or Research Support or through the incorporation of the Social GRACES prompts suggested by the stakeholder that would likely have ended up in a future iteration of the app. As the literature showed, not only might this increase the efficacy of treatment, it also has the potential to increase access to services by those minorities most often diagnosed with psychosis. Importantly, issues of cultural sensitivity and access by marginalised groups have relevance to all areas of clinical psychology meaning these functions present valuable tools in other clinical settings.

Strengths and Limitations of the Research Beyond Original Contribution

Strengths

Iterative approach grounded methodologically at each phase

A key strength of the research lies in its recursive approach and triangulation. Across the two threads of production – the app, and the guidelines, there was a clear and reflexive methodological grounding that incorporated empirical evidence, comprehensive systematic literature review, practical exploration, and in the case of the application, stakeholder feedback and validation. Along with dual analyses, this allowed for a transparent and

rigorous process to be addressed and/or replicated by the reader. The rich methodological exposition of this research is in stark contrast to the findings of the systematic literature review which identified that 51 of the 70 studies addressed did not detail its methodological approach.

Co-production

The research methodologies reflect guidance of the NHS, the Royal College of Psychiatrists, the British Psychological Society, and the UK government's National Institute for Health and Care Research that require stakeholders are meaningfully engaged in the co-production of research that impacts them. In terms of service users, the research took considerable steps for their inclusion including changing the approach of the research to meet service users where they were at. To help mitigate power imbalance that might have impacted the participation of working group participants, the research incorporated one-to-one interviews after the initial research plan. The inclusion of differing perspectives through the invitation of stakeholder feedback proved worthwhile supportive validating the app whilst also identifying tensions within the app functions as well as absent considerations, for example with stakeholders focusing on data security and privacy.

Vulnerability in the research process

The research culture helped foster a space for exploring sensitive and value-based issues of professional and human ethics, and the essence of the human experience and relationship. Potential and actual internal and interpersonal tensions instead of stifling the exploration of values gave rise to rich reflections that shaped the very core of the CBTp Companion app and design guidelines. In terms of the Lead Researcher, in embodying a position of authenticity and vulnerability, they may have helped model this within the Working Group. Participant Researcher reflections evidenced that they did not interrupt explorations and considerations of ethics and scale. The invitation for Participant Researchers to shape the process is evidenced by the fact that it is different in scope and scale to that originally envisaged.

Limitations

Sample sizes and stakeholder groups

Whilst not inordinately small for Ethnographic Action Research it was hoped that the Working Group would contain six to eight participants though after multiple rounds of invitation this was not possible. In terms of the service users, again there were multiple rounds of invitation and whilst six agreed to participate, two attended the focus group of which one later dropped out; as mentioned by the Working Group, it is important to have rich feedback from service users. Whilst considerable steps were taken to identify service users, future researchers or designers might find more success identifying participants through other channels, for example online forums, contacting mental health advocacy groups, or through being able to spend more time in introducing a group to the agenda before moving on to concrete actions.

It was also envisaged that there would be technical input from computer scientists but despite efforts from faculty staff this was not possible in the time allotted. Another limitation in relation to the participant sample is that participants were not asked to share their key characteristics in terms of race, ethnicity, experience of psychosis, or other mental health conditions. This would have provided a deeper level of interpretation for the reflexive thematic analysis and indeed may have catalysed participants to reflect on and share their experiences through a more systemic or intersectional lens which may have supported the systemic grounding of the CBTp Companion app and the Design Guidelines.

Single researcher

As noted for the Systematic Literature Review, having a single researcher limits the robustness of coding due to potential biasing etc. The same stands for the Reflexive Thematic Analysis in the wider research and for the Comparative Analysis – though coding and interpretation was less of an aspect of the latter. However, steps taken, for example following the PRISMA Protocol and Cochrane guidance support transparency, and the

benchmarking and contextualisation of codes supports the reader in addressing and assessing the research.

When discussing the potential of Social Desirability Bias, issues of difference and power which have a gendered dimension were noted. These were not uncovered by the Structured Ethical Reflection and indicate a limitation here also – though creating safety for feedback was a dimension of the SER. That said, in filling out this section the Lead Researcher noted that they would “Let them know that they are essential! That they are the project and the project is them.” On reflection this is clearly not enough, though the Lead Researcher believe they achieved this aim there was an instance of misgendering through the use of the word “guys” early on in the first workshop that demonstrates reflection to be done. The incorporation of the GRACES framework or employing an Intersectional lens to deepen reflection would have enhanced considerations in this regard: safety is in more than not feeling like a threatening or ‘stifling’ force, one needs to think deeper and act accordingly. Additionally, the engagement of further Lead Researchers of different genders, ethnicities and identities, or with differing perceived relationship to the research would likely have made critical reflection safer and more likely.

Design Guidelines

The vision for the research was that the Design Guidelines would be addressed by computer scientists or software developers to assess their suitability from these stakeholders’ perspectives. This would represent a further effort at triangulation. Ultimately this may have been redundant, a more authentic approach would have been to involve experts in the Working Group which would have been a different research process and outside of the scope of a thesis project coordinating so many participants. That said, a comparative analysis similar to that of the CBTp Companion app would have been a valuable line of inquiry to position the Guidelines for the reader.

Reflexivity

I have reflected at times that this research is overly dense and perhaps tautological. I believe that this is the case for the following reasons: first, the recursive and iterative nature of this research is inherently self-referential. When an initial idea (AI in CBTp) is instantiated and scoped, a methodology for design (AR) reviewed and developed, and the methodological process then enacted and further shaped by collaborators out of which a methodological guidance was created; there is some degree that the subsequent exposition cannot be but a tautological exercise. What I have tried to do is be very open and inviting of change of scope, direction, and ownership of the process on the part of my collaborators, something that action research requires and supports, which of course is yet another level of recursivity! This represents a personal journey for me, I began studying psychology after my brother was diagnosed with schizophrenia and it was psychological insight that supported him to rely on his internal capacity, rather than medication, to return to himself. My experiences as a black adolescent growing up led to my own feelings of disempowerment and ultimately to my psychosis which my budding understanding of psychology helped me through. At undergrad, my dissertation was in health psychology looking at ways to support communities to meet their health needs. At MSc, I addressed Locus of Control and psychosis. All concerning people finding their internal capacity. Here I continue this pursuit seeking to support the capacity of individuals who in turn support the capacity of those experiencing psychosis.

My second reflection around density I believe stems from my personal need to not unduly, or given the context, to not covertly bias the process beyond my explicit engagement is a better framing. I do not want to take away capacity or power of collaborator but instead wish to build it – together, my own included, or share it collaboratively as the epistemology and methodology intend. I believe that deep understanding of the epistemological and methodological underpinnings helps to support this, and I want to demonstrate it in my writing and thusly share it. By being transparent about my own socialisation to the model, my

fidelity and adaptation, by sharing my knowing-in-process, my positionality, I believe that the reader has something to consider, to assess, and perhaps enact. The experience has been extremely dense and rich, as has my learning, and so perhaps, the writing must reflect this.

The above personal reflection shows how my personal experiences shaped methodological underpinnings of the research. Practically speaking it was the driving force behind my taking the extra effort in benchmarking and other steps to moderate bias, it led me to employ the Structure Ethical Reflection, it encouraged me to take a 'power within' approach, and to invite genuine co-production. It supported my vulnerability in relation to tensions and 'perceived' threats to my fantasy of the research agenda. It supports me to acknowledge the reality that I cannot help but bias the research and to leverage methodologies that work within this reality. It supports me to acknowledge my shortcomings in not attending to social desirability bias, and the reality of gender and power which I missed, my experiences encourage me to continue growing as a researcher.

The process of carrying out a research project of this nature was in many ways a lonely one, the practical implications of carrying out the literature review and wider research have been discussed in the relevant Limitations sections, however, other relevant challenges and obstacles existed in relation to conducting both the literature review and wider research study.

In terms of recruitment, having team members to work alongside of would have allowed us to allocate tasks to different members. What ended up happening in this research was that resource intensive tasks like recruitment that hit significant obstacles ended up slowing down the whole research project to such an extent that at a certain point it had to be decided that no more could feasibly be done. With team members it might have been the case that someone took responsibility to recruit whilst others moved on with time sensitive tasks. There was also the potential to return to NHS ethics with an updated recruitment strategy, this would have been the ideal scenario but again it would have been a very

resource intensive pursuit and would have benefitted from a team member taking that task on whilst the rest of the research proceeded.

In terms of NHS ethics, this was a significant challenge in the research and one that left me feeling very mindful of working the project alone. The process was quite long and required significant redrafting which I believe ultimately made the project stronger but again this was a very resource intensive pursuit which delayed the initial intended timeline. Here, I was aware of the makeup of the supervisory team, whilst I had four supervisors, they were primarily computer scientists and none of them had experience of NHS ethics, so I had no guidance for this process. This meant that when obstacles occurred with regards a request to change the nature of the research, we were not quite sure about common practices which meant that I had to find support beyond the immediate supervisory team. Whilst I managed to overcome all of the obstacles through a lot of background research on online forums and guidance provided on the Integrated Research Application System (IRAS) portal, there is a confidence and comfort that is afforded by someone providing domain specific support and advice that was lacking in this research – decisions would have been made sooner which frees up time elsewhere, and overall challenges and obstacles would not seem so daunting with support from individuals who have faced them many times and know common paths through.

Finally, as a Black man working in a context that disproportionately impacts us and in ways that unearth systemic injustices, working alone or within a predominately white landscape, there were many times when I was alone with feelings of injustice, isolation, and insecurity, I would suggest that future individuals embarking on a similar journey – or those individuals charged with their support and care, be mindful of potential needs related to difference and systems of power.

Recommendation for Future Research

The CBTp Companion app

The app received positive feedback with functions supported by the literature. As noted, the CBTp Companion app is the first of its kind. Future research could develop the prototype beyond a list of functions to test feasibility in the real world. Further, the stakeholder feedback was not incorporated into the final design as part of this research, future research could address the rich feedback from stakeholders to further iterate the CBTp Companion app.

Design Guidelines

Findings related to the leveraging of Artificial Intelligence

The research uncovered a rich variety of insights that would benefit from further enquiry in relation to the use of AI in the domain of psychosis. Themes of the *uncanny valley*, *AI aiding but not replacing*, and *what's in the safe* exploring unintended consequences, speak to some of the key concerns of stakeholders engaging in the domain of AI that would benefit from future research.

Implementation

The Guidelines are an invitation to future researchers and developers to learn from stakeholders who drew on their learning and experience of the design process to create them. It is hoped that they are employed to support those engaged in future pursuits.

Replication, Validation, and Improvement/Adaptation

The Guidelines would benefit from further strengthening or adaptation by future research that invites further stakeholders from more diverse backgrounds, including individuals with a technical background or service user experience, to act as Participant Researchers to engage in co-production activities that would assess their utility.

Team makeup

Ensure that the research team has a solid breadth of representation from individuals with differing clinical, software, research, and social experience, such that individuals can take the lead or provide expert advice and support where necessary.

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Appendix 1: Prisma 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	9
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	10-12
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	13-16
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	16
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	26
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	23
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	17-24
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	25-26
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	26-30
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	30-32
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	30-32
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	29&45
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	n/a
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	24-26

Section and Topic	Item #	Checklist item	Location where item is reported
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	n/a
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	30
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	30
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	n/a
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	n/a
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	n/a
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	47
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	24-26
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	46
Study characteristics	17	Cite each included study and present its characteristics.	Appendix
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Not done
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	n/a
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	Not done
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	n/a
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	n/a
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	n/a
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	n/a
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	n/a
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	39-45

Section and Topic	Item #	Checklist item	Location where item is reported
	23b	Discuss any limitations of the evidence included in the review.	47
	23c	Discuss any limitations of the review processes used.	47
	23d	Discuss implications of the results for practice, policy, and future research.	44-45
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	n/a
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	n/a
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	n/a
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	n/a
Competing interests	26	Declare any competing interests of review authors.	n/a
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	n/a

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71

Appendix 2: List of Included Studies

Author	Year	Title	Study ID
Abraham et al. 2018	2018	Adapting Coordinated Anxiety Learning and Management for Veterans Affairs Community-Based Outpatient Clinics: Iterative Approach	1
Anekar et al. 2023	2023	Effect of MindSearch Intervention Application Based on HCI Design Principles for Depression and Anxiety among Youth	2
Aryana and Brewster. 2020	2020	Design for mobile mental health: Exploring the informed participation approach	3
Barry et al. 2017	2017	mHealth for Maternal Mental Health: Everyday Wisdom in Ethical Design	4
Ben-Yehuda et al. 2022	2022	Participatory Design of a Mobile App to Safeguard Mental Resilience in the Context of Drug Use in Young Adults: Multi-Method Study	5
Berry et al. 2020	2020	Developing a Theory-Informed Smartphone App for Early Psychosis: Learning Points From a Multidisciplinary Collaboration	6
Bevan Jones et al. 2018	2018	A Web-Based Psychoeducational Intervention for Adolescent Depression: Design and Development of MoodHwb	7

Bhat et al. 2023	2023	"Mobile Mental Health in Women's Community-Based Organizations: Protocol for a Pilot Randomized Controlled Trial"	8
Biernesser et al. 2023	2023	Development and codesign of flourish: A digital suicide prevention intervention for LGBTQ+ youth who have experienced online victimization	9
Brown et al. 2020	2020	Development of a Web-Based Acceptance and Commitment Therapy Intervention to Support Lifestyle Behavior Change and Well-Being in Health Care Staff: Participatory Design Study	10
Buitenweg et al. 2019	2019	Cocreative Development of the QoL-ME: A Visual and Personalized Quality of Life Assessment App for People With Severe Mental Health Problems	11
Buus et al. 2019	2019	User Involvement in Developing the MYPLAN Mobile Phone Safety Plan App for People in Suicidal Crisis: Case Study	12
Cheng et al. 2018	2018	An App That Incorporates Gamification, Mini-Games, and Social Connection to Improve Men's Mental Health and Well-Being (MindMax): Participatory Design Process	13
Cheng et al. 2024	2024	Co-Production of a Cognitive Behavioral Therapy Digital Platform for Families of Individuals Impacted by Psychosis	14
Cheng. 2017	2017	Studying the Effectiveness of GameBased Solutions in a Wellbeing App	15

Christie et al. 2019	2019	Gamifying CBT to deliver emotional health treatment to young people on smartphones	16
Collie & Cubranic. 2008	2008	Computer-Supported Distance Art Therapy: A Focus on Traumatic Illness	17
Counson et al. 2021	2021	Development of the Shift Smartphone App to Support the Emotional Well-Being of Junior Physicians: Design of a Prototype and Results of Usability and Acceptability Testing	18
Easton et al. 2019	2019	A virtual agent to support individuals living with physical and mental comorbidities: Co-design and acceptability testing	19
Ellis et al. 2022	2022	Co-Designing an Experience Sampling Method Digital Platform to Investigate Self-Harm Among Young People	20
Gonsalves et al. 2019	2019	Design and Development of the “POD Adventures” Smartphone Game: A Blended Problem-Solving Intervention for Adolescent Mental Health in India	21
Goodyear-Smith et al. 2021	2021	VeCHAT: a proof-of-concept study on screening and managing veterans’ mental health and wellbeing	22
Gordon et al. 2016	2016	Participatory design of ehealth solutions for women from vulnerable populations with perinatal depression	23
Grim et al. 2017	2017	Development and Usability Testing of a WebBased Decision Support for Users and Health Professionals in Psychiatric Services	24

Grove. 2021	2021	Co-developing a Mental Health and Wellbeing Chatbot With and for Young People	25
Gulliver et al. 2015	2015	Privacy Issues in the Development of a Virtual Mental Health Clinic for University Students: A Qualitative Study	26
Hardy et al. 2018	2018	How Inclusive, User-Centered Design Research Can Improve Psychological Therapies for Psychosis: Development of SlowMo	27
Hetrick et al. 2018	2018	Youth Codesign of a Mobile Phone App to Facilitate Self-Monitoring and Management of Mood Symptoms in Young People With Major Depression, Suicidal Ideation, and Self-Harm	28
Hill et al. 2019	2019	Online Support and Intervention for Child Anxiety (OSI): Development and Usability Testing	29
Honary et al. 2018	2018	A Web-Based Intervention for Relatives of People Experiencing Psychosis or Bipolar Disorder: Design Study Using a User-Centered Approach	30
Hughes-Barton et al. 2023	2023	What consumers, general practitioners and mental health professionals want: the co-design and prototype testing of a transdiagnostic, acceptance and commitment therapy-based online intervention to reduce distress and promote wellbeing among Australian adults	31
Khan et al. 2020	2020	Design and Development of a Digital Program for Training Non-specialist Health Workers to Deliver an Evidence-	32

		Based Psychological Treatment for Depression in Primary Care in India	
Kornfield et al. 2022	2022	Meeting Users Where They Are: User-centered Design of an Automated Text Messaging Tool to Support the Mental Health of Young Adults	33
LaMonica et al. 2019	2019	Technology-Enabled Mental Health Service Reform for Open Arms – Veterans and Families Counselling: Participatory Design Study	34
LaMonica et al. 2021	2021	Understanding Technology Preferences and Requirements for Health Information Technologies Designed to Improve and Maintain the Mental Health and Well-Being of Older Adults: Participatory Design Study	35
Liverpool et al. 2023	2023	An App to Support Fathers' Mental Health and Well-Being: User-Centered Development Study	36
Ludlow et al. 2024	2024	Co-designing a new digital mental health platform, 'Momentum', with caregivers of young people aged 7–17	37
March et al. 2018	2018	The Interactive Child Distress Screener: Development and Preliminary Feasibility Testing	38
Matthews et al. 2015	2015	In Situ Design for Mental Illness: Considering the Pathology of Bipolar Disorder in mHealth Design	39
Moltrecht et al. 2022	2022	A Transdiagnostic, Emotion Regulation App (Eda) for Children: Design, Development, and Lessons Learned	40

Orlowski et al. 2019	2019	Designing for practice: understanding technology use in rural community-based youth mental health contexts	41
Ospina-Pinillos et al. 2018	2018	Developing a Mental Health eClinic to Improve Access to and Quality of Mental Health Care for Young People: Using Participatory Design as Research Methodologies	42
Ospina-Pinillos et al. 2019	2019	Using Participatory Design Methodologies to Co-Design and Culturally Adapt the Spanish Version of the Mental Health eClinic: Qualitative Study	43
Ospina-Pinillos et al. 2020	2020	Involving End Users in Adapting a Spanish Version of a Web-Based Mental Health Clinic for Young People in Colombia: Exploratory Study Using Participatory Design Methodologies	44
Pararore. 2020	2020	Designing an Assisted Self-help Mobile App to Cope with Panic Disorder: Preliminary Results and Open Issues	45
Parel et al. 2022	2022	Escape from Oblivion: A 3D Hack and Slash Survival Horror Video Game for Promoting Awareness of Persistent Depressive Disorder	46
Patterson et al. 2022	2022	An Internet-Based Cognitive Behavioral Therapy Program for Anxiety and Depression (Tranquility): Adaptation Co-design and Fidelity Evaluation Study	47
Peck et al. 2020	2020	Development of a Lived ExperienceBased Digital Resource for a Digitally-Assisted Peer Support Program for Young People Experiencing Psychosis	48

Peters et al. 2018	2018	Worker Preferences for a Mental Health App Within Male-Dominated Industries: Participatory Study	49
Povey et al. 2020	2020	Drafting the Aboriginal and Islander Mental Health Initiative for Youth (AIMhi-Y) App: Results of a formative mixed methods study	50
Reupert et al. 2019	2019	An Online Intervention to Promote Mental Health and Wellbeing for Young Adults Whose Parents Have Mental Illness and/or Substance Use Problems: Theoretical Basis and Intervention Description	51
Rizia et al. 2015	2015	Mobile Peer-Mentoring: An Approach to Make Veterans Seek Mental Health-Care Support a Normality	52
Santesteban Echarri et al. 2020	2020	LooseLeaf, a Mobile-Based Application to Monitor Cannabis Use and Cannabis-Related Experiences for Youth at Clinical High-Risk for Psychosis: Development and User Acceptance Testing	53
Schmidt et al. 2021	2021	Development of an internet-delivered program and platform for the treatment of depression and anxiety in patients with ischemic heart disease in eMindYourHeart	54
Severes et al. 2024	2024	Designing for mental health in higher education: a collaborative approach to digital interventions	55
Sigurðardóttir et al. 2022	2022	Digital Mental Health: Co-Designing a Digital Platform to Support Work in Psychiatric Healthcare	56

Sin et al. 2019	2019	A Multicomponent eHealth Intervention for Family Carers for People Affected by Psychosis: A Coproduced Design and Build Study	57
Stawarz et al. 2020	2020	Design Considerations for the Integrated Delivery of Cognitive Behavioral Therapy for Depression: User-Centered Design Study	58
Stoyanov et al. 2021	2021	Development of the Niggle App for Supporting Young People on Their Dynamic Journey to Well-being: Co-design and Qualitative Research Study	59
Terp et al. 2016	2016	A room for design: Through participatory design young adults with schizophrenia become strong collaborators	60
Terp et al. 2017	2017	Collaborating with Young Adults Diagnosed with Schizophrenia: A Participatory Design Study to Shape the Healthcare System	61
Torous et al. 2019	2019	Creating a Digital Health Smartphone App and Digital Phenotyping Platform for Mental Health and Diverse Healthcare Needs: an Interdisciplinary and Collaborative Approach	62
Vereschangin et al. 2023	2023	Co-developing tools to support student mental health and substance use: Minder app development from conceptualization to realization	63

Vial et al. 2023	2023	Developing A Mobile App With a Human-Centered Design Lens to Improve Access to Mental Health Care (Mentallys Project): Protocol for an Initial Co-Design Process	64
Wadley et al. 2013	2013	Participatory Design of an Online Therapy for Youth Mental Health	65
Waterman et al. 2018	2018	Mellow: A Mobile Application to Help Youth in Crisis	66
Werner-Seidler et al. 2017	2017	A Smartphone App for Adolescents With Sleep Disturbance: Development of the Sleep Ninja	67
Wiljer et al. 2017	2017	Thought Spot: Co-Creating Mental Health Solutions with Post-Secondary Students	68
Wrightson-Hester et al. 2023	2023	An Artificial Therapist (Manage Your Life Online) to Support the Mental Health of Youth: Co-Design and Case Series	69
Yoo et al. 2020	2020	Designing a Clinician-Facing Tool for Using Insights From Patients' Social Media Activity: Iterative Co-Design Approach	70

Appendix 3: Data Extraction, Coding, and Coding Key

Coding Key:

1 Iterative	
2 Collaborative	
3 Centres lived experience	
4 Acknowledges participants as stakeholders	
5 Co-generating learning/knowledge sharing	
6 Acknowledges tension and/or acknowledges power imbalances	

Author	Date	Title	Study ID	Methodology or references to methodological approach related to co-design (and synonymous terms)	Coding Categories	Implicit Action Research Evidence (Weak/Moderate/Strong)	Supporting Evidence	Explicit Mention of Action Research (Y/N)	Theoretical Underpinnings Discussed (Y/N)

Abraham et al. 2018	2018	Adapting Coordinated Anxiety Learning and Management for Veterans Affairs Community-Based Outpatient Clinics: Iterative Approach	1	An iterative approach comprising 3 waves of focus group discussions was used to develop a modified prototype of CALM. Following each wave of focus group discussions, template analysis was used to rapidly communicate stakeholder recommendations and feedback to the design team. The original program was first adapted through a process of data collection, design modification, and product development. Next, a prototype was developed. Finally, the redesigned program was tested for acceptability and feasibility through a live demonstration. We conducted 3 waves of focus group discussions with each stakeholder group. Veteran participants were recruited from one CBOC in Arkansas. Mental health providers were recruited using a general call distributed via email to providers at CBOCs in Arkansas, Louisiana, Texas, and Mississippi. Multiple CBOCs were needed because most CBOCs have only one mental health provider on site. CBT experts were recruited nationally from within the VA, and leaders in implementation of EBPs within VA were recruited from the VA Central Office in Washington, DC CBT experts and leaders in implementation were individually recruited through convenience sampling based on their level of expertise and availability [25]. The purpose of recruiting veteran stakeholders was to help ensure that the modified CALM content was acceptable to the target patient population and reflected veterans' illness experiences.	1 4	Moderate	Iterative. Stakeholder input in design process.	N	N

				We included CBOC mental health providers to help ensure that the modified content was acceptable for this group of providers (who serve a largely rural veteran population), images and case studies were appropriate for the target patient population, and the navigation and flow of CALM treatment material met the needs of CBOC providers. Inclusion of VA expert CBT clinicians helped ensure that the empirical support underlying the content of the CALM program was not compromised during the modification process. Finally, inclusion of VA Central Office leaders with expertise in EBP implementation within VA helped the study team ensure that CALM was consistent with prior CBT training efforts within VA. Data Collection Each group of key stakeholders participated in 3 waves of separate focus group discussions. Focus group discussions are a standard method used to garner diverse feedback efficiently on novel and existing products for new product development. CBOC mental health providers, CBT experts, and VA Central Office leaders with expertise in EBP implementation within VA participated in focus group discussions via teleconference with the assistance of Lync, a Web-based meeting portal that allows participants to view the same material simultaneously. In addition to providing feedback via telephone, participants could leave written feedback on the website chat room and email content for the focus group facilitators. Veteran focus groups met in person at a					

				VA CBOC in Hot Springs, Arkansas. All focus group discussions were co-moderated by the principal investigator (MAC) and a co-investigator (THA). Both researchers have extensive experience in qualitative interviewing and facilitating focus group discussions. An interview guide developed for the study was used to ensure that the discussion remained relatively consistent across stakeholder groups and that groups addressed all relevant topics. The same stakeholders were invited to participate in all 3 waves of focus group discussions to maximize the relevance of feedback (ie, participants knew whether recommendations had been correctly incorporated into the program). Focus group discussions were audiorecorded with permission from participants.					

Anekar et al. 2023	2023	Effect of MindSearch Intervention Application Based on HCI Design Principles for Depression and Anxiety among Youth	2	Co-design necessitates moving away from the conventional approach of expert-led growth work, in which interferences are produced “for” youth rather than “with” them. Designing and creating using youth helps to “humanize” the area of numerical technology, which has been criticized by some for being highly organized, inflexible, and unresponsive. Youth is used in both the designing and producing processes. The creation of technology for the psychological health of children and primary people involves unique considerations, and this technology should not just be “adaptations of adult programmers”. Regarding the structure and content of a programmer, as well as considering the wide variety of interests and preferences held by youth, an approach that is developing or age-correct is required.	2 3 4 6	Strong	Discussion of designing ‘with’ users as opposed to ‘for’ them. Moving away from conventional top-down “expert-led” approach. Humanistic terminology speaks to action research principles related to accessibility.	N	Y
Aryana and Brewster. 2020	2020	Design for mobile mental health: Exploring the informed participation approach	3	To ascertain whether a participatory design approach was effective and feasible, we used an action research approach. Action research involves changing practice and improving knowledge about a practice or social system, in which the action researcher is also a practitioner (in this case, a designer, and an ethnographer with no design background who participated in the workshops) and the research is not separated from the action itself.^{51–53} Participatory design has deep roots in action research and can be considered as reflective practice.^{54,55} Action	N/A (Explicit)	N/A (Explicit)	N/A (Explicit)	Y	Y

				research is frequently used to improve and manage changes in healthcare systems and services. ^{56–58} Using a reflective action research approach, we were able to examine the design process as observers engaged in the process, considering its feasibility and effectiveness.					

Barry et al. 2017	2017	mHealth for Maternal Mental Health: Everyday Wisdom in Ethical Design	4	The challenge for HCI is how to better educate designers, developers and ultimately users in the consideration of such values in design [27, 47, 52, 70]. Practical techniques developed for ethical approaches to design include reflective design [67], tools for value conscious game design [9], 'values at play' frameworks [29, 30], participatory design [11], values 'levers' to open discussion in design [69], values advocates [61] and value- sensitive 'Action Reflection' and co-design models [86]. These approaches often focus on how to define guiding values at the outset, however values can also arise as local phenomena 'discovered' through design [52]. Some techniques suit certain design settings better than others, and tend to produce different levels of ethics expertise rather than establishing ethical consideration as the responsibility of all designers [70], in a continuing process of reflection on what it means to be value sensitive in design [52]. HCI requires additional perspectives that draw more attention to the local values of individual design cases and new approaches to ethical design that acknowledge the problem of highly heterogeneous user groups that are difficult to distinguish or access [47]. Design sessions In order to address the balance of needs and values in design for the BrightSelf app, we used a qualitative approach involving group and individual design sessions. We sought to elicit feedback on early prototype designs for content,	2 3 4 6	Strong	*Refers to Yoo et al.'s 'Action-Reflection model'. Yoo et al. "builds from the work of Schön" (Yoo et al. 2013). Schon himself drew on Kurt Lewin (Schon, 1983) who is considered the founder of action research (Adelman, 1993). Action-Reflection cycles are an integral part of action research (Coghlan and Brydon-Miller, 2014). Acknowledges	N*	Y

				functionality, interaction and potential for engagement. However, we also aimed to facilitate informal conversation among participants where phronetic insights might emerge, particularly in relation to unconscious assumptions made in design. We focus here on reflection on the perspectives offered by different types of clinical staff," particularly midwives, early in the process, which had an impact on design decisions. The project also included design sessions with individual pregnant women, however these do not form part of this analysis (although we discuss issues related to the overall process later). We conducted five design sessions in Spring 2016 with different groups of participant types including medical (obstetric and midwifery) researchers/clinicians, mental health researchers/clinicians, psychologists, social scientists with expertise in pre- and postnatal care, and practice and research midwives. In total, 21 participants took part in the five design sessions, both male and female and ranging in age from c.25 – 55, each with various levels of experience with pregnant women through practice and research. Each design session was recorded and transcribed and the data was then subjected to a thematic analysis.			differing values. Talks about understanding (values) arising out of the design process. Centres stakeholders and their experience .		

Ben-Yehuda et al. 2022	2022	Participatory Design of a Mobile App to Safeguard Mental Resilience in the Context of Drug Use in Young Adults: Multi-Method Study	5	Study 2 used a participatory design methodology. Participatory design involves potential users in eliciting requirements (the first stage of agile development) and evaluating their "implementation [49]. Participatory design has often been used to develop mHealth apps [50-53]. Different participatory design techniques exist [49]. We used focus groups, persona development, user feedback, and a questionnaire, as detailed in the next sections. Each focus group met for a similar 2-hour session held in either Tel Aviv or Haifa (Israel's main central city and northern city, respectively). The sessions had 3 components, based on standard participatory design practices [49]. First, participants suggested hypothetical personas, characterizing prototypical users and formulating stories about situations where they would use the proposed app and their expectations from it. Next, the research team presented the aforementioned UI mock-ups and solicited feedback regarding the proposed features (and any features deemed by participants to be missing) through open discussion. Discussions regarding the personas and mock-ups were audio recorded and later transcribed for qualitative analysis	1 2	Moderate	Speaks to the involvement of users early on, 'open discussion' as well as stages which speaks to the democratic and iterative nature of action research. The development of personas centres lived experience which is central to action research.	N	N

Berry et al. 2020	2020	Developing a Theory-Informed Smartphone App for Early Psychosis: Learning Points From a Multidisciplinary Collaboration	6	The involvement of stakeholders in the development of the Actissist app and trial parameters is summarized in Figure 1. Over the course of 6 years, a range of stakeholder views have been sought, including individuals with lived experience (n = 54), clinicians (n = 65), software engineers (n = 3) and academics (n = 2). In 1, 21 qualitative interviews with service users and six focus groups with 48 clinicians were conducted to identify what they would want to see from a DHI designed for people with early psychosis. Participants were recruited through contacting service managers and clinical leads at NHS mental health trusts to send details about the qualitative interviews and focus groups to potential participants. Upon approval from team managers, members from the clinical research team attended NHS team meetings to inform clinicians about the clinician and service user studies and methods for referral. Information gathered from phase 1, combined with a review of treatment manuals of CBT for psychosis (CBTp), was used to develop a prototype of the app which was beta-tested with five mental healthcare professionals and five service users for feedback on functioning, design and content (phase 2). Further refinements to the app were made by our software engineering team in response to feedback at which point version 1 of the app was developed and deployed in a proof-of-concept randomized controlled trial (39). In phase 3, individuals who had participated in the Actissist proof-of-concept study were invited to take part in	1 2 3 4	Strong	Describes a long ongoing piece of research and development involving various different stakeholders and phases of development which are action research principles. Mentions lived experience. Iterative design process.	N	N

				qualitative interviews about their experience of using the app. We have continued this iterative cycle of stakeholder views and feedback, app development, beta- testing (phase 4), trial testing and post-trial qualitative feedback throughout our DHI work. Since 2014, when the Actissist app development commenced, an ERG involving a range of stakeholders has convened over a quarterly basis to inform the design and content of the app and trial procedures.					

Bevan Jones et al. 2018	2018	A Web-Based Psychoeducational Intervention for Adolescent Depression: Design and Development of MoodHwb	7	Research Plan The research adhered to the preclinical or theory and phase I or modeling phases of the Medical Research Council (MRC) framework for complex interventions and the development phase of the new guidance on developing and evaluating complex interventions [19]. The project brought together audiovisual, interactive, and Web-based media, informed by research and practice from the areas of adolescent depression (particularly prevention and management strategies), psychoeducation (and learning), e-mental health, and design. The developmental approach was person-centered or person-based, as described in guidelines for digital health-related interventions [20-22]. This focuses on understanding and accommodating the perspectives of the users and identifying “guiding principles.” The approach embraces qualitative research, with a wide range of individuals from the target user population at every stage of the intervention development. This iterative approach helps to assess acceptability, usability, and satisfaction, as well as appreciating the context, anticipating usage and outcomes, and modifying the intervention to make it persuasive, feasible, and relevant. Following a literature review of PIs in adolescent depression [13], a qualitative study was completed consisting of a series of semistructured interviews and focus groups with potential users of the program (adolescents, families, carers, and professionals working with young people). Interviews were used to	1 3 5 6	Strong	Iterative design process engaging end user/stake holders in deciding problem and development trajectory.	N	N

				generate initial detailed views and ideas from a range of users, to carry forward to the focus groups. The groups enabled a greater breadth of discussion and refinement of these ideas, to help inform the development of the program with the research team and multimedia company. The interviewing was iterative; where new themes emerged, they were incorporated into the subsequent interviews and focus groups. Figure 1 demonstrates how the design and content of the program was developed based on the literature review, interviews, focus groups, and other consultations.					

Bhat et al. 2023	2023	"Mobile Mental Health in Women's Community-Based Organizations: Protocol for a Pilot Randomized Controlled Trial"	8	App development will follow a user-centered iterative design approach (Figure 2). The process of administering the assessment questions and HAP modules will be based on the inputs provided by the SHG participants through the focus groups. One focus group will include community health workers (CHWs) and SHG administrators, and 1 will include SHG participants. We will develop interview guides [35,36] based on the acceptability on the interventions framework [37]. We will include questions on specifications such as simplified touchscreen, length of modules to be viewed, and women's preferences regarding viewing HAP modules at home or at the SHG. We will record and transcribe focus group content and analyze it using Dedoose (SocioCultural Research Consultants), a qualitative analysis software. Using a thematic content analysis approach, we will identify common themes to help guide app development. Next, we will enroll 5 to 6 members (including CHWs and SHG participants, representing the end users of the proposed app) from the focus groups into a participatory design group (PDG). During Phase 1, the team will build a prototype for the app, which includes video content based on the HAP modules, iteratively modifying the content and interface based on discussions with the PDG. We will complete the standard life cycle of software development, which includes development and configuration. We will then deploy the working prototype	1 2 3	Moderate	The research speaks of "responsive feedback", stakeholder needs, also speaks of stages of development as part of "development cycle"	N	N

				on the staging environment and complete further configurative iterations based on technical feasibility testing conducted with the PDG. Once iterative modifications are complete, the final version of the app will be deployed on the production environment for the RCT.					
Biernesser et al. 2023	2023	Development and codesign of flourish: A digital suicide prevention intervention for LGBTQ+ youth who have experienced online victimization	9	"This study utilized the Discover, Design, Build, and Test (DDBT) model (Lyon et al., 2019), which provides a structure for DMHI development that features codesign with end-users. DDBT brings together principles of human centered design (HCD) through incorporating iterative design and development, participatory action research by centering partnerships with end-users to bring about meaningful change with them rather than for them, and implementation science through a focus on understanding how best to implement and sustain a DMHI. This manuscript reviews two of the DDBT model's three phases (see Fig. 1): 1) "Discover," which focuses on exploring parameters for an	N/A (Explicit)	N/A (Explicit)	N/A (Explicit)	Y	N

				acceptable DMHI, consisted of qualitative interviews with youth and their support system and 2) "Design and Build" involved engaging in co-design and iterative development with end-users. Future work will include the third phase, "Test," through evaluation of Flourish's real-world feasibility."					
Brown et al. 2020	2020	Development of a Web-Based Acceptance and Commitment Therapy Intervention to Support Lifestyle Behavior Change and Well-Being in Health Care Staff: Participatory Design Study	10	"This study seeks to describe the development of a web-based emotional well-being intervention using participatory design (PD). We adopted this approach to improve adherence and engagement. PD is a collaborative process that includes anticipated end users in the development of new products, uses diverse research methods such as qualitative inquiry, and has the potential to offer critical insight and understanding of users' motivation and engagement in such interventions [20]. Informed by action research, PD has seen rapid growth in popularity and application across diverse fields, including commercial product design, industrial design, architectural design, and government space programs [21]. PD has also been incorporated in several health care contexts [22-25], including youth mental health [26,27] and dementia care, or mental health care for older adults in general [28,29].	N/A (Explicit)	N/A (Explicit)	N/A (Explicit)	Y	Y

				Findings from this diverse literature have highlighted that end-user input can be incredibly useful. Specifically, the involvement of anticipated end users, not unlike the expert patient role in the psychological literature, can highlight, early on, key information regarding user needs, understanding, knowledge, and values that can support the development of effective resources [23]. In addition, active user involvement across health care research has been widely promoted in patient settings and continues to be of critical importance. For example, the Patient and Public Participation policy 2017 [30] set out the National Health Service (NHS) England's commitment to strengthening user involvement in service design and delivery, "and the National Institute for Health and Care Excellence [31] has published similar sentiments."					

Buitenweg et al. 2019	2019	Cocreative Development of the QoL-ME: A Visual and Personalized Quality of Life Assessment App for People With Severe Mental Health Problems	11	The QoL-ME was cocreatively developed in an iterative development process in which the 3 aforementioned groups of people with severe mental health problems played an essential and indispensable role. The process consisted of 6 iterations divided over 3 stages: (1) brainstorming stage, (2) design stage, and (3) usability stage. Theoretically, the development process fits in the explore, approximate, refine framework as part of participatory design [45]. A study by Ben-Zeev et al [20] employs a similar approach consisting of 3 steps that correspond to this framework. A schematic overview of the developmental process is provided in Figure 1. Every iteration involved 3 separate user test sessions, and the total number of test sessions was 18. A new group of participants was recruited in every test session. The 3 target groups were involved in every single iteration. In addition, the age distribution of participants was roughly the same in every iteration. Between 2 and 5 individual participants contributed in every test session. The feedback, tips, and insights of end users gathered during test sessions were of vital importance and were fed back to the professional designers who took care of the technical side of the development. In between iterations, the researchers and professional designers discussed the feedback gathered during the previous iteration. If the end users' opinions and preferences contradicted each other, an attempt at a synthesis was made during	1 2 3 6	Strong	Stakeholder engagement consistent across iterations. Centring the importance of experts by experience. Recognition of tension and mediation of conflicting idea.	N	N

				this discussion. If necessary and possible, 2 rivaling preferences were tested in the next iteration. In all stages of the development, the input and opinions of end users were instrumental and were used to expand and refine the initial designs and early versions of the app. The brainstorming stage involved iteration 1. In this stage, participants were invited to share their past experiences with apps, share ideas regarding the improvement of QoL assessment, and comment on basic initial designs. The topic list that was used during the brainstorming stage is available in Multimedia Appendix 1. On the basis of the ideas that were gathered in this stage, combined with design-related recommendations found in the scientific literature [21,31,35], a number of designs and interaction mechanisms were developed for testing. The design stage covered iterations 2, 3, and 4. Initially, paper sketches (wireframes) were used to test alternative navigational structures, various possible page-layouts, and possible forms of interaction for the app. In the remainder of the design stage, digitalized versions of these wireframes were gradually refined, expanded, and made functional. Finally, the first prototype was developed.					

Buus et al. 2019	2019	User Involvement in Developing the MYPLAN Mobile Phone Safety Plan App for People in Suicidal Crisis: Case Study	12	Democratizing knowledge and ensuring the relevance of research and design to end users are key elements of user involvement [20]. Between 2015 and 2017, the original version of MYPLAN was revised by involving Danish and Australian users with the purpose of developing a cross-cultural adaptation [21] and translation into Australian English. In addition, the revised app's data storage changed from being app-based to cloud-based, which, for instance, allowed users to share strategies through a Web-based strategy bank (see Table 1 for a brief description of MYPLAN's key functions in the original and revised app). The aim of this study was to examine the negotiation of stakeholders' suggestions and contributions to the design, function, and content of the MYPLAN app and to characterize significant developments in the emerging user-involving processes.	1 4 5 6	Strong	Recognition of knowledge creation and democratizing knowledge. Negotiating change. Stakeholder engagement.	N	N

Cheng et al. 2018	2018	An App That Incorporates Gamification, Mini-Games, and Social Connection to Improve Men's Mental Health and Well-Being (MindMax): Participatory Design Process	13	Although researcher-led mHealth initiatives have a key strength in applying evidence-based best practice, it is often at the expense of user experience. It is difficult to compete with large corporations who invest millions of dollars into creating seamless, intuitive, and engaging user experiences to entertain their consumers. This level of investment is near impossible in academia, which may result in a jarring experience for users accustomed to a contemporary internet experience [40]. Another key tension within mHealth initiatives is that their aims and objectives often act as barriers to uptake, especially among populations that engage the most in behaviors the intervention hopes to reduce (eg, drinking alcohol [41]). It is important to identify how best to present the health and therapeutic content of mHealth initiatives to the target audience. One method of achieving this is through participatory design (PD) [42]. The key principle of PD is to involve all stakeholders of a project in an iterative cycle of design and development [43,44]. This allows them to influence its design to better suit their past, present, and future needs, ideally leading to higher effectiveness and engagement among the target population [1]. Furthermore, when executed well, PD methodologies increase the acceptability of interventions to stakeholders [44] and can be harnessed to make knowledge translation of research outcomes more efficient [43,45]. This is especially important in mHealth, as given the rapid pace of	1 3 4 5 6	Strong	Involving all stakeholders in an iterative design cycle. Importance of knowledge translation. Recognising tensions and barriers.	N	Y

				technological development, the field must reduce the lag between health research and translation as much as possible.					
Cheng et al. 2024	2024	Co-Production of a Cognitive Behavioral Therapy Digital Platform for Families of Individuals Impacted by Psychosis	14	We identified design requirements based on both the established health technology design framework (Kowatsch et al., 2019) and user interviews before progressing to the participatory, iterative, user-centered design (UCD), and development process. During UCD, we employed individual interviews, group co-design sessions, prototype development (Sefelin et al., 2003) and preliminary usability testing (Cardello, 2014; Nielsen, 2012) of a digitally-delivered CBT for a psychosis (CBTp)-informed skills training platform for family and other caregivers of individuals impacted by psychosis. Compared to other approaches, such as the solution-first approach or function-centered design, UCD systematically identifies user pain points, needs, and	1 2 3 4	Strong	Iterative design process engaging end user/stake holders in deciding problem and solution.	N	Y

				goals. As a result, UCD enables co-production between stakeholders (e.g., digital project designers, engineers, treatment developers or content experts, and end users) to optimize the responsivity of the product to the end users' needs, desires, and contexts (Lyon et al., 2019). Furthermore, involving the intended beneficiaries of interventions in research and the co-production of health services can further enhance the applicability and appropriateness of the intervention (Buckley et al., 2007; Lwembe et al., 2016).					

Cheng, 2017	2017	Studying the Effectiveness of GameBased Solutions in a Wellbeing App	15	Phase 1 Three-hour participatory design workshops were conducted with 40 participants in three Australian cities. Two workshops, one for 15-25 year olds and one for 26-35 year olds, were conducted in each location, resulting in a total of six workshops. Workshop agendas consisted of (1) discussing existing online resources (including apps/websites) for health and wellbeing; (2) critically evaluating current online resources for health and wellbeing, focusing on strengths/weaknesses and likes/dislikes; and (3) prototyping solutions and suggestions for MindMax with regards to health and wellbeing needs. Phase 2 90-minute user acceptance testing interviews were conducted with nine participants (aged 16-35) to identify potential sources of disengagement and bugs in real world use. Phase 3 Online user experience testing is ongoing and will run for a planned duration of five months. A naturalistic trial design was chosen to accommodate, and study, the impact of releasing multiple iterations of MindMax over the course of the trial. We aim to recruit up to 600 participants. In addition to standard usage analytics (with particular focus on participant gameplay data), participants will also be asked to complete surveys at multiple time points assessing levels of subjective wellbeing and judgements of MindMax's usability. Multivariate regression analyses will be performed to investigate the effectiveness of MindMax as a whole, as well as that of its applied gaming elements. In particular, we will track how engagement with	1	Weak	Little reference to approach principles other than use of phases.	N	N

				MindMax varies with game-related variables of interest such as videogame interaction and community events and challenges. Results Findings from the first two phases informed the development of MindMax prior to release. Briefly, participants emphasised the importance of simple, but visually interesting layouts, clear and appropriate levels of visual feedback, their dislike of ludonarratively dissonant game mechanics (e.g. imposing time limits on a relaxation game), and conversely, their appreciation of ludonarratively consonant game mechanics. Design principles common to videogames were also suggested, including frequent content updates, events, competitive team play, personalised user experience, and digital rewards that cosmetically influenced user experience (e.g. backgrounds, avatar hairstyles). These suggestions were applied to MindMax as feasible and appropriate.					
Christie et al. 2019	2019	Gamifying CBT to deliver emotional health treatment to young people on smartphones	16	The eventual process for selecting and gamifying the therapeutic elements was iterative, informed by the co-design with young people, and the step-by-step creative process that unfolded while explaining the various treatment principles to the software developers and brainstorming together how these might be gamified. The final results are described and discussed below.	1	Weak	Little mention of methodological approach principles.	N	N

Collie & Cubranic. 2008	2008	Computer-Supported Distance Art Therapy: A Focus on Traumatic Illness	17	The initial stages of the development process were structured as participatory design (Clement & Van den Besselaar, 1993), a broad set of design practices that all have in common direct user participation in system development activities and decisions. The focus of participatory design is not only the improvement of the information system, but also the empowerment of future users so they can co-determine the development of the system and of their workplace (Clement & Van den Besselaar, 1993). Two themes govern practical implementation of participatory design principles (Floyd, Mehl, Reisen, Schmidt, & Wolf, 1989). The first theme is mutual reciprocal learning, in which users and designers teach one another about (respectively) work practices and technical possibilities through joint experiences. The second theme is design by doing, in which interactive experimentation, modeling, and testing support “hands-on design” and “learning by doing.” There were three phases to our participatory design process. The first was the preliminary collaboration between the two authors, when we learned the possibilities and limitations of each other’s field and determined initial parameters for computer-supported distance art therapy. When we had a usable prototype and a general sense of how distance art therapy might be conducted, we worked with groups of volunteer testers to discover what kinds of communication the system could support (the technical dimension) and to	2 5 6	Moderate	Direct user participation in development activities and decisions ...empowerment of future users to co-determine the development of the system. Knowledge sharing through reciprocal learning.	N	N

				determine what communication guidelines and social protocols would be necessary (the human dimension). During the final stage of the participatory design process, a team of 10 potential users experienced simulated distance art therapy using the system. In two groups of five, they took the role of clients for mock group art therapy sessions led by KC. There were two sessions for each group. Geographic distance was simulated by using a closed network of computers in different rooms of the same building. Using the computer software, everybody could hear KC as she led the sessions and they could respond to her, for example, to get clarification of the instructions. she gave throughout each activity, or to report a technical problem. They could also speak to each other, which they needed to do during the group-building activities at the beginning and at the end of each 15-minute painting activity when it was time to look at the paintings. each person had made. Typically, a few people would make comments during the painting activities, just as would be expected in a group. were sitting around a table together. At the completion of each hour-long session, there was a round-table discussion about the possibilities and problems of computer-supported distance art therapy (and related forms of distance psychosocial care).					

Counson et al. 2021	2021	Development of the Shift Smartphone App to Support the Emotional Well-Being of Junior Physicians: Design of a Prototype and Results of Usability and Acceptability Testing	18	Previous research highlights the importance of a user-centered approach to developing mHealth app interventions [24-26] and, if designed for employees, additional factors, such as the workplace environment, should be taken into account [27,28]. As such, mHealth apps involving workplace considerations pose additional constraints on the app development process to ensure that content is effective, adequately delivered, and suits the target working population. User-centered design approaches involve iterative phases of prototyping, ideally employing co-design and end user feedback, and involve consideration of the user at every stage of the design process to ensure that the intervention meets their needs [29,30]. This, in turn, has been reported to maximize users' engagement with, and adherence to, an mHealth intervention, and hence its impact [31]. This paper describes the process of developing Shift, a self-guided mental health and help-seeking smartphone app for junior physicians located in New South Wales, Australia. To our knowledge, this is the first mHealth app designed specifically to support the mental health of junior physicians. We used a user-driven and iterative development process, employing the principles of user-centered design and a multiphase process. This paper presents the 4-phase Shift app development process and how this process incorporates knowledge and feedback derived from qualitative assessments, pilot-testing, stakeholder	1 3 4	Moderate	Iterative design process engaging end user/stake holders at all stages of design. Knowledge sharing through consultation.	N	N

				and expert consultations, and user experience workshops with the target population.					

Easton et al. 2019	2019	A virtual agent to support individuals living with physical and mental comorbidities: Co-design and acceptability testing	19	Design Working with people with lived experience of COPD and health care professionals and using existing paper-based self-management materials as a starting point, we had the following objectives: 1. To co-design the core functionality of the system by identifying common problems faced when (self-)managing COPD, along with the solutions that were thought most appropriate or useful. These problems were then prioritized according to their impact on everyday life. 2. To elicit prospective users' operational requirements for the system, including interface features and visual appearance and delivery modalities, and, based on these, the co-design as far as possible of the corresponding features of the system. 3. To develop a prototype implementation that would meet the core functionality and operational requirements as comprehensively as possible given the constraints on resources (time, personnel, and available technology). The prototype was to be developed rapidly to allow its use in a subsequent iteration of the co-design process. 4. To test the acceptability of the design concepts with a wider group of participants. These methods were adapted from the work of the UK National Institute for Health Research (NIHR) Collaboration for Leadership in Applied Health Research and Care Yorkshire and Humber [25] Translating Knowledge into Action theme. They encourage a creative co-design approach to enable meaningful participation by all key stakeholders: an	1 4 5 6	Strong	Iterative design process engaging end user/stake holders at all stages of design. Problem and solution defining carried out in consultation with key stakeholders. Inclusive and creative, non-hierarchical environment.	N	N

				approach based on the principles of service design [26] and the UK Design Council's double diamond model of the design process [27]. The approach involves divergent and subsequent convergent thinking phases to, in the first instance, open up the space of challenges before honing the problem definition and then to explore potential ideas before focusing on a workable solution to the problem in hand. If all these processes are done with the involvement of all key stakeholders, the approach becomes coproductive by definition [26]. The explicit use of creative methods in coproduction addresses many of the challenges of coproduction, namely imbalances or deficits of power, language, trust, and time. It fosters an inclusive nonhierarchical environment [28] that allows all participants to be recognized as experts and produces results in the form of visible and tangible outputs owned by those who created them [29].					

Ellis et al. 2022	2022	Co-Designing an Experience Sampling Method Digital Platform to Investigate Self-Harm Among Young People	20	2.2 Workshops with Young People Thirteen semi-structured workshops were conducted with the fourteen young people organised into four groups. Each participant was invited to attend a sequence of three workshops. Due to COVID-19 lockdown measures and restrictions, the codesign workshop sessions were conducted remotely using University of Bristol approved videoconferencing software. Although participants were encouraged to have their cameras on this was not a requirement. The sessions were audio-recorded and transcribed. Co-designing with young people virtually was challenging as it was harder to build a rapport with participants. Nearly all the young people kept their cameras on throughout all the sessions, as well as often muting their microphones. This impacted the flow of the sessions as well as hiding many social cues associated with group discussions and design activities. A Child and Adolescent Psychiatrist (RM) helped facilitate the workshops with the young people and was also present to help if any participant unexpectedly dropped out of the session. No participants dropped out of sessions or reported needing support as a result of participating in the study. The first workshop session aimed to familiarise participants with the facilitators as well as key topics which would be discussed. It explored young people's use of mobile technologies as well as their thoughts on ESM and how this approach could be used in the research	0	Weak	Spoke about the importance of rapport in the working relationship. No other reference to approach principles.	N	N

				of self-harm among young people. The second session involved presenting participants with a range of fictional scenarios relating to the research of self-harm in the community. Scenarios depicted an individual who receives a notification on a smartphone prompting them to input responses on an EMA app. The scenarios differed in terms of time of prompt; individual location at time of prompt; activity at time of prompt; phone activity at time of prompt. Contextual features of each scenario were informed by previous research [18]. The final session involved presenting participants with a visual prototype of an ESM platform. This prototype was informed by the data gathered in the previous sessions and developed in Adobe XD. Participants were shown a demonstration of the platform starting with onboarding screens, security measures, settings features, and question formats. While the prototype was shown to participants, they were asked to discuss each feature of the application prototype. The group discussion was initially focused on what young people liked and disliked about the prototype, including the language and design features, and then focused on their views of using ESM to research self-harm in young people. 2.3 Workshops with ESM Researchers We recruited five academic researchers with an interest in ESM and conducted two workshops to gather their requirements for an ESM platform to investigate self-harm. We also elicited their reactions to the prototype developed to meet the requirements of					

				young people with lived experience of self-harm. The sessions were semi-structured and to aid discussion, researchers were presented with two prototypes: a low fidelity dashboard for an ESM platform; and the ESM app prototype presented to young people in their final workshops. The transcripts from all of the workshops were analysed following an iterative inductive thematic analysis [19].					

Gonsalves et al. 2019	2019	Design and Development of the "POD Adventures" Smartphone Game: A Blended Problem-Solving Intervention for Adolescent Mental Health in India	21	Research Design An iterative approach was taken to intervention design following established design guidelines including the personcentered approach by Yardley et al. (25) and World Health Organization (WHO) guidelines on monitoring and evaluating digital health interventions (26). The research design also incorporated insights from linked research activities related to the development and evaluation of PRIDE's counselor-led problem-solving intervention. The primary objectives of the current study were to: (i) understand access to and appropriateness of a digital intervention for adolescents in schools in India (ii) identify features to enhance engagement with, the problemsolving content of the intervention (iii) identify features to optimize the developmental and cultural acceptability and usability of the intervention (iv) identify features to optimize contextual acceptability and feasibility of intervention delivery	1	Weak	Little to no mention of methodological approach principles.	N	N

Goodyear-Smith et al. 2021	2021	VeCHAT: a proof-of-concept study on screening and managing veterans' mental health and wellbeing	22	The study used a mixed-method, co-design approach involving end-users (community-based veterans, veteran organisations and Veterans' Affairs providers) in the process. Qualitative (interviews) and quantitative (acceptability survey and VeCHAT responses) data were collected. Although randomised controlled trials enable research projects to gather evidence about the effectiveness of an intervention, to do so, they must be delivered in a rigorous, controlled and often artificial setting, with findings not generalisable nor applicable to real-life clinical settings. Co-design employed in an implementation study seeks to identify barriers or potential challenges to successful delivery of the intervention.^{24,25} For the current study, on-the-ground users (veteran groups and Veterans' Affairs health and social service providers) and stakeholders were involved in the modification of the tool and the procedures around its use. This approach increases the likelihood of adoption, uptake and implementation satisfaction. Initial information-gathering meetings were held with the Veterans' Affairs medical case reviewer to determine the current systems in place to identify veteran need, assess their eligibility for services and provide support where indicated. The technical team discussed how the current tool could be modified, with further detailed technical (requirements-gathering) meetings with the medical case reviewer regarding development of VeCHAT content and	14	Moderate	Users involved in modification as opposed to design and decisions at all stages of development. Little reference to methodological principles application.	N	N

				processes around its use (Figure 1). A final prototype was approved by the full project team. Veterans’ organisations, NoDuff and the Royal New Zealand Returned and Services Association Inc. (RSA), provided ongoing input into approaching and recruiting civilian veterans, including appropriate messaging.					

Gordon et al. 2016	2016	Participatory design of ehealth solutions for women from vulnerable populations with perinatal depression	23	Process Participatory design meetings occurred monthly in a waiting area of the prenatal center immediately following the regular workday and lasted 2 hours. From January through June 2013, participants were compensated with \$25 for their time. Patients joined the group in March 2013. From July 2013 onwards, compensation was increased to \$50 due to increased funding for the project. Participants were also provided with a simple dinner. The group collectively wrote a mission statement, which included the objective of improving communication and healthy outcomes in women with emotional distress using easily accessible interactive technology. SPIRIT group meetings focused on generating ideas and providing feedback on brief pilot studies implemented by providers, clinical administrative staff, health information technology developers, and video producers. Meetings were facilitated by the research team and involved brainstorming, problem-solving, role-playing, and feedback on content. Role-playing to review impact of the applications on clinical workflow was particularly effective; members of the group were able to observe proposed workflows and provide immediate responses and suggestions for modifications which could then be discussed for issues such as technical feasibility. Patient participants were critical to identifying favored language, features, and stylistic elements of the “look” of the app that were appropriate to the target population. Input on readability	1 2 4 5	Strong	Iterative design cycle engaging end user/stake holders at all stages of design. Problem and solution defining carried out in consultation with key stakeholders including through mission statement creation.	N	N

				and literacy challenges with language used in the app were particularly targeted by these members of the group. The SPIRIT group took a rapid cycle iterative design approach.¹¹ At each meeting, the SPIRIT group reviewed progress, provided feedback, tested available pilot software, and formulated specific recommendations for immediate next steps. The tools were then revised for the next meeting. Some examples of changes implemented as a result of this process are shown in table 1. The health care researchers supported the SPIRIT group by organizing and managing the meetings and reviewing literature to gather relevant evidence and content for each of the proposed applications. The researchers also drafted scripts and specifications informed by such considerations as readability and the high rate of limited literacy in the target population.¹⁴ Following lean design principles, the programmer and developer members of the design group were less involved initially until a satisfactory specification was established, after which they developed and presented working prototypes.¹¹ Live-action videography was carried out on location. Animated “guides” were produced using a commercial software product (Moviestorm; Moviestorm Limited, Cambridge, United Kingdom). Sound for the animation was taken from the live-action video.					

Grim et al. 2017	2017	Development and Usability Testing of a WebBased Decision Support for Users and Health Professionals in Psychiatric Services	24	The aim of this study was to use a participatory design in order to facilitate the development of a user-generated decision aid for individuals receiving psychiatric services. The multiphase process of prototype development and testing will be described and the the improvements that resulted from end-user input in each phase will be reported. Method The project included several iterative cycles of developmental- and usability phases. In modeling the study design, inspiration was drawn from similar projects (Cox et al., 2015; Elwyn et al., 2011; Ruland, Starren, & Vatne, 2008) as well as from consensus guidelines for development of decision aids (Elwyn et al., 2006; Elwyn et al., 2009). The study comprised four phases: (1) exploration phase with initial prototype development, (2) usability testing with psychiatric service users, (3) design phase with iterative interviewing, and (4) evaluation phase with pilot testing with service providers. Between each phase, a period of analysis and prototype revision was conducted by the project group to allow for improvements. The project group was interdisciplinary and included expertise in social science, nursing, psychology, service design and computer programming. A service design approach was considered necessary since decision-making is a process that unfolds over time and design expertise could contribute to interpreting the flow of needs described by users. The programmers, who joined the project during Phase 3, helped us to concretize	1 3	Moderate	Iterative design cycle engaging end user/stake holders at all stages of design. Speaks of the importance of user expert by experience .	N	N

				the process and use the advantages of a web-based environment to meet the needs. The first author also contributed input by drawing from her own experiential knowledge of mental illness and of using psychiatric services. Various qualitative methods for data collection were employed where potential end users, both service users and providers, acted as informants, testers and design partners (Druin, 1999). This article outlines the entire design process of the decision aid up to the point of its present form; see Figure 1. The exploratory work of Phase 1 is described in more detail elsewhere (DahlqvistJönsson, Schön, Rosenberg, Sandlund, & Svedberg, 2015; Grim, Rosenberg, Svedberg, & Schön, 2016) and Phase 4 is ongoing. Using a participatory design when developing new products in health is helpful for recognizing the contribution of service users as experts with unique experiences and knowledge.					

Grove. 2021	2021	Co-developing a Mental Health and Wellbeing Chatbot With and for Young People	25	Youth and Expert Reference Group During the first phase a youth and expert reference group was established early in the research project to inform the development and ongoing improvements needed of the chatbot. The data gathered through the mixed methods research design and the reference groups informed the build, its content, personality and name by piloting the technology application. Specifically, the youth reference group was established to provide feedback on chatbot to ensure it was engaging for this population. Joint consultation between the key stakeholders groups and with the researchers informed the personality and development of the chatbot. The co-design process included the youth reference group sharing feedback on the chatbots creation and any improvements that could be made of the chatbot. During the collaboration phase, key steps from "The Youth Booth" pilot project were used, such as building rapport and a culture of equal sharing (67). In order for youth to express their experiences, "authentic collaborative partnerships" [(68), p. 215] was critical in building rapport and trust between adults and youth. During phase one The Youth Affairs Council Victoria's Yerp Toolkit (69) established guidelines for engaging and building relationships with young people were used. The Yerp suggests non-jargon language and humor to build trust and rapport with young people. Also using open body language, recommending that being the same	1 4 5 6	Strong	Employment of Youth and Expert Reference group. Iterative design cycle engaging end user/stakeholders at all stages of design in "authentic collaborative partnerships"	N	N

				height as participants such as crouching down or sitting and smiling is more welcoming, as well as demonstrating active listening through nodding, summarizing key points, and asking questions, to show interest in youths suggestion (69). For example, when youth provided feedback that iniatially interactions with the chatbot was boring, and that it should be non-gendered, the chatbot was updated to include GIFS, and was changed to not be a male or female chatbot. After rapport was established using the Yerp toolkit interviewing techniques to check shared understandings, to provide opportunities to clarify any misunderstandings, and/or to expand upon points youth would like to further share. The expert reference group consisted of three Educational and Developmental Psychologists, one Forensic Psychologist and one Clinical Psychologist. The experts work in educational settings, hospitals and private practice specializing in supporting the wellbeing and mental health of young people. The experts provided psycho-information regarding the content development such as mental health and educational information, and evidence-based strategies. For example, establishing an alert function to notify a trusting adult if a youth was identified as at risk to themselves or others, the writing of confidentiality limits and consent to engage with the chatbot, and the language to discuss youth concerns. During all meetings with the reference groups the researchers took notes and					

				used the probing techniques identified in Table 2.					

Gulliver et al. 2015	2015	Privacy Issues in the Development of a Virtual Mental Health Clinic for University Students: A Qualitative Study	26	Overview This study was conducted within a larger project involving the development of a university-specific virtual mental health clinic designed to provide support to students across the mental health intervention spectrum (from awareness and prevention to treatment and relapse prevention). Participatory design methods attempt to involve all stakeholders (eg, end-users, employees, administrators) in coproducing a service [35]. In this project to date, these methods have included focus groups and prototype sessions which were used to engage students (end-users) in the development of the virtual clinic. Using participatory design methods may increase uptake of the service among students and foster a sense of empowerment and ownership of the service [36]. This research is taken from the first two stages of the project. The first stage comprised qualitative focus groups, which broadly examined the topic of mental health help-seeking online, and the second stage consisted of iterative prototyping of model versions of the clinic and feedback cycles conducted with students. The focus groups and prototype testing sessions were structured and based on predetermined questions to aid the development of the virtual clinic while allowing for other topics to be discussed as they arose. A list of questions for the focus groups and prototype sessions is provided in Multimedia Appendix 1.	1 4 5 6	Strong	Involving all stakeholders in an iterative design cycle.	N	N

Hardy et al. 2018	2018	How Inclusive, User-Centered Design Research Can Improve Psychological Therapies for Psychosis: Development of SlowMo	27	Design thinking is a process whereby challenges to therapy access, uptake, and adherence can be addressed. It involves developing a rich understanding of the problem area and its context to identify valued outcomes. From this, themes are derived to develop possible new ways of framing the problem by highlighting its paradoxes, and solutions are then generated to resolve them [38,39]. For example, paradoxes that design thinking may help to resolve include a person's desire to be healthier while continuing to engage in unhealthy behaviors or government attempts to promote a sense of safety through authoritarian controls that actually exacerbate public perceptions that society is dangerous. However, design thinking alone is insufficient to lead to meaningful change, as professional designers often operate outside problem contexts, and this may limit their ability to understand the problem and develop effective solutions. UCD methods address this limitation as they privilege the empathic understanding of end users and their contexts, thereby ensuring solutions are relevant to the diverse needs of people involved [39-41]. Participatory design, or codesign, is a UCD technique that emphasizes direct user involvement and has its roots in activism and shared decision making. It is increasingly used in digital mental health research, based on ethnographic and qualitative methods [42-44]. To date, participatory design methods used in the development of digital therapies for	1 2 4 6	Strong	Recognitio n of limited potential without stakeholde rs. Privilege end-use knowledge. Empathetic positioning. Recognitio n of marginalis ation. Iterative approach.	N	Y

				psychosis have included investigation of stakeholder attitudes through observation, surveys, interviews and focus groups, workshops to develop and test prototype ideas, and laboratory-based think aloud usability tests [45-53]. However, these studies have not tended to incorporate design thinking methodology, which can constrain innovation, so that new designs are variations of the status quo. In addition, a risk inherent in participatory design is that the most willing, able, and vocal users are more likely to be involved so that the needs of marginalized people are neglected. Study Design We conducted our design research alongside a case series of the previous version of the Thinking Well therapy. This was done to support the discovery phase of the double diamond. The case series will first be described, followed by an overview of the double diamond method. The design research was conducted from October 2014 to May 2017. The case series used the fourth version of Thinking Well, which built on earlier iterations and aimed to incorporate the participant feedback from our previous trial (see Waller et al's study [20] for a description of the preceding version of the therapy). This new version was developed before starting the inclusive UCD research. The changes included presentation of therapy session materials in PowerPoint, on a laptop, to allow for more multimedia, interactive content; Web pages hosted on a NHS website to					

				support the use of therapy strategies outside of sessions; and use of everyday accessible terminology for key psychological concepts. For example, the terms fast and slow thinking were introduced as a heuristic for capturing the ideas of jumping to conclusions and belief inflexibility, and analytical and reflective thinking, together with the focus on slowing down for a moment as a means of managing worries [57]. Other changes, based on feedback from therapists in the previous trial, included extending the therapy content from 4 to 6 meetings and adding sessions on the impact of past experiences and confirmatory bias in paranoia. Although this version of Thinking Well was more digitized than previous versions, the software was not fully interactive. Pen and paper materials were still used during therapy sessions and offered for out-of-session use if people were unwilling or unable to use the Web pages. Screenshots providing an example of the therapy materials, taken from session 1, are shown in Multimedia Appendix 1 (including PowerPoint slides used in the session with images of the paper thought record and practice card and the out-of-session Web pages). Therapy was delivered by clinical psychologists with at least 5 years of experience in delivering cognitive behavioral therapy for psychosis (CBTp) or therapists who had completed a postgraduate CBTp diploma and had a minimum of 1 year of postqualification experience.					

Hetrick et al. 2018	2018	Youth Codesign of a Mobile Phone App to Facilitate Self-Monitoring and Management of Mood Symptoms in Young People With Major Depression, Suicidal Ideation, and Self-Harm	28	Study Design We used an overarching participatory design framework [66] and studio design methodology [68] to develop the app. This process goes beyond consultation and testing of already developed sketches or interventions; rather, we sought the active participation of users as codesigners throughout the design process [66]. This follows human-centered design principles, seeking to understand the needs of users and designing a solution with them to meet those needs. This approach recognizes the expertise of young people due to their age and, in this project, their lived experience of mental ill health. This expertise is valued just as much as the expertise of team members with formal qualifications (eg, researchers, clinicians). By using the principles of youth partnerships in research [69], the codesign process described below was undertaken within overarching complementary youth participation principles, including ensuring clear expectations from team members about the scope of each person's contribution; being flexible, providing resources, and supporting involvement to limit barriers to participation; valuing diverse forms of experience (as previously described); involving more than one young person; reimbursing young people for their time; ensuring that all parties are benefiting from the experience (eg, skill development); avoiding tokenism to promote meaningful involvement; and providing feedback so	1 2 3 4	Strong	Reference to participation of stakeholders. Stakeholder consultation. Seeks to understand the needs of users. Recognises expertise of users and lived experience. Flexible. Supported engagement including overcoming barriers to participation. Avoiding tokenism.	N	Y

				that all team members are aware of what has been achieved.					

Hill et al. 2019	2019	Online Support and Intervention for Child Anxiety (OSI): Development and Usability Testing	29	The aims of this study are to (1) collaborate with users to design an internet-based treatment for child anxiety disorders (phase 1) and (2) test the usability of this internet-based treatment (phase 2). Existing iCBT interventions for child anxiety disorders involve providing direct support to children or adolescents, via internet-based sessions or modules [5]. However, face-to-face CBT for child anxiety disorders can be delivered in a brief format directly to parents alone [30,31]. Therefore, we set out to design an internet-based treatment based upon a face-to-face parent-led CBT for child anxiety disorders that is effective compared with waitlist [30], is cost-effective compared with another brief psychological intervention (Solution-Focused Therapy [31]), is acceptable and feasible for use within routine clinical practice [32], and is now widely used in early intervention services in the United Kingdom [33]. This brief face-to-face treatment for child anxiety disorders involves the parent reading chapters of the accompanying treatment book [34] and meeting with a therapist for approximately 5 hours of support over approximately 8 weeks, to help apply the CBT strategies with their child and problem solve any difficulties [35]. Although the child is not seen by the therapist during treatment, the parent is encouraged to work through the CBT techniques collaboratively with their child and involve them throughout the process. Involving the intended users in the development process and following a	2 3	Moderate	Embracing active collaboration with stakeholders at all stages of design process. Centering user in defining problem and solutions.	N	N

				user-centered approach is crucial to maximize service user engagement and adoption of internet-based interventions within routine clinical practice [10,11]. User-centered design is different from the traditional approach of expert-led intervention development for users and embraces active collaboration with users to ensure that the digital solution is usable and meets their needs and preferences [11,12]. Key elements of user-centered design include (1) identifying user needs, preferences, and expectations for the digital solution; (2) actively involving users in the design and prototyping; and (3) conducting usability testing on a working prototype to provide feedback and identify technical and esthetic issues that may affect user satisfaction [10]. User-centered design can improve (1) design quality [13], (2) user adherence [14], (3) usability [15], (4) efficacy and sustainability [16], and (5) stakeholder acceptance and adoption at the system and organizational levels [17].					

Honary et al. 2018	2018	A Web-Based Intervention for Relatives of People Experiencing Psychosis or Bipolar Disorder: Design Study Using a User-Centered Approach	30	Research suggests that effectiveness of Web-based health interventions correlates with users' level of engagement [33-35]. However, attrition is a common problem across digital health technologies [36-38]. The importance of investigating approaches to improve user engagement has been highlighted in the literature [39], with the use of incentives [40] and prompts [41] identified as being methods of increasing engagement. The importance of taking users' perception into account in the design of the content of Web-based interventions is needed to ensure (1) relevancy of content to their lived experiences, (2) consistency with their values, and (3) that the content provides additional benefit [42]. As such, the employment of user-centered methods, which aim to understand end users' needs and values throughout the lifecycle of design, development, and evaluation, intended to improve user engagement [43]. Although the literature highlights the importance of user-centered design [44-49], using this approach in a mental health context can be challenging in terms of recruiting participants and understanding the lived experiences of those affected by mental health conditions [50,51]. In this paper, we present the results of our qualitative study. First, we conducted 2 workshop sessions with 24 relatives. These workshops aimed to understand (1) the current infrastructure (eg, the lived experiences of relatives and what support is currently available for them), (2) the barriers (eg, the main challenges for	1 2 3 4 6	Strong	Recognition of importance of user engagement for various reasons. Valuing lived experience, stated needs, and values of users. Iterative approach. Stakeholder engagement. Inclusive principle.	N	N

				accessing existing support), and (3) the gap (eg, the support currently missing from the care system). This was followed by a workshop involving 2 relatives. This workshop aimed to verify and expand on the findings from the first 2 workshops and further explore the features that needed to be considered in the design of a supportive Web-based toolkit for relatives. Second, we conducted a small heuristic evaluation of a design prototype to better inform our final set of requirements. However, we focus the majority of our study on reporting the experience-driven needs and values that participants shared during our design process. The specific challenges faced by our participants, who were mainly older parental relatives of people with mental health problems, can be used as a starting point toward understanding how we might design inclusive and accessible digital interventions to support this complex user group. In this paper, the term participants is used when discussing relatives who took part in our study. Through this study, we contribute (1) insight into the needs of relatives and their concerns about Web-based interventions intended to provide information and support, (2) a pragmatic example of a user-centered approach in designing a Web-based intervention, including the complexities of engaging a representative sample of full-time relatives in the discussion of highly sensitive topics, and (3) a set of design considerations for the development of a Web-based toolkit to support the					

				informational and emotional needs of relatives.					

Hughes-Barton et al. 2023	2023	What consumers, general practitioners and mental health professionals want: the co-design and prototype testing of a transdiagnostic, acceptance and commitment therapy-based online intervention to reduce distress and promote wellbeing among Australian adults	31	Methods Study design The study was conducted in three stages between September 2020 and December 2022: Stage 1 involved initial co-design interviews where participants reviewed aspects of the proposed website by reflecting on concept cards; Stage 2 involved consulting participants about website branding; and Stage 3 involved participants testing and providing feedback on a prototype of the website. These are depicted in Fig. 1 and described in detail below. Each stage followed an online co-design model that had been adapted to meet changing needs during the COVID-19 pandemic [34]. This was an adaptation of Trischler and colleagues' co-design framework – an approach that provides guidelines for recruitment and sensitisation of codesign participants, strategies to enable co-design among participants, and advice for implementation of the ideas generated [35].	0	Weak	Little detailing methodological principles at all. The setting of conditions for engagement is a key aspect of Trischler et al. 2019 framework and a key action research principle but is not mentioned in the article.	N	N

Khan et al. 2020	2020	Design and Development of a Digital Program for Training Non-specialist Health Workers to Deliver an Evidence-Based Psychological Treatment for Depression in Primary Care in India	32	Research Design All study procedures were approved by institutional review boards at Sangath, India, and Harvard Medical School, USA. Additional Health Ministry Screening Committee (HMSC) approval was obtained from its secretariat at the Indian Council of Medical Research (ICMR). We employed an iterative approach to the design of the digital training program, informed by the ADDIE (Analysis, Design, Develop, Implement, and Evaluation) framework, a recognized instructional design model that offers flexibility for the development of digital learning content (Branch 2009). Our approach was also guided by prior digital intervention development projects related to mental health (Gonsalves et al. 2019), and the broader instructional design literature (Torre et al. 2006), with consideration of the target learner, learning environment, approaches for cultural and contextual adaptation, and strategies to support program engagement (Yardley et al. 2015). Throughout the development process, we referred to the core content and principles of the Healthy Activity Program (HAP), an evidence-based brief psychological treatment for depression (Patel et al. 2017). The HAP manuals, covering general counselling skills as well as specific treatment skills, formed the source content for the digital training program. During our program development, it was essential to ensure that we maintained fidelity to this original HAP treatment content and that we did not deviate from proven strategies for	1	Weak	Reference to cultural adaptation, learner needs. Iterative approach.	N	N

				successfully treating depression in primary care. We selected HAP because it is an effective treatment for depression based on behavioural activation (Dimidjian et al. 2011), and that is recommended as part of the World Health Organization mhGAP program (World Health Organization 2017). HAP is delivered over six to eight sessions, covering core content related to psychoeducation, behavioural assessment, activity monitoring, activity structuring and scheduling, problemsolving, and activation of social networks. HAP is designed to be delivered by lay health counsellors and was originally developed and evaluated in Goa, India (Chowdhary et al. 2016), and has demonstrated effectiveness and costeffectiveness (Patel et al. 2017), as well as sustained benefits for treating adult depression in primary care (Weobong et al. 2017). As outlined in Fig. 1, and described in the sections below, we followed a step-wise approach to support the training program development.					

Kornfield et al. 2022	2022	Meeting Users Where They Are: User-centered Design of an Automated Text Messaging Tool to Support the Mental Health of Young Adults	33	Despite rapid proliferation of digital mental health tools, it remains a significant challenge to identify and access effective tools that match an individual's needs and preferences [63, 65], with most tools having high attrition [2, 11, 31]. This reflects, in part, a "top-down" design process that has historically privileged clinical expertise over the input of end-users [84, 114]. Yet, whereas mental health treatment experts bring knowledge of mental illness and evidence-based treatment strategies, they may have gaps in their understanding of users' experiences of their health conditions, self-management approaches, goals and values, and habitual uses of technologies [48]. Top-down approaches may therefore fail to match users' needs or fit into their routines. For example, users tend to engage with mobile phones for short periods of time throughout the day, but many tools designed by experts require spending a long period of time with didactic content [73]. To address such mismatches, there have been increasing calls for integrating user-centered design methods into the development of digital mental health tools, alongside clinical expertise [94, 121]. These methods emphasize seeking input from users in an ongoing manner, such that users not only help researchers understand their needs, but also generate and respond to design ideas, and engage with and evaluate prototypes, guiding iterative refinements [87, 118]. Although the methods employed are diverse, at their core, user-	1 2 6	Moderate	Recognition of tension between top-down and bottom-up. Speaks to co-defining problems and solutions. Iterative approach.	N	Y

				centered design methods treat understanding the user as essential to designing useful and usable technologies, and thereby increasing the chances of successful deployment [58, 66, 130]. User-centered design methods have been applied to help understand and address specific needs and preferences of young adults that are not routinely met by available tools [64]. Participants in all study activities were recruited upon completing free online mental health self-screening surveys, hosted by Mental Health America, a large mental health advocacy organization. Individuals whose survey results showed at least moderate levels of depression or anxiety symptoms—corresponding to scores of 10 or higher on the 9-item patient health questionnaire (PHQ-9) [52] or 7-item Generalized Anxiety Disorder scale (GAD-7) [122]—were invited to learn more about the study opportunity by following a link alongside their screening results. Interested individuals completed an additional survey to assess study eligibility, with inclusion criteria specifying that individuals should 1) be located in the United States, 2) be between 18 and 25 years of age (or 19 and 25 years of age in Nebraska, reflecting the state’s age of majority), 3) have English language abilities sufficient to read, understand, and participate in study procedures, and 4) be willing to use a mobile phone. Given our interest in supporting young people who are not in formal treatment, participants were excluded if they were currently seeing a therapist, counselor, or					

				psychologist, or taking medications for their mental health symptoms. Participants were additionally excluded if they reported a serious mental illness (e.g., bipolar disorder, schizophrenia), if they had visual, voice, hearing, or motor impairments that would prevent completion of study procedures, or if they reported suicidal ideation with a plan and intent. 3.1.2 Synchronous Co-design Workshops. Co-design workshops focused on further defining the features of a messaging-based digital mental health tool. Workshop participants had all participated in an online discussion group; six had participated in an earlier discussion group that followed the same format but covered different topics (e.g., experiences of mental health symptoms in day-to-day life; data not reported here), and three had participated in the discussion group reported here. Workshop participants were selected from the two discussion groups to roughly reflect the diversity of the user population who complete online self-screenings on the Mental Health America website in terms of gender, race, and ethnicity. We held a total of five Zoom workshops over nine months, with nine total participants who were each invited to attend as many or as few workshops as they wished. Workshops ranged in size from two to five participants, and were facilitated by two members of the research team. The workshops lasted approximately 75 minutes each. Participants went by their first names only, and their Zoom display					

				names were adjusted accordingly. Participants could also turn their video feed on or of based on their preference. Each workshop centered on getting feedback on current design decisions the researchers faced, including considerations for 1) promoting a digital tool, particularly one using automated messaging, 2) content to be delivered and navigated via automated messaging, and 3) potential for delivery of social support through the tool. The researchers used screensharing of Google slides to visually represent possible features of the messaging service (e.g., mock-ups of interfaces to collect messaging preferences), and possible dialogues between the program and hypothetical users, with participants asked to give feedback or to react to design features and messages, and to suggest their own ideas for alternative dialogue and interactions.					

LaMonica et al. 2019	2019	Technology-Enabled Mental Health Service Reform for Open Arms – Veterans and Families Counselling: Participatory Design Study	34	Participatory Design Workshops The workshops brought together members of the Open Arms community, Australian Government representatives, and representatives from Project Synergy's R&D and Product Groups to explore how the prototype could be developed and configured to enhance mental health services provided by Open Arms. All workshops were coordinated by at least 2 facilitators, 1 of whom was a mental health professional whose role was to respond to any participant concerns or distress as a result of the subject matter. An additional Open Arms counselor was also present for this purpose. A scribe was present to take handwritten notes throughout the workshop. Each workshop (4-hour duration) was designed to actively engage participants in interactive discussions about how to co-design potential technology solutions for the Open Arms service. The facilitators used a variety of methods within the workshops, including prompted discussion, review of working prototypes (wireframes), creation of descriptive artifacts, and group-based development of user journeys (a series of steps illustrating how an individual might interact with the prototype). Importantly, user journeys help to understand user behavior and identify other possible functionality at a high level and define taxonomy and interface. They refer to personas and real people and feedback into a number of technology-building activities including information architecture and sitemaps, the	0	Weak	Speaks to using a range of engagement approaches. Little on methodological principles.	N	N

				development of wireframes, and functional specifications. To ensure maximum coverage of a number of critical issues to develop the technology solution, several areas of focus were explored, including: the intake; triage and waitlist processes at Open Arms; typical pathways to care at Open Arms; expectations of care provided by Open Arms; and potential for technology use for health and well-being as well as health-related emergencies. The above-listed topics reflected potential areas for service reform identified through an independent functional review of Open Arms commissioned by DVA in 2013-2014 [7]. Through weekly meetings, the agenda items and methods were then collaboratively refined by the joint Project Management Team, comprising researchers, health professionals, and members of Open Arms to determine how best to discover how the technology-enabled solution might enhance or reform Open Arms for improved outcomes for clients and their families.					

LaMonica et al. 2021	2021	Understanding Technology Preferences and Requirements for Health Information Technologies Designed to Improve and Maintain the Mental Health and Well-Being of Older Adults: Participatory Design Study	35	Using strategies to enhance community and consumer acceptability, usability and engagement with HITs is a priority in the health, medical, and research sectors internationally [25,26]. To this end, co-design methodologies, including participatory design and user testing, are widely recognized as key to ensuring the quality, usability, and acceptability of HITs for specific user groups—in this case, older adults. Research has shown that the active participation of all stakeholders throughout the design of technical systems and services helps ensure that the end product meets the needs of its intended user base, improves usability, and increases engagement of all individuals [27-29]. Importantly, there is an emerging evidence base reflecting the benefits of co-design with older adults, including those with dementia, and their family and caregivers, to enable strengths-based, person-centered care [30,31]. Our research team's established co-design methodologies explicitly position users as empowered participants in all stages from design and development through to implementation and impact evaluation [28,29,32,33]. Participatory Design Workshops A series of 4 group-based workshops of approximately 3-hour duration, each with up to 10 participants, were conducted with older adult stakeholders to discover, evaluate, and prototype acceptable design solutions for the InnoWell Platform. These sessions involved an iterative knowledge translation process	4	Weak	Speaks to using a range of engagement approaches. Little on methodological principles.	N	N

				so that initially generated ideas can be further developed (and fed back on) by participants in subsequent workshops (Multimedia Appendix 1 presents a sample agenda). All workshops were coordinated by 2 facilitators (one of whom was a health professional) and a scribe was present to take detailed notes. Two facilitators were considered important; the first facilitator guided the research questions and session plan, and the second facilitator ensured that all participants' voices were heard within the workshop. As in our previous co-design research [29], the facilitators used a variety of methods within the workshops, including prompted discussion, prototyping, creation of descriptive artifacts, and group-based development of user journeys (a series of steps illustrating how an individual might interact with the prototype). It is important to note that the InnoWell Platform is being designed and developed iteratively; therefore, although a version of the InnoWell Platform has been built, the participants were not exposed to the technology as part of the workshops to avoid bias in their thinking. As such, a blue sky approach (ie, brainstorming without limitations or practical constraints) was used for prototyping to ensure that the necessary features and functionality that may be unique to the older adult community were captured. On the basis of previous studies exploring the use of technology for health-related purposes by older adults [4,24,37,38], a number of critical areas were explored, including (1)					

				preferred devices, (2) common uses of technology, (3) use of technology to support health and well-being, (4) features or functionality that promote user engagement, (5) interest in and preferences for digital health services, and (6) concerns related to data privacy and confidentiality.					

Liverpool et al. 2023	2023	An App to Support Fathers' Mental Health and Well-Being: User-Centered Development Study	36	As part of the app development process, we adopted a co-design approach. An important aspect of co-designing is that future users are collaborating with professional experts, such as researchers, fatherhood-related organizations, and developers [17]. Co-design has many benefits including the fact that the usability and early identification and addressing of user needs can increase the likelihood that the service or intervention will become universally acceptable and accessible [18]. More specifically, we were guided by the co-design framework of Sanders and Stappers [19], which outlines 4 interconnected phases—predesign, generative, evaluative, and postdesign phases. In our development process and stakeholder consultations, we focused on the first 2 phases—predesign phase and generative phase—which involves focusing on users' past, present, and future experiences and then generating ideas regarding user needs, which can inform the new product. A variety of methods were adopted to obtain useful information and evidence for the key features or components of the intervention. It is anticipated that identifying the key features and components through research will bring about positive associations with the desired outcomes and, therefore, address the identified needs [13].	1 3 4	Moderate	Phased process involving various stakeholders and various stages. Reference to collaboration and centering of user needs.	N	N

Ludlow et al. 2024	2024	Co-designing a new digital mental health platform, 'Momentum', with caregivers of young people aged 7–17	37	Caregivers' involvement in the co-design of DMHIs It is important that DMHIs are designed with end-users to ensure that interventions meet their preferences, needs and contextual factors.³¹ Co-design involves meaningfully collaborating with potential end-users and other relevant stakeholders early and often in the design process.³² Thabrew and Fleming³² argue that partnering with end-users in co-design is likely to enhance DMHI uptake, engagement and user satisfaction. Caregivers should be involved in co-designing youth DMHIs, as they are a key source of support for young people,³³ helping them to access and engage with mental health services.^{22,23} Few studies have actively sought caregivers' input in the initial design of youth DMHIs.^{29,31,34} Bevan Jones et al.'s recent review of digital youth mental health technologies identified only 30 DMHIs across 25 journal articles that had been co-designed with end-users, with less than half (37%) involving caregivers.³¹ Some of these interventions targeted specific settings (e.g. schools³⁵), single mental health disorders (e.g. depression³⁶), or narrow age groups (e.g. adolescents aged 15–18³⁷). Other studies have reported on the co-design on DMHIs for parent use only.^{22,38} The current study This study formed part of a larger research project aiming to co-design, develop, implement and evaluate a self-directed digital youth mental health treatment platform (a type of DMHI)	1 2 4 6	Strong	Centres the stakeholders engagement. Speaks to meaningful collaboration with stakeholders to input into design and decision making. *Actual young people not engaged.*	N	Y

				called 'Momentum' that helps children and adolescents with anxiety and depression and other related aspects of their wellbeing (healthy lifestyles, substance use, sleep and helpseeking). Momentum was co-designed with young people (717 years old), their caregivers and clinicians. The current study reports on caregivers' involvement in the co-design phase, with the findings from co-design workshops with young people³⁹ and clinicians separately. The study objective was to explore caregivers' perspectives, preferences and ideas to inform the co-design of a new digital youth mental health platform (Momentum). The following research questions guided the study. 1. What do caregivers think the purpose of Momentum should be? 2. What key features (content, function, design) do caregivers think would help ensure that Momentum is acceptable and useful to caregivers and young people? 3. What are caregivers' perceptions of the barriers to, and facilitators of, caregivers' and young peoples' engagement with DMHIs? 4. What are caregivers' perspectives on their involvement in Momentum? Methods Study design This qualitative study involved dyads, triads and a focus group with caregivers of young people aged 7–17 years old. The research was guided by participatory and co-design practices,⁴⁰ which enabled participants to be actively involved in design processes and collaboratively contribute to decision making regarding the development of Momentum.					

March et al. 2018	2018	The Interactive Child Distress Screener: Development and Preliminary Feasibility Testing	38	In addition to the initial expert review to confirm importance, conceptual consistency, and identifiability of items in study 1, we also conducted research with children to test and refine sample animations and the app interface. The aim was to determine whether the intended meaning of pilot animations could be accurately identified; whether the response instructions were understood; and whether the characters, sounds, and animation style were acceptable and engaging. Similar “codesign” approaches have been used successfully in the development of innovative eHealth and mHealth technologies, where prospective users are involved collaboratively during design and development stages to provide valuable feedback and direction for ongoing development (eg, [22,23]). This study consisted of four steps, which are as follows: (1) development of prototype animations, (2) development of the interface and response format, (3) child interviews to determine feasibility and obtain feedback, and (4) refinement of animations and interface.	0	Weak	Little mention of methodolo gical approach principles.	N	N

Matthews et al. 2015	2015	In Situ Design for Mental Illness: Considering the Pathology of Bipolar Disorder in mHealth Design	39	Method Over the course of one year, we drew on the expertise of members of an academic research team (primarily information and computer scientists at a research university in the northeastern United States), a team of professional psychological researchers and clinicians with expertise in conducting (and training others in the use of) IPSRT therapy, and a group of 9 individuals with bipolar disorder. This latter group of participants were asked to use various prototype versions of our app on either an Android smartphone or iPhone for 7–10 weeks, to report on their experiences each week, and to suggest novel ideas that might better support their self-management in context. When possible, participants used their own devices. All face-to-face experimental procedures took place at a mental health clinic in northeastern United States. The majority of the participatory design process was conducted remotely, including design communications with participants. These discussions were conducted one-on-one over email and/or telephone between participants and one member of the research team. Over the course of the research, iterations of the prototype app were wirelessly sent to participants' smartphones via TestFlight to minimize the overhead of managing app distribution. Participants shared their feedback, design insights, and suggestions for enhancements to the app at least once a week with the University members of the research team. At the	0	Weak	Little reference to approach principles.	N	N

				conclusion of the study, participants completed a formal interview with one University member of the research team, which was recorded and transcribed. Participants received \$40 for each week they used the app, up to a maximum of \$400 and \$25 for the final interview. This level of compensation is in line with the amounts typically offered at the research clinic. Furthermore, patient participation was not contingent on adherence to a daily protocol of use.					

Moltrecht et al. 2022	2022	A Transdiagnostic, Emotion Regulation App (Eda) for Children: Design, Development, and Lessons Learned	40	Considerations and Design Implications The patient–clinician–designer and cooperative inquiry framework recommend the inclusion of target users directly into the design process. We explored the usability of potential co-design methods with this group before using them in workshops with younger, untrained children. However, the PPI participants were significantly older (aged 12-19 years) than the expected user group, which might explain some of the difficulties that we faced when working with younger children in the co-design workshops (see Co-design Workshops section). Designing a Complex Digital Intervention Although the Medical Research Council framework provides valuable guidelines for the development and evaluation of complex interventions, it provides little information on the design of intervention components [30]. Hence, we drew on 2 frameworks rooted in the fields of HCI and user-centered design. The patient–clinician–designer framework provides guidance on how to structure the design and content creation process of digital interventions for mental illness [31]. It aims to meet the complex requirements when designing user-centered interventions for mental illnesses by taking into account different perspectives (ie, patient vs clinician) and design goals. It describes how 5 key principles, based on user-centered design methodology, can be applied in the design process and divides it into four design phases: (1)	2 3 4 6	Strong	Valuing multiple perspectives and tension through mediation and specific activities. Empowerment through partnership. Contextualisation.	N	Y

				understanding the illness and its challenges, (2) involving users in the design, (3) mediating co-design activities between users and professionals, and (4) accommodating different evaluation goals. With respect to our target user group, that is, children at the end of primary school (aged 10-12 years), we decided to incorporate the Druin [32] cooperative inquiry framework, which provides specific techniques for involving young users in the design process of technologies and is widely used in the field. This framework highlights the importance of involving children as partners in the whole process instead of merely letting them test an almost finished prototype or end product. Druin [32] emphasizes the benefits of conducting fieldwork (ie, contextual inquiry) first, as it allows researchers to detect relevant contextual information, including patterns of activities, ways of communication, and other artifacts. In addition, it has been reported that discussing design features in the relevant context (eg, school and home) makes it easier for children to express ideas and provide suggestions [33]. Finally, the framework calls for the importance of visualizing ideas through low- and high-tech prototypes, as this offers children more concrete ways to elaborate on ideas and reject or refine them.					

Orlowski et al. 2019	2019	Designing for practice: understanding technology use in rural community-based youth mental health contexts	41	With this in mind, design processes that prioritise and privilege tacit knowledge and end users' existing ways of knowing and acting, such as Participatory Design (PD), are increasingly finding traction in this space (Hagen et al. 2012; Orlowski et al. 2015, 2016d; Poole 2013). It is this last point around which the current research is framed. A pragmatic approach to the research was taken, with the current workshops inspired by Kensing and Madsen's (1992) future workshops and informed by those conducted by Ihlström, Svensson, and Åkesson (2005) and Mcphail et al. (1998). The project was therefore designed to maximise results to the extent possible in a condensed timeframe; as such it required a structure that, whilst each workshop built on the last, still accommodated new participants at any point in the process. Utilisation of artefacts created earlier in the research process was also seen as desirable. The focus of the three workshops was as follows: Visioning Phase (an exploration of what may be needed and is possible), Scenario Building Phase (an exploration of which types of technologies can be used by whom and why) and a Mock-up Phase (creative visualisation of possible technologies and designs) (see Figure 1, Phase 3).	1 5	Moderate	Centres stakeholders tacit knowledge and ways of acting. Iterative reflexive approach to workshops.	N	N

Ospina-Pinillos et al. 2018	2018	Developing a Mental Health eClinic to Improve Access to and Quality of Mental Health Care for Young People: Using Participatory Design as Research Methodologies	42	Participatory Design and Technology-Based Mental Health Interventions Participatory design (PD) methodologies, which were developed in the late 1960s and early 1970s, emphasize the importance of involving all stakeholders (including end users, developers, and researchers) during the development of products to help ensure the end product meets everyone's needs; improve usability; and increase engagement of users [53-55]. The process involves iterative design cycles in which end users and researchers contribute to knowledge production and the development of the end product [50,56]. Importantly, end users should participate in all stages of development [57], not as consultants or controllers of the process, but sharing equal responsibility with the research team for the outcomes [50]. Some researchers [58], including us, consider PD as key research methodologies that overtly put the end user at the center of research and here, the development of the MHeC [59]. The use of PD is expanding in the development of technology-based mental health and well-being interventions for young people. In 2015, a systematic review [50] described the development of these interventions in areas such as prevention, screening [60], and treatment programs [61]. In the majority of cases, however, end users assumed more of a consultative role. Despite the fact that uptake of PD in the development of technology-based mental health and well-being interventions has increased, evidence is still needed to	1 2 4 5	Strong	Iterative design process engaging end user/stake holders at all stages of design. Knowledge production through consultations.	N	Y

				assess the impact of these research methodologies in the outcomes of these interventions [50]. As consumers have the opportunity to share their preferences before the development of expensive, and potentially helpful, systems, the rationale behind the use of PD in the development of mental health technologies could mean that an active engagement of end users could reduce the 17-year gap in translational research [62]. This Study In Australia, Web-based mental health services include health promotion, self-directed, and low intensity mental health support (eg, ReachOut! [63]; beyondblue [64,65]); national online counseling services (eg, eheadspace [66]); structured self-directed online therapy (eg, MoodGYM [67]); and those offering a combination of assessment and structured online therapy, including additional therapist support (eg, MindSpot Clinic [68]). What is missing is a Web-based mental health clinic that includes access to all the components and services necessary to meet the needs of all young people (those between the ages of 16 and 25 years), regardless of where they are on the spectrum of mental health or ill-health, or where they reside in Australia. The aim of this study was to use PD with end users (young people and youth health professionals) and our research team to codesign and build a Mental Health eClinic (MHeC) to improve timely access to, and better quality, mental health care for young people across Australia.					

Ospina-Pinillos et al. 2019	2019	Using Participatory Design Methodologies to Co-Design and Culturally Adapt the Spanish Version of the Mental Health eClinic: Qualitative Study	43	Using a research and development cycle (including several participatory design phases) with end users (young people aged 16 to 30 years, supportive others [such as family, friends, caregivers, coaches, teachers, or community members], and health professionals) as a framework, in this study we aimed to (1) conduct co-design workshops with end users to co-design and culturally adapt the MHeC for Spanish-speaking young people based in Australia; (2) inform the development of the alpha prototype of the MHeC-S; (3) test the usability of the alpha prototype of the MHeC-S; (4) translate, culturally adapt, and face-validate the self-report assessment to a Spanish-speaking population based in Australia; and (5) collect information to inform the beta prototype of the MHeC-S. Procedure We based the participatory design research methodology on the Young and Well Cooperative Research Centre's guide Participatory Design of Evidence-Based Online Youth Mental Health Promotion, Intervention and Treatment [54]. The research and development cycle used our previously established phases for co-design and build of the original version of the prototypic MHeC [53]. The process encompasses several participatory design phases: co-design workshops (phase 1); knowledge translation (phase 2); language translation and cultural adaptation (phase 3); rapid prototyping of the alpha prototype and user testing (phase 4); rapid prototyping and user (acceptance)	1 4 5	Moderate	Iterative design process engaging end user/stakeholders at all stages of design. Knowledge translation through consultations. Cultural adaptation with local stakeholders.	N	N

				testing of the beta prototype (phase 5); and real-world trialing of the final prototype (phase 6). This paper reports the initial 4 phases; we will report phase 5 and phase 6 separately (Figure 1).					

Ospina-Pinillos et al. 2020	2020	Involving End Users in Adapting a Spanish Version of a Web-Based Mental Health Clinic for Young People in Colombia: Exploratory Study Using Participatory Design Methodologies	44	To ensure that end users of HITs can derive maximum value from such interventions, it is critically important to involve them in their design and development and to strike a balance between best clinical practice and user experience (including usability). Participatory design (PD) methodologies represent one such solution [25-27]. The process involves engaging end users and other stakeholders at all stages (from conception to completion) of the design, development, and testing of these technologies [26,28,29]. Through several iterative phases, the prototype is co-designed, codeveloped, and refined until it has value to the end users; meets their needs; and is appealing, engaging, acceptable, and usable [26,30,31]. As end users share equal responsibility with the researchers for the outcomes, the rationale behind the use of PD methodologies could result in better products that are more functional in real-life settings, thereby closing the translational research gap [26]. In recent years, it has become more common to see the use of these methodologies in the development of mental health interventions in English-speaking countries [26-28,30,32]. However, to our knowledge, these methodologies have not yet been used in Colombia or any other Latin American country in this field.	1 2 4	Moderate	Stakeholder engagement at all stages. Iterative process. Responsibility sharing (horizontalization). Recognition of cultural context and placing of research.	N	N

Pararore. 2020	2020	Designing an Assisted Self-help Mobile App to Cope with Panic Disorder: Preliminary Results and Open Issues	45	For our study, we recruited 12 patients diagnosed with PD who were undergoing the programme. Patients (11 women and one man) were aged in a range from 40 to 70 and shared good knowledge of mobile technologies. A participatory design strategy [20] ensured us to build ad hoc functionalities as well as tailored solutions that could encourage the use of the application. Co-design sessions were held on a regular basis and involved all of the 12 patients, 2 psychotherapists and an ICT engineer. Beginning from the first session, use-cases were prepared and discussed. We started our design process by proposing a first set of core features related to the phases of data gathering and information exchange between therapists and patients. It was agreed that questionnaires should have been proposed periodically by the app via forms to be compiled and submitted. Similarly, it was required a digitized form of diary. From the therapists' point of view, these functionalities simplified the process of data gathering (also reducing the amount of time needed to transcribe data and manually analyse them), while patients appreciated the possibility to provide their data conveniently without the need of pencil and paper (saving paper was also perceived positively). During the following co-design sessions new functionalities were added upon request of one or the other stakeholder; among these, the tracking of emotions and feelings was a major requirement. Enabling users to check the evolution of their disturbs constitutes in fact a good	1 5 6	Moderate	Knowledge sharing. Iterative design process. Negotiation between users and designers.	N	N

				form of engagement [15]; it has a positive outcome on the willingness to proceed on the therapeutic itinerary, possibly modifying some strategies of coping or asking for help. As a further means of self-monitoring, a mood-tracker was requested in order to compare mood levels with the other data gathered by the app. This was deemed particularly useful by therapists, given the proved co-morbidity of PD with mood disorders, while patients were eager to have a means of linking their specific mood to other events registered in the diary. Patients required to keep track of the places where situations of distress may occur, since panic attacks are often associated to specific places or situations. A further functionality strongly requested by patients was that the app should provide first aid assistance whenever they felt a panic attack approaching. A final agreement on the main features provided by the app is shown in Fig. 1, where three functional areas are identified: • Practice: functionalities to access multimedia resources such as audio files or external links related to ACT and mindfulness. Resources such as coping strategies for stress and anxiety and first-aid tips to contrast panic are provided. • Diary: a set of forms and widgets to help users provide information about their psychological situation in a convenient and intuitive way. Data are gathered by the app and sent to specialists in a format that will be easy for them to analyse. • Report: diagrams that show the evolution					

				over time of a patient's situation based on data gathered through diary entries and questionnaires.					

Parel et al. 2022	2022	Escape from Oblivion: A 3D Hack and Slash Survival Horror Video Game for Promoting Awareness of Persistent Depressive Disorder	46	Project Development We selected the Agile Scrum Methodology as our guide for developing the video game. Figure 3 shows the processes of this project development model. The first procedure entails a client consultation to assess each aspect of the project and if there is a part of the game that requires to be reconstructed or modified. We then performed a series of planning via weekly meetings to accomplish the assigned tasks according to the timeline. Aside from the client, we also consulted with an expert as well as with our project and course advisers concerning what we completed in our daily outputs and weekly sprints. Excluding the planning and proposal stages, our development lasted for three months. Fig. 3. Agile Scrum Methodology. F. Game Testing Game testing is a crucial part of the project development as it ensures that the video game works under all conditions. In our project, we used alpha testing, beta testing, and user acceptance testing. In the alpha testing, we tested the game while under the development stage to ascertain if bugs, game-breaking glitches or exploits, and errors exist in the alpha version of the game and be able to tweak the game mechanics for game balancing. Our project mentor was an essential team member during this stage, especially for providing valuable input. For the beta testing, we recruited players that were not part of the development team. It is a strategy to acquire recommendations from different people. The practice of co-designing applications	0	Weak	Little mention of methodological approach principles.	N	N

				with intended users is a major part of project development that has been recognized to be useful and efficient [23]. For the user acceptance testing, we asked our clients and expert to test the game for final revisions and recommendations. After creating the first game version, we then sought out another set of users to evaluate our video game. We employed a purposive sampling technique and participated in a virtual open house event where people attended to play new video games. A total of eight groups participated in this event. IV. GAME DEVELOPMENT AND EVALUATION In this study, we developed a video game entitled “Escape from Oblivion” that intends to promote awareness of PDD. We have successfully integrated the survival mechanics in terms of healing items that force the player to continuously survive with the limited amount of health available. Following our review of existing video games, we incorporated a horror aspect through the game narrative, visual design, eerie background music, and sound effects. To intensify the emotional element, we utilized a hack and slash game mechanic in the combat mode. Overall, we modeled an extensive building with 15 floors divided into three main levels (See Figures 4 and 5 for examples). Throughout the maps and on every floor, there are available items and puzzles that the player must locate and solve to progress in the game. In Figure 6, for example, the player must find relevant items that are needed for					

				escaping the computer laboratory level. Finally, we distributed several triggers at different levels for activating a sudden attack of various mental state conditions. This strategy allows the player to experience a mental state comparable to the struggles experienced by people who suffer similar conditions. It is also a game design to adjust the difficulty of the game.					

Patterson et al. 2022	2022	An Internet-Based Cognitive Behavioral Therapy Program for Anxiety and Depression (Tranquility): Adaptation Co-design and Fidelity Evaluation Study	47	Mental health–informed peers were involved in 2 focus groups to co-design adaptations to Tranquility for both anxiety and depression and the benefit of these changes. A script with a combination of question types (eg, open-ended and close-ended questions) for the focus group was developed by the research team and can be found in Multimedia Appendix 1. The ECOUTER (Employing Conceptual Schema for Policy and Translation Engagement in Research) [23] framework was used in the facilitation of the focus groups. This framework positions participants in a prominent role in the research process by encouraging knowledge exchange, developing a conceptual schema, analyzing discussion contributions, and refining recommendations. Following each focus group, participants completed a web-based survey, which included demographic questions (eg, age and gender), the usability of the web-based platform, and their likelihood of recommending Tranquility to others. Adaptations to Tranquility We adapted 2 vignettes of individuals with depression (Multimedia Appendix 1) from the depressive disorders section of the Diagnostic and Statistical Manual of Mental Disorders–5 Clinical Case Handbook [29]—Diane, who has some social anxiety and has been depressed for the last 2 years and experiences little to no interest or pleasure (case 4.6) [30], and Helen, who has been feeling depressed for the last 2 months, drinks 4–5 alcoholic drinks per day, has significant	3 5	Moderate	Little to no mention of methodological approach principles.	N	N

				insomnia, had childhood anxiety, and has recently attempted suicide (case 4.10) [31]. CBT experts were asked which CBT components Tranquility should include to offer treatment for depression for the individual in the vignette. Each vignette had the same list of 19 components (eg, behavioral activation and mood tracking; Multimedia Appendix 1). CBT experts were also asked whether there were necessary special considerations when treating individuals seeking treatment for both anxiety and depression					

Peck et al. 2020	2020	Development of a Lived ExperienceBased Digital Resource for a Digitally-Assisted Peer Support Program for Young People Experiencing Psychosis	48	However, the development of digital resources to promote personal recovery in young people experiencing psychosis, and their use in a peer work context are yet to be examined. In developing such a resource, the limited available literature on personal recovery and individual face-to-face peer support work in this population emphasizes the key role that participatory processes can have. Consumer expertise has been increasingly encouraged within health research by government funders such as the US National Institute of Mental Health (49), Australian National Health and Medical Research Council (50), and UK National Institute of Health Research (51). Likewise, participatory design processes are increasingly becoming the standard in digital intervention development (52–54), and in mental health service design (55). Meaningfully integrating expertise from consumers and mental health service professionals including PSWs via a participatory process is needed to create resources that are more likely to align with the needs and preferences of those involved in delivering and receiving the program (56–59). It may also assist in understanding how digital technology can be integrated into peer work and help break down some of the barriers often associated with implementing peer-based programs (29, 60, 61). In this paper, we describe the participatory development process we used for making personal recovery lived experience video resources for use in peer support work,	3	Weak	Recognition of user expertise. Centring of need and preferences of users. Recognition that engagement is a valuable exercise in and of itself.	N	N

				and detail the resultant web-based resource. The strengths and difficulties associated with this process will also be discussed. Overview of the Development Process The creation of the resource content followed a sequential development process, involving participatory development of an initial content framework of themes, which was used to develop a semi-structured interview guide, conducting filmed interviews on the basis of this guide, and then editing video material with reference to the initial content framework into final themes (Figure 1). In this way, the content was shaped by both participatory development of an initial lived experience-based framework, and then the emergence of lived experience-based material during interviews.					

Peters et al. 2018	2018	Worker Preferences for a Mental Health App Within Male- Dominated Industries: Participatory Study	49	Participatory design, as a methodology for involving users in the design process, provides a set of methods and user-centered orientation for eliciting user perspectives, preferences, and ideas for the codesign of technologies [8]. Participatory design is also increasingly used as a method for the design of health and mental health technologies to empower patients or end users by involving them in development and to ensure tools are more likely to be engaging and effective [9-11]. Furthermore, participatory methods provide a way to create a democratic and destigmatized space in which to discuss mental health issues. Previous qualitative studies have shown that when men are provided with relevant information in a safe space, they can be willing to discuss mental health issues [10]. In this paper, we present results from the user research phase of the development of an app intended to improve the well-being of workers in male-dominated workplaces. A participatory design approach was selected with the intention of gleaning insights that would help guide the design in ways that avoided triggering stigma (ie, via language and style) and that would ensure elements of clear value for users would be built into the app to increase uptake and ongoing engagement. Our aim was to help address some of the difficulties in engaging men with mental health support by (1) presenting qualitative results of their perceptions, preferences, and ideas related to mental health technologies and (2) providing an	3 4 6	Moderate	Participant empowerment. Recognising the value of user perspective on outcome. Recognition of participant lived experience of process and designing methodological process to adapt.	N	Y

				example of how a research-based app for mental health might be designed in alignment with these perceptions and preferences. For the latter, we include examples of how conflicts between user requirements and research-based mental health practice might be resolved via interaction design.					

Povey et al. 2020	2020	Drafting the Aboriginal and Islander Mental Health Initiative for Youth (AIMhi-Y) App: Results of a formative mixed methods study	50	Methods The lived experience of mental health and wellbeing from the perspective of Aboriginal and Torres Strait Islander youth as well as the acceptable and appropriate characteristics of e-mental health tools was explored through co-design workshops. A series of co-design cycles were used to analyse, synthesize and integrate young people's preferences and views, in an iterative process (Hagen et al., 2012). 2.1. Research setting & research team Two schools and a drug rehabilitation service in the NT were the study sites for this project. One school and the drug rehabilitation service are in a regional center in the Top End and the other school is in a very remote region of the NT with no mobile phone coverage, accessible by light aircraft only. Sites were chosen purposively based on access to youth of varied sociodemographic backgrounds and previous relationships developed by the First Author (JP). The drug rehabilitation service was included to capture the views of young people who were not currently engaged with school. The research team has substantial collective experience working in Aboriginal health research and clinical practice in both mental and primary health care settings. One male (PPJRM) and two female (AMAP, CPS) Senior Indigenous Co-Researchers played an integral role in study design, consent, data collection, analysis and dissemination ensuring the study was informed by Aboriginal and Torres Strait Islander perspectives throughout. An Expert Reference Group (ERG) provided	1 2 3 5	Strong	Focus on lived experience Approaches culturally adapted. Steps taken to ensure representation. Iterative design process.	N	N

				guidance and advice on study procedures including engagement, recruitment, data collection, analysis and drafting of the resource. It included twelve service providers from the mental health, drug and alcohol, child protection, and education sectors, who met quarterly via teleconference. 2.3. Data collection methods Using a participatory design research approach, data collection methods were refined along the way in collaboration with education providers, members of the ERG, Indigenous Research Officers, community elders and participants (Hagen et al., 2012). 2.3.1. Co-design workshops Co-design workshops sought in-depth understanding of participant experiences and perspectives and allowed the collection of rich and thick data, which is identified by Thabrew et al. (2018) as an essential starting point for the co-design of e-mental health tools.					

Reupert et al. 2019	2019	An Online Intervention to Promote Mental Health and Wellbeing for Young Adults Whose Parents Have Mental Illness and/or Substance Use Problems: Theoretical Basis and Intervention Description	51	The mi.spot intervention was developed iteratively over a 36 month period using participatory design principles and drawing on relevant theory, existing research and feedback from feasibility trials (see Table 1). From the outset, a participatory design approach was employed (58, 59) through the creation and facilitation of a reference group consisting of researchers, clinicians, website designers, and young adults who have lived experience of parents with mental illness and/or substance use problems. The group was collaborative and collegiate with all stakeholders recognised as having different but equally important skills to offer. In particular, young adults were included to ensure that the intervention was user friendly and acceptable and clinicians were involved as the intervention needed to be clinically feasible. It was acknowledged that what young people want can be different from what parents and clinicians believe they need (60), which meant privileging the views of the young people on the reference group, especially in regard to site aesthetics and content and in terms of how clinicians might respond to young people's questions and concerns. Regular face-to-face meetings were facilitated with the aim of raising a diversity of views and learning from each other. Different members of the group had worked together previously (on other research projects, or on face-to-face peer support programs) which provided opportunities for capacity building. The reference group met regularly over 36	1 3 4 6	Strong	Stakeholder engagement. Collaborative approach. Collegiate position recognising differing but equal contribution potential. Recognition of tensions between stakeholders.	N	N

				months to discuss website developments and the implications of research (see below) to the website. Notes were taken at each meeting to document decisions and follow-up meetings with individuals were conducted as required to ensure that all perspectives were considered. Overall, the participatory design approach covered several phases; the identification of problems for young people living these families (drawing on existing research, see below) the generation of solutions, the development of and feedback on an online intervention, and the development of an implementation and evaluation strategy, including dissemination procedures.					

Rizia et al. 2015	2015	Mobile Peer-Mentoring: An Approach to Make Veterans Seek Mental Health-Care Support a Normality	52	After analyzing the initial design phase and lessons from it, the research team realized that a collaborative design process is a crucial requirement in order to reduce gap in understanding the process requirements. The iPeer project involved stakeholders with different expertise. This helped us to adopt a Community Collaborative Design Process [Fig. 2(c)]. Our collaborative design team included veteran mentors (VM) from DH, CESs, SSs and system development team. VMs brought end-user's perspective in design decision making. This method merges with the current shift in design methods from an object perspective to a human needs perspective [23]. A human needs perspective prioritizes socio-cultural responsibility and commitment to improving the lives of the end users. It requires a keen sensitivity to cultural differences and how these differences play out in the acceptance and adoption of a new product [24]. We further rooted our collaborative process in a synthesis of participatory action research (where users take part in the development of a product) [2] and design anthropology (a methodology that focuses on the mutual influence of culture and design) [25]. Findings of these collaborative design are listed below.	N/A (Explicit)	N/A (Explicit)	N/A (Explicit)	Y	N

Santesteban Echarri et al. 2020	2020	LooseLeaf, a Mobile-Based Application to Monitor Cannabis Use and Cannabis-Related Experiences for Youth at Clinical High-Risk for Psychosis: Development and User Acceptance Testing	53	This study aims to describe the development of an app, through which daily cannabis use and related experiences can be assessed for individuals at CHR prospectively and in near-real-time of use. We followed a participatory co-design approach where feedback from youth was sought through collaborative focus groups. The goal of the app is to collect monitoring data, and the ultimate objective will be to use it as an assessment tool in a randomized controlled trial after its feasibility is demonstrated through a pilot study. 2.2.1. Phase 1 (App development) Two 2-hour focus groups were conducted with a minimum of four and a maximum of 10 participants per group (Heary & Hennessy, 2002). Focus groups were facilitated by a doctorallevel clinical psychologist with experience in focus groups and co-facilitated by three undergraduate students who developed the app. The first group (February 2019) focused on app content. Opinions were gathered on existing paper tools that measure cannabis use such as the Daily Sessions, Frequency, Age of Onset, and Quantity of Cannabis Use (DFAQ-CU) (Cuttler & Spradlin, 2017) and cannabis-related experiences such as The Cannabis Experiences Questionnaire and its short version (CEQ) (Bianconi et al., 2016; Birnbaum et al., 2019; Quinn et al., 2017). The second group (May 2019) focused on the graphic design and initial usability. Current applications on the market related to cannabis use were	2 4	Moderate	Collaborative approach. Engagement of stakeholders.	N	N

				provided (i.e. Strainprint™, CannaLog®, KynalysisWellbeing, PotBot, Cannabis Talk, MyDx One, Uppy Strain Journal, MJBuddy, or Releaf App™). Participants discussed their opinions on the apps, provided feedback on initial sketches of the					
Schmidt et al. 2021	2021	Development of an internet-delivered program and platform for the treatment of depression and anxiety in patients with ischemic heart disease in eMindYourHeart	54	Methods To accommodate the disease and mental progression of patients with IHD, with the assumption that developers of the treatment program and the platform would benefit from a deep understanding of their situation, our methodology follows an iterative participatory design approach with a focus on extended involvement of patients as co-researchers 21. Accordingly, the project was designed as a sequentially staged process with initial focus on the treatment program with an ongoing emphasis on the future delivery platform. This focus was summarized in a pilot design evaluation workshop. Co-researcher participation The role as co-researcher was presented to	1 2	Moderate	Collaborative co-researcher approach. Engaged at all phases. Iterative design.	N	N

				candidate patients as an opportunity to take active part in the project during its entire development phase – although with a focus on extended participation during the initial phase with an expected commitment of 3-4 hours every three weeks for half a year. Two levels of engagement were planned with a differentiation between patients who participated throughout the program development as co-researchers (Group 1) and patients (participants) who only partook in the final evaluation workshop (Group 2).					

Severes et al. 2024	2024	Designing for mental health in higher education: a collaborative approach to digital interventions	55	There is an increasing consensus on the need to introduce digital interventions with scientific psychological principles, requiring active involvement from the medical community (Weisel et al. 2019). To this, a collaborative approach, enhanced by involvement with users and community partners, can provide invaluable real-world insights (Nordgreen et al. 2021), leading to practical tools beyond just lab settings (Marchand et al. 2011). Within this context, Co-Design and Participatory Action Research (PAR) emerge as methodologies to guide the design of these interventions. Co-Design prioritises the active involvement of end-users throughout the creation process, valuing their experiential insights throughout development (Selloni n.d.). It encourages a space where participants can voice, share, and co-create, seamlessly transitioning between thought and emotion, deliberation, and action. CoDesign goes beyond traditional participatory methodologies, balancing inquiry and creativity, aligning with users' real-life experiences (Selloni n.d.). PAR combines systematic collaboration with scientific inquiry to produce tangible results and sustainable social change (Hayes 2011). It adopts a cyclic approach of planning, acting, and reflecting (Koshy 1977), ensuring that solutions are both theoretically sound and grounded in the challenges individuals face in their daily lives (Koshy 1977), while promoting a more equal relationship between researchers and research participants (Stapleton and Mayock 2023). 3.2.	N/A (Explicit)	N/A (Explicit)	N/A (Explicit)	Y	Y

				Procedure Our approach was influenced by the two-stage development cycle by Coyle et al. (2007), facilitating a co-design process to develop and evaluate the intervention prototype. During the co-design sessions, we focussed on the design and evaluation of the prototype with university students, identifying areas for improvement and prioritising features that support both individual and collective well-being. After each cycle, we engaged in a review workshop with the psychologists from the counselling service. After the ‘Design’ study, a thorough ‘Validation’ workshop involving psychologists was conducted to validate and review insights and observations from the co-design cycles and the adaptability for clinical use. This comprehensive approach ensured the prototype’s multidimensional validity and relevance before advancing to the development stage (Figure 2). For more detailed descriptions of each procedure and methodology used throughout our study phases, please refer to appendix A.					

Sigurðardóttir et al. 2022	2022	Digital Mental Health: Co-Designing a Digital Platform to Support Work in Psychiatric Healthcare	56	Software is often developed with little or no contribution from the expected software users, leading to time and resources being spent on less feasible features at the cost of attributes that mean more to the actual users [20][21]. Co-design, which stands for cooperative design or collaborative design, is the act of including different stakeholders in an iterative process of designing and developing software [22]. Co-design is becoming more and more popular in the design process of software for healthcare purposes and findings support the use of co-design principles for person-centered solutions [23]. The authors of this paper acknowledge what the literature has underlined, namely the need for being mindful of the power differences between patients and healthcare professionals. This might especially be true when it comes to mental health [24]. The co-design process is concluded with guidelines for the development of our platform, and the guidelines are called design principles. Methods This paper reports on an action research (AR) project within mental health services, with healthcare professionals to complement the already existing service through digital mental health service via a digital platform. AR is an iterative research approach to conduct an empirical study, where the study plan can evolve during the process of the study. In its simplest form it begins with the collaborators of the study analyzing the subject, to come up with a theory which is then the foundation for change in	N/A (Explicit)	N/A (Explicit)	N/A (Explicit)	Y	Y

				how collaborators interpret the results [25]. This type of method fits well for interventions in practice. Collaborators in this context are the organization (here, the psychiatry at the hospital) and the researchers. AR has been widely used in studies in the discipline of information systems (IS), but also in other fields, such as to study digital work and digitalization of education [26]. Action research is the umbrella term for a variety of action-oriented, change-driven intervention methods where other, more specific methodological approach fit into. CAR has become a widespread approach to study the effects of digitalization, and the approach includes five principles: i) The principle of the researcher-client agreement: where the researcher may explain the process of AR and build trust for the continuance of the study ii) The principle of the cyclical process model: the process is an iterative one as described in Figure 1, iii) The principle of theory and theory development: Davidsson et al. (2014) argue that explicit theorizing is a vital part of the planning stage, as it ensures a framework that fits both client and researcher is designed, iv) The principle of change through action: outlines one of the main characteristics of AR, where changes can be made either on an individual level and/or on an organizational level, and, v) The principle of learning through reflection: where collaborators reflect on the outcome of the study and deliver a report [27]. Building on these principles we have adopted the model proposed by					

				Davidsson et al (2014), to our own context, to describe the research process as a whole within our CAR project (see Figure 1 below). We use the same figure to illustrate the subset of data collected for this paper, that is the "Reflection" phase. We build this paper on CAR and adapt that to fit our co-design process. The intervention in this project is two folded: i) On an individual level, the intervention is carrying a smartwatch that collects health data, answering daily well-being questions and monitoring own health data. ii) On a project level, the intervention includes the changes made in the platform to better facilitate the needs of patients and healthcare professionals.					

Sin et al. 2019	2019	A Multicomponent eHealth Intervention for Family Carers for People Affected by Psychosis: A Coproduced Design and Build Study	57	Design The co-design and build process of the eHealth intervention followed the UK National Institute for Health Research online resource development cycle [57]. This build method was chosen as we were to develop and deliver an eHealth intervention through an existing platform, rather than developing software or the platform ourselves [37,38]. There are 5 build steps illustrated in Figure 2. These are as follows: (1) draft architecture and content, (2) mockup of shell, (3) fill shell with material, (4) cross-inference and integrate materials, and (5) prepare for piloting. Coproduction Workshops With an Expert Advisory Group The co-design and build work were directed by an expert advisory group (EAG) comprising individuals and carers with lived experience of psychosis and professionals working in health, social, or voluntary sectors with the target population. The EAG membership was devised to address the principles of participatory research that value contributions from expertise through experience, and that should never be underrepresented within the bigger whole-team context [47,58]. We recruited EAG members with diverse demographic characteristics and varying degrees of ease and familiarity with digital communications from various clinical and voluntary service provider organizations across South East England. EAG members were paid a goodwill payment for meeting attendance and contributions and were also reimbursed for their travel expenses according to the INVOLVE	1 2 3 4 5	Strong	Employment of Experts by Experience . Diverse demographic. Iterative design process. Recognition of user knowledge.	N	Y

				payment scheme, a UK powerhouse that promotes patient, carers, and public involvement (PPI) in research [59]. The EAG comprised 3 individuals with lived experience of psychosis, 3 family members having different relationships with a loved one affected by psychosis in the family (including a cousin, a sister, and a daughter), 1 clinician who also has personal experience of family caregiving, and 1 voluntary service lead. The EAG worked with the core research team (comprising 2 clinical academics, 1 health services researcher, 2 eLearning experts, and 1 administrator) to lead the build work. Over the build phase lasting 12 months, 4 EAG workshops (1-4) were held, equivalent to the sprint cycles used in the agile approach. We used the coproduction in mental health improvement work method to organize the workshops [55,56,60]. This approach emphasizes and values the hidden capacity and capability of end users, families, and significant others. At each workshop, all members assumed equal decision-making role, whereas we contributed with our respective strengths and expertise [60,61]. These participatory design workshops (and follow-up work) were mapped to fit the 5-step development process of eHealth products [57], and hence, each had specific aims and expected output, progressing from generating ideas and design to reviewing and refining product from rapid prototyping cycles. After each participatory design workshop, the knowledge and ideas generated were					

				translated to produce draft hand-sketched plans and wireframes, mockups of Web pages, and source materials for the intervention (eg, videos or textual information). The mockups and output produced between workshops and end users' feedback obtained from consultations (see below) were then presented at the next workshop, enabling content and broad design ideas to be critically discussed and reviewed and then further developed. Toward the end of the co-design and build work (build steps 4 and 5), the EAG undertook final development work before conducting a walk-through exercise of the online beta-build of the intervention [62-64]. Final revision and refinement work were undertaken in build step 5 to produce the intervention prototype (ie, the delta-build in Figure 2) ready for the real-world usability test. Iterative Consultations With Carers At the interfaces of build steps 3 and 4, we incorporated 2 rounds of iterative consultations with target end users [52]. For the consultations, we recruited carers who had no prior involvement with the EFFIP project to a focus group meeting lasting up to 2 hours. During the first consultation, we showed the carers the offline first alpha-build of the intervention and asked for their feedback on its design and likeability, the flow and readability of the content, and invited them to preempt potential usability issues and identify ways to promote end users' engagement. The second consultation followed a similar format with another set of carers,					

				with an online second alpha-build of the intervention, which had been further developed by the EAG. The carers' views were fed back to the rapid prototyping cycles as overseen by the EAG. Figure 2 illustrates the inputs made by the focus groups. The consultation was approved by the UK National Health Service Research Ethics Committee (REC) process (REC approval reference number: 16/LO/1300) and Health Research Authority (HRA IRAS project ID: 210571). Carers aged 18 years or older and who provided unpaid support and care for a loved one affected by psychosis were recruited from 3 mental health trusts in South London and Berkshire, South East England. Recruitment strategies for carers included the posting of study flyers at clinical areas and informing the carers support workers and mental health professionals at each trust to disseminate the study information to carers.					

Stawarz et al. 2020	2020	Design Considerations for the Integrated Delivery of Cognitive Behavioral Therapy for Depression: User- Centered Design Study	58	The overall objective of this paper is to provide design guidelines for integrated platforms that support high-intensity CBT. A recent systematic review found that digital mental health technologies that show potential in randomized controlled trials (RCTs) are often less successful when deployed in real-world settings, that is, as implemented (disseminated) outside of research settings [27]. The authors conclude that this issue can be partially addressed through the collection and reporting of implementation data on an ongoing basis. However, it can also be addressed pre-RCT through a process of user-centered design [28]. Central to user-centered design is strong evidence that the long-term success of digital systems is greatly improved by actively involving potential users of a future technology throughout the design lifecycle of that technology. User-centered design recognizes that it is not possible to fully state the requirements of a novel digital system at the outset of the design process. Instead it emphasizes the need for requirements to be developed and refined on an iterative basis through active involvement of representative users. This involvement can take a number of forms, including design workshops, where potential functionalities and problems are mutually explored [29], and the evaluation and critique of early prototype systems with users. Through these approaches, the resulting technology is more able to incorporate the needs, values, and lived experiences of potential users. The value	1 2	Moderate	Recognitio n of value of users to product success. Iterative approach.	N	Y

				of user-centered design in developing digital health interventions is increasingly recognized [30-32], and its use is becoming more commonplace [33,34].					

Stoyanov et al. 2021	2021	Development of the Niggle App for Supporting Young People on Their Dynamic Journey to Well-being: Co-design and Qualitative Research Study	59	Research Design The participatory design workshops [38,40,41] combined visual and linguistic data collection methods—photo elicitation [42,43] and journey mapping—drawn from user experience design [44,45], to ensure a rich variety of concepts. The use of linguistic methods alone creates limitations, especially for younger participants [42,46-48]; therefore, the young people were provided with multiple communication modalities to explore individual experiences and understanding [45,49,50] of well-being, being unwell, the recovery journey between, and potential technological solutions. Procedure and Analysis Step 1 To immerse participants in the topic of well-being without priming them with researchers' definitions, we first asked them to create lists of associations for the terms well-being and being unwell. Step 2 Each participant was offered a set of 126 images cut out from different sources (Multimedia Appendix 1), which included a large variety of colorful or black-and-white images, patterns, textures, and icons that were representative of relationships, emotions, nature, activities, popular app icons, and abstract images. The images in the set were aggregated and refined by the research team and a group of youth consultants. Participants were invited to (1) select images associated with well-being, (2) select images associated with being unwell, and (3) create separate collages for each category. Step 3 Participants drew, on a blank sheet, a recovery journey depicting a hypothetical	1 2 5 6	Strong	Collaborative approach. Engagement of stakeholders. Iterative design process; Use of multiple communication modalities. Supporting anonymity. Democratic approach.	N	N

				or experienced journey from being unwell to well and were provided with a specially designed selection of lines and arrows to mark the steps in meaningful ways (ie, indicate difficult steps, easy steps, barriers, etc). The team deemed it ethically appropriate to phrase journeys as hypothetical scenarios, to allow participants the flexibility to impersonally reveal potentially distressing, confronting, and stigmatizing personal experiences in front of the group. Participants engaged in continuous verbal annotations of their own maps, which was followed by a group synthesis of all journeys. Step 4 Participants were asked to reflect on their journey maps and consider which steps could be assisted by technology and in what capacity (Figure 1). Thereafter, in-depth group discussions aimed to answer, “What type of technology would be best suited to provide assistance?” and “What technological functions would best address youth needs in progressing through the journey to well-being?” Participants were invited to work in pairs to create their most-desired mHealth tool (ie, with no limit to imagination and if resources were unlimited) to support the journey to well-being. Decisions to end data collection were based on saturation of emerging themes (Multimedia Appendix 2). Intervention Design and Development Aggregate technological solutions data were used to develop the concept design, storyboard, and functions of the mHealth tool, unanimously conceptualized by participants as a mobile app. The					

				functions, information, and interface of the app were designed using iterative co-design—with young people and an expert development team. Principles outlined by the Mobile App Rating Scale (MARS) [35], which outline a set of quality criteria and consist of 29 items organized in 4 objective (engagement, functionality, aesthetics, and information quality) and 2 subjective (subjective quality and perceived impact) subscales, were followed. MARS provides a checklist of criteria and definitions to assist developers in creating high-quality health apps. The Role of the Researchers The team consisted of researchers, designers, information technology developers, and young people. The collaborative approach served to ensure the thorough, interdisciplinary exploration of the psychological phenomena and the appropriate, grounded in theory, and participant data co-design, and development of the new technology.					

Terp et al. 2016	2016	A room for design: Through participatory design young adults with schizophrenia become strong collaborators	60	Participatory design (PD) was used to establish the codesign process. PD is a rigorous research method and design approach (Spinuzzi 2005) which draws on principles from Participatory Action Research (Clemensen et al. 2007; Kensing 2003). It uses a variety of generative tools to establish participation (Brandt et al. 2013; Sanders & Stappers 2014). The approach to establish participation in design and development of technologies has been widely documented in non-psychiatric populations (Bjørnes et al. 2011; Clemensen et al. 2007; Lucero et al. 2012; Waller et al. 2006; Wherton et al. 2015) and with dementia patients (Hanson et al. 2007; Robinson et al. 2009; Span et al. 2013). The potential of PD to make young adults with schizophrenia become engaged in designing a more participatory mental health practice, is yet to be identified. Several researchers using PD describe the importance of the environment in which the process unfolds (Hagen et al. 2012; Hussain et al. 2012; Sanders 2013). Bødker et al. (Bødker et al. 2004) describes a preparation phase in which designing the room is stressed while Kanstrup et al. (Kanstrup & Bertelsen 2011) suggests it is essential to create a room where imagination is encouraged. Therefore, to explore the potential of PD in the mental health care setting it seems important that we are especially aware of the physical and relational environment the young adults with schizophrenia are invited to participate in, and participated	N/A (Explicit)	N/A (Explicit)	N/A (Explicit)	Y	Y

				in throughout the design and development phase. It was important that we constructed a fertile environment – “a room for design” – that enables the young adults with schizophrenia to become active participants in the design process. Using the frame “room for design” when analyzing the data, we explored how the room was constructed, maintained, and which elements were accommodated. Exploring both the intended and unintended elements that construct the room for design, it is possible to be aware of these in future studies using PD in the mental health care practice. Therefore, the aim of this paper is to describe if, and how, PD thinking and tools can help construct a room for design – a fertile environment (Muller 2003) that enables participation and engagement in the development of participatory mental health care for young adults with schizophrenia.					

Terp et al. 2017	2017	Collaborating with Young Adults Diagnosed with Schizophrenia: A Participatory Design Study to Shape the Healthcare System	61	2. Methods 2.1. Research Design The overall research was conducted within a methodological framework of participatory design (PD) [22]. PD has roots in action research [23], and is preoccupied with finding and developing solutions to practical problems in close collaboration with service users [24] [25] [26] [27]. Therefore, PD supports the practice of making service users co-designers of services responsive to their needs. A qualitative approach was used to generate and analyse the data. In the first phase of the PD process, data were collected through participant observations and interviews with service users from a specialized first episode psychosis program in Denmark (OPUS). OPUS is a two-year program that provides intensive care for young adults between the ages of 18 - 34 years old, recently diagnosed with schizophrenia. Participant observations were carried out to generate a contextual understanding of the young adults' problems and needs, in order to get a grasp of what mattered most to them. Observations were primarily used to identify themes for a semi structured interview guide [28], thus, the findings in this article solely focus on the interviews. 2.2. Participants and Data Collection Firstly, the first author carried out passive participant observations (45 hours) to construct the interview guide. The observations were obtained in the primary contexts of the OPUS program. This included an outpatient clinic in which home consultations were provided as well as an in-patient clinic for young adults	N/A (Explicit)	N/A (Explicit)	N/A (Explicit)	Y	Y

				only. Observations and field notes were taken concurrently in accordance with Spradleys recommendations [29]. Nine observations of home visits, with two nurses and an occupational therapist, were obtained. The rest of the time was spent in the car or the clinic talking to healthcare professionals (HCPs) about the problems of living with schizophrenia and the needs to be accommoFigure 1. An overview of the different phases and activities in the participatory design process. dated. The managers of both settings gave their consent to be observed, and patients were asked permission for the first-author to sit in on conversations between them and their HCP. Secondly, the first author conducted individual interviews with (n= 6) young adults from the OPUS program, using the interview guide. In order to encourage the participants to speak freely, interview questions were open ended and not established in a fixed sequence, rather as prompts [30]. A Venn diagram [31] was used as a tangible artefact to address the supportive network, in an attempt to get an idea of how the technology should be “wired” to accommodate the needs of the young adults in a real life setting. To secure depth of data, each interview was continued until saturation had been reached [32], therefore, the interviews stopped when the narrative became repetitive and no new data were revealed. Interviews lasted between 55 minutes to 1 hour and 18 minutes. They were conducted either at the participants’					

				home (5 interviews) or at the research unit at the hospital (1 interview) depending on participant's preference. Interviews were digitally recorded and transcribed verbatim. The interviews were conducted in Danish; therefore the quotes in the findings section were translated into English, omitting any corrections in phrasing. Criteria for inclusion in the study were willingness and ability to share information and ideas by virtue of knowledge and experience. However, since it has been argued that individuals who are not "stuck" with too much experience make excellent innovators [33] [34], we were interested in recruiting participants that had been diagnosed within the past year. Criteria for exclusion were inability to speak or understand Danish and unwillingness to provide written consent. Recruitment was conducted in close collaboration with HCPs from OPUS, who singled out relevant participants, gave them an information letter and asked them to consider participation. The first-author contacted them either by phone or email, to make further arrangements, when consent had been obtained.					

Torous et al. 2019	2019	Creating a Digital Health Smartphone App and Digital Phenotyping Platform for Mental Health and Diverse Healthcare Needs: an Interdisciplinary and Collaborative Approach	62	In this paper, we explore development of the LAMP (Learn Assess Manage and Prevent) platform as an example of codesigning an app and its supporting software ecosystem (platform) to meet the intersecting needs of clinical/research and patient/consumer communities. While the app may be the most visible part of any software platform, ensuring that there is a platform to support that app with storing, accessing, sharing, and analyzing the data is often overlooked when designing, supporting, and maintaining healthcare apps. And while many apps are built for a single purpose or to enable a single study, here we focus on creating tools to support diverse studies research as well as clinical care use cases. In order to create a platform designed for flexibility instead of an app created for a single purpose, we assembled a diverse team reflecting the input and experience of patients, clinicians, family members, researchers, app developers, designers, and donors. This paper explores the motivation, development, current progress, and next steps for the LAMP project. Its purpose is not to claim a solution but rather share our team's experiences and efforts to spark conversation about new approaches, encourage others to build off and improve on our work, and engage new stakeholders to join in the evolving digital health community. Unmet Needs for Patient Perspectives While the needs for app platforms from a clinical and research perspective evolve,	4 6	Moderate	Recognition of intersecting perspectives. Stakeholder engagement. Recognition of limitations and competing needs.	N	N

				patients and users have equally pressing needs for these new digital tools. Using guided survey research (Torous et al. 2018), focus groups, structured interviews, and clinical experience with apps in the mental health care settings, we sought early and continuous input from patients on the platform. It became clear that, just as no one therapy or medication works for all patients, no one app will ever meet all needs. But across diverse patient groups and settings, we noted from three core themes present at all stages of the app development: (1) trust, (2) control, and (3) community.					

Vereschangin et al. 2023	2023	Co-developing tools to support student mental health and substance use: Minder app development from conceptualization to realization	63	Minder has been co-developed with input from 225 university students, including 44 student team members. Codevelopment occurred through engaging students and volunteers on the project team, a Student Advisory Committee, and via quantitative and qualitative studies (virtual bootcamp, pilot feasibility study, and focus groups). The co-development can be organized into three main phases: conceptualization and initial app design, iterative user testing, and final app design. This study was conducted at the University of British Columbia, located in Vancouver, Canada. This is a large public university located in an urban center with an extensive array of undergraduate and graduate programs. All procedures involving human subjects were approved by the Behavioral Research Ethics Board of the University of British Columbia (H20-02438, H21-00393). Informed consent was electronically obtained from participants for all studies	0	Weak	Little to no mention of methodological approach principles.	N	N

Vial et al. 2023	2023	Developing A Mobile App With a Human-Centered Design Lens to Improve Access to Mental Health Care (Mentallys Project): Protocol for an Initial Co-Design Process	64	Methods Study Context Methodological Approach and Principles We want to position this paper in line with the approach of “method stories” in co-design [30,31]. Method stories focus on what the designers actually did with methods in particular circumstances [31]. It focuses not only on the results of co-design sessions but also on the way a method has been used and adjusted in a specific situation [30]. Thus, we will first depict the “making of” the method to be used in this project (see section Study Preparation). In addition, our research protocol for co-design claims a certain flexibility that is directly related to design thinking as a cognitive style [32-35]. Designers alternate between phases of divergent thinking (generating multiple ideas in an exploratory way) and convergent thinking (choosing the best ideas and making choices) [36]. They investigate the problem space more for new possibilities and are more open to a variety of prototyping materials and tools [37]. This leads to adjusting the process several times and adapting it to new creative insights that arise, especially in the early stages. Therefore, the protocol we present in this paper shows the basic structure of our co-design process but, since it is led by design, assumes that adjustments along the way can take place to support flexibility in ideation. Study Design Our study is based on the core concepts of design thinking. Originally described as a cognitive style [33,34,40], design thinking is now widely	1 3 4 6	Strong	Flexible approach. Iterative design approach. Recognition of idea tension as generative. Valuing lived experience.	N	N

				recognized as an organizational resource for innovation [41]. It was popularized by American design agency IDEO, especially its former CEO Tim Brown, and defined as a methodology for innovation with a human-centered design ethos [42]. Our study design is inspired by design thinking as integrating thinking composed of 3 dimensions: desirability, feasibility, and viability [43]. Desirability relates to “what is desirable from a human point of view,” that is, people’s needs; feasibility relates to “what is technologically feasible,” and viability relates to “what is economically viable” [44]. In an e–mental health context, we assume that (1) desirability relates to what is desirable and acceptable for people with a lived experience of mental health problems, families, peer support workers, clinicians, and health professionals, which takes into account their needs, expectations, frustrations, and concerns; (2) feasibility relates to what is digitally and organizationally feasible within the health system; and (3) viability relates to what is economically acceptable for all stakeholders (business model) and environmentally sustainable. Based on these 3 dimensions, we are planning 3 design phases: phase 1, focusing on exploring desirability, phase 2 exploring feasibility, and phase 3 exploring viability. In this study, we present only phase 1, desirability, since it will be entirely focused on co-design.					

Wadley et al. 2013	2013	Participatory Design of an Online Therapy for Youth Mental Health	65	DESIGN PROCESS Our research has followed the two-stage process advocated by Coyle et al. (2007) in which a design and usability/acceptability testing stage involving HCI and mental health professionals is followed by a trial of clinical efficacy. This paper describes stage 1: design and initial testing. We have secured funding for a 4-year clinical trial, which will constitute stage 2. We began our project with the premise that ICT could be used to extend existing face-to-face therapy for psychosis. From this we generated four design sketches which we used to seed discussions with clients and clinicians. The sketches illustrated the following options: • Deliver therapy content via the web • Deliver therapy content via mobile phones and SMS • Deliver therapy content via existing social media • Deliver web-based wellbeing questionnaires to replace paper forms currently filled at clinic. Design decisions Our work with clients and clinicians led us to the conclusion that an online therapy was feasible and that it should offer three functions: • Psychoeducation: Clients access, at times and places and at a pace convenient to them, therapy content which is focused on positive constructs such as problem solving and self-efficacy; • Peer-to-peer social interaction: Clients interact with each other via group therapy and discussion pages, using UI elements modelled on popular social media; • Advice and moderation from staff: Client interaction is	1 4	Moderate	Stakeholder engagement. Iterative process.	N	N

				moderated by professional clinical staff to ensure online safety. Clients communicate with staff through public or one-to-one messages according to preference. The therapy should be available via any Internet-enabled computer and in particular via mobile devices, so that clients can gain help when and where it is needed. It should be positive in tone, solution-oriented, and carefully designed not to cause anxiety (we have drawn inspiration from the Positive Psychology framework of Seligman et al., 2006). Moderation should be by trained staff and should integrate with and not impose a burden on existing work routines. Prototyping Through iterative prototyping we implemented an online therapy website that embodied our design decisions. We considered combining existing software for online learning and social networking; however this limited our flexibility and we decided on a bespoke design. This has allowed us to tightly integrate therapy, social networking and moderation components. We are using web standards and open-source technologies, and to promote reuse, keeping therapy content decoupled from software.						

Waterman et al. 2018	2018	Mellow: A Mobile Application to Help Youth in Crisis	66	Methods In order for Mellow's design to truly encompass the needs of the user, a collaborative design (co-design) process has been adopted (Figure 1). Throughout each stage, the students worked closely with stakeholders (i.e. youth; informal support networks like friends, family, and faith leaders; and service providers such as hospitals, counselors, community centres, and crisis response services) who provided insight and feedback that has been integrated in each iteration of the design. This has shifted the traditional power balance of the design process. Having students work in the place of professionals allowed for a more approachable way to engage the target youth group, and engage multiple communities beyond just asking questions which brought meaning and value to the design.	2 3 4 6	Strong	Collaborative approach. Engagement with stakeholders. Iterative design. Recognition of power imbalances. Recognition of participant experience of the research process.	N	N
Werner-Seidler et al. 2017	2017	A Smartphone App for Adolescents With Sleep Disturbance: Development of the Sleep Ninja	67	Using a participatory design approach, adolescents contributed their views via focus group discussions that informed the design and development process. There has been increasing recognition that involving users in the development of health information systems increases technology adoption, user satisfaction, as well as trust and ease of use of specific programs [26]. Currently, adherence rates to technology-mediated treatment are low at just 52%, suggesting that there is considerable room for improvement [27]. Using a participatory design approach may improve eventual adherence and was selected to align with best practice guidelines in the development of mental health	4	Weak	Obtain stakeholder views and understanding needs. Little else on methodological underpinnings.	N	N

				smartphone apps [28]. According to these guidelines, understanding the needs of the end user is paramount to the eventual uptake of the app and should be systematically addressed during the development and design phases. Therefore, adoption of a participatory design aligns with these recommendations. The decision to employ focus groups was made because young people are generally comfortable and familiar with the process of discussing issues in small groups [29].					
Wiljer et al. 2017	2017	Thought Spot: Co-Creating Mental Health Solutions with Post-Secondary Students	68	This project employs a co-creation, co-design, phased, iterative approach to develop Thought Spot, a crowd-sourced platform to better enable students to seek mental health service. The project has involved a dynamic consortium of organizations.² The cocreation methods included recruiting a production team responsible for the content, organization and look-and-feel of the platform, a student-led development team that oversaw the work of the production team, along with workshops and a hackathon. There are three project phases: 1) initial development and evaluation of the web-based and mobile platform; 2) optimization and platform enhancement; and, 3) assessment through a randomized control trial (RCT).	1 4	Moderate	Iterative, phased approach, stakeholder led and collaborative. Focus on power. Not a lot of theory detail.	N	N

Wrightson-Hester et al. 2023	2023	An Artificial Therapist (Manage Your Life Online) to Support the Mental Health of Youth: Co-Design and Case Series	69	The MYLO Co-Design Phase At the start of this research project, MYLO was available only as a web application. We recruited a youth advisory committee of 10 young people who had experienced anxiety or depression. A total of 7 committee members attended meetings or provided written feedback during the co-design phase. This group included 4 nonbinary people, 2 women, and 1 man, aged 16 to 24 years. Of these, 6 members lived in the Perth Metro area and 1 lived in a regional (ie, country) area of Western Australia. The panel was recruited by the lived experience researcher on the team through their existing networks and through the Consumer and Community Involvement program at the first author's institute. A total of 4 youth advisory committee meetings were held between July 1, 2022, and October 14, 2022, during which time the youth advisory committee tested different iterations of MYLO and provided feedback that was then presented to the software development team (Multimedia Appendix 1). The software development team implemented the committee's feedback, and new iterations were then returned to the committee for further feedback.	0	Weak	Little to no mention of methodological approach principles.	N	N

Yoo et al. 2020	2020	Designing a Clinician-Facing Tool for Using Insights From Patients' Social Media Activity: Iterative Co-Design Approach	70	We, as an interdisciplinary research team, co-designed the lo-fi prototypes. Co-design, which is widely used in the design research community, can be defined as a dialog between end users and designers [25]. We extended the concept of co-design as a long-term discussion between end users and designers. The 4 clinical researchers in this team were the potential end users of the prototype. At the same time, they were also domain experts who could represent end users. The rest of the HCI researchers served as designers and builders of future tools that can support clinicians.	2	Moderate	Recognition of dialog as central to development. Adaptation of methodological approach.	N	N

Author	Study ID	Participatory Method Used	Software Platform	Mental Health Focus	Context	Participant Characteristics

Abraham et al. 2018	1	Not stated	Web-based application	Anxiety and Depression	Clinical Setting	Mental health stakeholders included VA leaders (n=4) in the implementation of EBPs, VA experts (n=4) in CBT, VA CBOC mental health providers (n=8), and veterans (n=8) diagnosed with a mental health condition treated using the CALM program and receiving treatment in a VA CBOC

Anekar et al. 2023	2	Human Centred Design	Web-based application	CBT for Depression and Anxiety	Unstated	Not given
Aryana and Brewster. 2020	3	Participatory Design & Action Research	Mobile phone based application	General Mental Health	University	Young people/users: Seven university students aged 18–20 years not currently enrolled in a design course. Mental health practitioners/stakeholders: Ten members of the university's counselling and mental health services team.

Barry et al. 2017	4	Human Centred Design	Mobile phone based application	Psychological Wellbeing Check-in for Maternal Mental Health	Clinical Setting	We conducted five design sessions in Spring 2016 with different groups of participant types including medical (obstetric and midwifery) researchers/clinicians, mental health researchers/clinicians, psychologists, social scientists with expertise in pre- and postnatal care, and practice and research midwives. In total, 21 participants took part in the five design sessions, both male and female and ranging in age from c.25 – 55, each with various levels of experience with pregnant women through practice and research.

Ben-Yehuda et al. 2022	5	Participatory Design	Mobile phone based application	CBT-based resilience-building activities to safeguard mental health.	Unstated	Focus groups of 5 to 7 participants each (young people aged 18-35 years, n=38)

Berry et al. 2020	6	Co-design	Web-based application	CBT for Psychosis	Clinical Setting	Actissist team members (n = 2) Data scientist (n = 1) Psychiatrist (n = 1) Service user (n = 2) Software engineer (n = 1) Actissist team members (n = 2) Data scientist (n = 1) Psychiatrist (n = 1) Mental health nurse (n = 1) Service user (n = 1) Software engineer (n = 1) Actissist team members (n = 2) Clinical psychologist (n = 1) Mental health nurse (n = 1) Software engineer (n = 1) Example of participants for toolkit section of Actissist App.

Bevan Jones et al. 2018	7	Not stated	Web-based application	Depression	Community based settings	Participants—semistructured interviews. Participant group Background Other demographics (nationality; language) Welsh, British; English, Welsh 18-year-old female with a history of depression (previously under CAMHSa) Young person 1 Young person 2 13-year-old female with depression (under CAMHS at time of interview) Welsh, British; English, Welsh Young person 3 17-year-old male with depression (under CAMHS at time of interview) Welsh, British; English, Welsh Welsh, Lebanese; English, Arabic, Welsh, Spanish 16-year-old female at high risk of depression (mother has a history of recurrent depression) Young person 4 Parent 1 Mother with a history of depression (14-year-old daughter is at risk) Welsh, British; English Parent 2 Father of a 13-year-old daughter who has a history of depression (under CAMHS) Welsh, British; English, Welsh Parent 3 Mother of a 13-year-old daughter who has a history of depression (under CAMHS) Welsh, British; English, Welsh Parent 4 Mother with a history of recurrent depression (16-year-old daughter is at risk) Welsh, Lebanese; Arabic, English Consultant child and adolescent psychiatrist (male) (advisor-National Assembly Welsh, British; English, Welsh for Wales) Professional 1 Professional 2 Consultant child and adolescent psychiatrist (male) English, British; English Professional 3 General practitioner (female) Welsh, British; English Professional 4 Educational psychologist (female) Welsh, British; English, Welsh Characteristics of participants in all focus groups. Source of Profession recruitment (n) EPADa:CAMHSb Age in years, mean (range) Gender (n), female:male Focus group (FG) Participants (n) FG: young people 1 (at risk) 15 11:4 16.5 (13-19) 15:0 FG: young people 2 (current 8 5:3 15.8 (14-17) 0:8 or history of depression) 2:3 (and 1 volunteer) FG: young people 3 6 4:2 16.8 (15-19) FG: parents and carers 7 7:0 - 5:2 2 psychiatrists, 2 psychiatric nurses, 3 educational psychologists, 2 school nurses, 1 teacher, and 2 youth workers FG: clinical professionals 12 8:4 - 4 psychiatrists (2 consultants and 2 trainees or fellows), 1 general practitioner, 4 research psychologists (1 senior lecturer, 2 postdoctoral, and 1

						doctoral), and 1 medical student FG: academic professionals 10 6:4 - Consultation group (Funky Dragon) Young people aged 11 to 25 years elected from around Wales (n=22)

Bhat et al. 2023	8	User-centred Iterative Design	Mobile phone based application	General Mental Health	Community mental health	Self Help Group members (F 18-59) and community health workers

Biernesser et al. 2023	9	Co-design	Web-based application	Suicide prevention	University	LGBTQ+ youth (N = 33), parents (N = 11) and LGBTQ+-serving professionals (N = 10)

Brown et al. 2020	10	Participatory Design	Web-based application	Emotional well-being intervention	Clinical Setting	Staff from a Welsh health board (not clarity on numbers)

Buitenweg et al. 2019	11	Co-Creation	Mobile phone based application	Quality of Life Assessment	Clinical Setting	59 individual from 3 groups with severe mental health problems: (1) people with psychiatric problems, (2) people treated in forensic psychiatry, and (3) people who are homeless. Participants (n) Male participants, n (%) Age, mean (SD) Brainstorming stage Iteration 1 10 7 (70) 34.2 (12.8) Design stage Iteration 2 8 7 (88) 32.8 (13.6) Iteration 3 8 7 (88) 38.9 (12.8) Iteration 4 9 8 (89) 41 (14.9) Total 25 22 (88) 37.7 (14.3) Usability stage Iteration 5 9 6 (67) 42 (17.5) Iteration 6 15 13 (87) 49.7 (11.3) Total 24 19 (79) 46.8 (14.4) Total entire development 59 48 (81) 40.8 (15)

Buus et al. 2019	12	User- involvement	Mobile phone based application	Suicide prevention	Clinical Setting	Focus groups and workshops. Focus groups (FG) and workshops Participants Date Length (min) Knowledge of the app (WS) Used original version of MYPLAN Young users (n=5); mean age: 16.0 December 2015 126 years; and moderators (n=2; NB and JLSL) Focus group #1 Denmark: DK FG #1 Used original version of MYPLAN Adult users (n=8); mean age: 22.5 November 2015 132 years; and moderators (n=2; NB and JLSL) Focus group #2 Denmark: DK FG #2 Received original version of MYPLAN leading up to the session Relatives (n=3); mean age: 49.0 December 2015 129 years; and moderators (n=2; NB and JLSL) Focus group #3 Denmark: DK FG #3 Used original version of MYPLAN Clinicians (n=10); mean age: 46.0 November 2015 120 years; and moderators (n=2; NB and JLSL) Focus group #4 Denmark: DK FG #4 Used original version of MYPLAN and reviewed wireframes of revised MYPLAN during the session January 2016 155 Users (n=3)a; software programmer (n=1); and moderators (n=2; NB and JLSL) Workshop #1 Denmark: DK WS #1 Used original version of MYPLAN and reviewed wireframes of revised MYPLAN during the session August 2016 156 Users (n=2)a and moderators (n=2; NB and JLSL) Workshop #2 Denmark: DK WS #2 Reviewed wireframes of revised MYPLAN during the session August/September Up to 180 2016 Users (n=80)a and moderators (n=3; including TD) Workshop #3 Australia: AUS WS #3 Received latest version of revised MYPLAN leading up to the session December 2016 141 Users (n=3)a and moderators (n=2; NB and JR) Workshop #4 Australia: AUS WS #4 Received latest version of revised MYPLAN leading up to the session January 2017 188 Users (n=3)a and moderators (n=3; NB, JR, and HH) Workshop #5 Australia: AUS WS #5

Cheng et al. 2018	13	Participatory Design	Mobile phone based application	Smartphone app using sport and videogames to promote mental wellbeing	Unstated	1 (6) Melbourne 16-25 3 males, 3 females AFLPAa-affiliated individuals 2 (5) Melbourne 26-35 3 males, 2 females AFLPAa-affiliated individuals 3 (10) Sydney Mixed 4 males, 6 females Mental health and technology academics and research students 4 (4) Sydney Mixed 2 males, 2 females Mental health and technology academics and research students 5 (8) Brisbane 16-25 8 males Video game design and research students and staff 6 (7) Brisbane 26-35 5 males, 2 females Video game design and research students and staff

Cheng et al. 2024	14	User-centred Iterative Design	Web-based application	CBT for Psychosis	Clinical Setting	family and caregivers (N = 7)

Cheng, 2017	15	Participatory Design	Mobile phone based application	Smartphone app using sport and videogames to promote mental wellbeing	Unstated	Workshop groups (n=40): one for 15-25 year olds and one for 26-35 year olds. Usability testing 16-35 year olds

Christie et al. 2019	16	Co-design	Mobile phone based application	CBT skills	Community based settings	30 young people

Collie & Cubranic. 2008	17	IDEAS (Integrate, Design, Assess, and Share)	Conferencing and ePaint software	Art Therapy	Unstated	10 Art Therapists 1 Computer Scientist

Counson et al. 2021	18	User-centred Iterative Design	Mobile phone based application	Mental health support access	Clinical Setting	Phase 1: Participants included 9 women and 3 men aged between 24 and 35 years. The sample was evenly spread across the early stages of training and comprised interns (n=3), residents (n=5), and registrars (n=4). Phase 2: 1 psychologist, 2 clinical psychologists (JC and RC), 2 psychiatrists (SH and NG), and 1 researcher (GB). Phase 3: 22 participants (13/22, 59% women; mean age 29, SD 4.1 years)

Easton et al. 2019	19	Co-design	Mobile and Web-based application	Mental health support as co- morbidity with COPD	Clinical Setting	10 individual with COPD

Ellis et al. 2022	20	Co-design	Mobile phone based application	Self-harm	University setting	Fourteen young people with lived experience of self-harm, with ages ranging from 15-23 years, (median; 17; eight female). 5 Academic researchs. 1 Child and Adolscent Psychiatrist.

Gonsalves et al. 2019	21	Co-design	Game software	Anxiety and Depression	Community based settings	Participant characteristics FGDs and co-design workshops. Age range (years) Female:Male (N) Focus group discussions (FGDs) Goa Students (23) 4 12–16 11:12 Delhi Students (23) 2 14 – 16 10:13 Goa Service providers (5) 2 – 5:0 Delhi Service providers (3) 2 – 3:0 Co-design workshops Goa Students (9) 1 14–15 4:5 Delhi Students (13) 1 13 0:13 Goa Service providers (5) 1 26–35 7:5 Participant characteristics—user testing. Student group Participants (N) Age (range in years) Gender Female(N): Male (N) Source of recruitment Number of sessions School 1 6 13–15 years 4:2 Teacher 1 School 2 6 12–15 years 3:3 Teacher 4 School 3 8 12–15 years 4:4 Volunteers 7 School 4 12 15–17 years 6:6 Teacher 2 School 5 12 12–15 years 8:4 Teacher 5 School 6* 6 15–17 years 3:3 Teacher 3 Total 50 12–17 years 28:22 – 22

Goodyear-Smith et al. 2021	22	Co-design	Web-based application	Clinical assessment of mental health and lifestyle issues	Unstated	Thirty-four veterans completed VeCHAT and 15 the follow-up survey. Most (94%) were male; 85% were NZ European, with three Māori and Pacific respondents and two 'Other'. Nine percent were aged 20–29 years, 47% 30–49 years, and 44% \$50 years.

Gordon et al. 2016	23	Participatory Design	mobile app, and a tablet- based app	Suicide prevention, screening tool, depression treatment decision aid.	Clinical Setting	Design group consisted of a core group of participants (n 1/4 17) comprising patients with history of depression in pregnancy (n 1/4 4), prenatal providers (n 1/4 2), social workers/care managers (n 1/4 2), mental health specialists (n 1/4 2), a clinic administrator (n 1/4 1), support staff (n 1/4 3), research staff (n 1/4 2), and a programmer (n 1/4 1). Average attendance was 13 (range, 5-22 members)

Grim et al. 2017	24	Participatory Design	Web-based application	User- generated decision aid for individuals receiving psychiatric services	Clinical Setting	Prototype development: Forty-two individuals with experience of psychiatric services were included, 31 women and 11 men. Usability testing: Five subjects were selected from volunteers to form a convenience sample. These respondents ranged in age from 45 to 55 with experiences of a variety of psychiatric issues and support needs.

Grove. 2021	25	Co-design	Mobile phone	Mental health support	Unstated	Demographic characteristics Questionnaire participants (n = 40) Mean Age 16.8 Female 30 Male 10 Interview participants (n = 15) Mean Age 16.2 Female 10 Male 5

Gulliver et al. 2015	26	Participatory Design	eClinic	General Mental Health	University	Stage 1 university students (n=19; 10 female, 9 male, mean age = 21.6 years) Stage 2 university students (n=6; 3 male, 3 female, mean age = 21.2 years)

Hardy et al. 2018	27	Co-design	Mobile phone based application	Psychosis	Clinical Setting	Thinking Well case series sample demographics (N=12). Variable Statistics Range Age in years, mean (SD) 43.83 (11.40) Sex, n (%) Male 5 (42) N/A Female 7 (58) N/A Ethnicity, n (%) White British 7 (58) N/A Black British 2 (17) N/A Black African 1 (8) N/A Afro-Caribbean 1 (8) N/A Black Caribbean and white 1 (8) N/A Marital status, n (%) Single 9 (75) N/A Married 3 (25) N/A Employment status, n (%) Unemployed 8 (68) N/A Carer or housewife 1 (8) N/A Employed 1 (8) N/A Volunteer 1 (8) N/A Student 1 (8) N/A

Hetrick et al. 2018	28	Co-design	Mobile phone application	Major depression, Suicidal Ideation, and Self Harm	Clinical setting	3 identified as male and 8 as female. The mean age of participants was 21.4 years; the age of the youngest codesigner was 18 years and that of the oldest was 25 years.

Hill et al. 2019	29	User-Centred Design	Web-based application	CBT for Anxiety	Clinical Setting	A total of 7 parents (n=6, 86% mothers and n=1, 14% father) and 4 children (n=2, 50% boys and n=2, 50% girls) aged 9-12 years were recruited.

Honary et al. 2018	30	User-Centred Design	Web-based application	Support for relatives of individuals with psychosis or schizophrenia.	Community mental health	A total of 25 participants took part in this qualitative study. Although we aimed to recruit participants from a diverse demographic background in terms of age, gender, and relationship with the person with a mental health problem, the length of time being a relative, and computer literacy, the participants were predominantly female (18 females), over the age of 65 years (age range 21-75 years), parents (n=20), and infrequent computer users. Most participants had many years of experience of caring for their relatives (on average, approximately 10 years).

Hughes-Barton et al. 2023	31	Co-design	Web-based application	Acceptance and Commitment Therapy (ACT): transdiagnostic	Clinical Setting	Thirty-five people (consumers, carers, GPs, mental health professionals) participated in one or more codesign stages. Stage 1: semi-structured interviews to establish what is wanted from such websites (n = 22). Stage 2: feedback emailed on branding options (n = 20). Stage 3: feedback provided via Zoom or an online survey after testing a website prototype (n = 19).

Khan et al. 2020	32	ADDIE (Analysis, Design, Develop, Implement, and Evaluation)	Web-based application	Training Non- specialist Health Workers to Deliver an Evidence- Based Psychological Treatment for Depression	Community mental health	Counsellors with experience delivering HAP (n = 2) Researchers and clinicians with expertise in depression care (n = 4)

Kornfield et al. 2022	33	User-Centred Design	Mobile phone based application	General Mental Health	Online, non- clinical	Discussion Group (n=22) Co-Design Workshops (n=9) M (SD) M (SD) Age 21.5 (2.0) 23.1 (1.5) N (%) N (%) Gender Female 17 (77.2) 7 (77.8) Male 3 (13.6) 2 (22.2) Non-binary 1 (4.5) 0 (0) Not reported 1 (4.5) 0 (0) Race White 15 (68.5) 2 (22.2) More than one race 3 (13.6) 2 (22.2) Black or African American 3 (13.6) 1 (11.1) Asian 0 (0) 3 (33.3) American Indian or Alaskan Native 0 (0) 0 (0) Not reported 2 (9.1) 1 (11.1) Ethnicity Hispanic 6 (27.3) 3 (33.3)

LaMonica et al. 2019	34	Co-design	Web-based application	Mental health support access	Clinical Service Setting	Table 1. Participant demographics (N=49). Demographic Statistics Participants Female, n (%) 28 (57) Role, n Former personnel 13 Current serving personnel 6 Family of current or former personnel 10 Health professional 17 Representative from Australian Government Department of Health 9

LaMonica et al. 2021	35	Co-design	Mobile and Web-based application	Older Adult General Mental Health	Clinical Setting	A total of 21 adults (43% female) aged 50 years and older attended the workshops, 2 of whom also identified as supportive others. All participants attended only one workshop.

Liverpool et al. 2023	36	Co-design	Mobile phone based application	General Mental Health	Unstated	Overview of the experts who participated in the stakeholder consultations (n=37). Stakeholder type Participants, n (%) Researchers and parenting experts 10 (27) Psychologists 2 (5) Married fathers 4 (11) Academics, researchers, and practitioners providing interventions to fathers 3 (8) Developer of a commercial app for fathers 1 (3) Individuals running interventions for fathers or new fathers 5 (14) Individuals running programs for divorced and separated fathers or coparenting programs 2 (5) Divorced or separated fathers 10 (27)

Ludlow et al. 2024	37	Co-design	Web-based application	Anxiety and Depression	University	Participants, n = 16 Age M(SD), range (years) 43.33 (6.80), 28-52 Gender n (%) Male 4 (25.00) Female 12 (75.00)

March et al. 2018	38	Co-design	Web-based application	Emotional and Behaviour Problems	Clinical Setting	Expert panel of researchers and psychologists (N=9), 18 children aged between 4 and 12 years

Matthews et al. 2015	39	Co-design	Mobile phone based application	Bipolar disorder	Unstated	5 females, 2 males. No other information given.

Moltrecht et al. 2022	40	User-centred design & Human-centred design	Mobile phone based application	Emotional regulation	Classroom based & Third Sector Orgs	Public engagement events with the target group (N=21); synthesis of the existing evidence as part of a meta-analysis; a series of co-design and participatory workshops with young users (N=33), clinicians (N=7), researchers (N=12), app developers (N=1), and designers (N=2); and finally, testing of the first high-tech prototype (N=15).

Orlowski et al. 2019	41	Participatory Design	Mobile phone based applications	Mental health support access and information sharing	Clinical Service Setting	Number Gender Age (years) Current role/professional background Employer Workshop 1 Mental Health Professionals (only) 1 F 50–59 Youth worker, Management Federally funded service 2 F 50–59 Mental health nurse state funded service 3 M 40–49 Psychologist, University Lecturer University 4 F 40–49 Mental health nurse state funded service 5 F 50–59 Mental health nurse state funded service 6 M 50–59 Mental health nurse, Management state funded service 7 F 40–49 social worker, Project officer state funded service 8 F 30–39 social worker, Project officer state funded service Workshop 2 Mental health professionals (only) 1 F 60+ Mental health nurse state funded service 2 M 50–59 Mental health nurse state funded service 3 F 50–59 Mental health nurse state funded service 4 M 50–59 Mental health nurse state funded service 5 M 40–49 Psychologist, University lecturer University 6 F 30–39 social worker, Project officer state funded service 7 F 50–59 Youth worker, Management Federally funded service Workshop 3 Mental health professionals and Youth 1 M 50–59 Mental health nurse state funded service 2 F 50–59 Mental health nurse state funded service 3 M 40–49 Psychologist, University lecturer University 4 F 30–39 social worker, Project officer state funded service 5 F 50–59 Youth worker, Management Federally funded service Youth number gender Age (years) Mental Health service User Have you ever sought (1) online or (2) face-to-face help for your mental health? 1 F 17 no n/A 2 F 16 no n/A 3 M 19 Yes (1) no (2)Yes 4 F 21 Yes (1) no (2)Yes

Ospina-Pinillos et al. 2018	42	Participatory Design	Web-based application	Mental Health eClinic	Clinical Service Setting	28 end users (young people n=18 [16-25yrs], youth health professionals n=10) and our research team (n=8)

Ospina-Pinillos et al. 2019	43	Co-design	Web-based application	Mental Health eClinic	Clinical Service Setting	17 users (10 young people, 7 health professionals)

Ospina-Pinillos et al. 2020	44	Co-design	Web-based application	Mental Health eClinic	Clinical Service Setting	Participants' characteristics. Characteristics One-on-one user-testing sessions (n=10) Co-design workshops with health professionals (n=11) Co-design workshops with young people (n=7) Demographics Female, n (%) 5 (71) 5 (45) 7 (70) Age (years), median (IQR)^a 20 (2) 27 (1.5) 23 (6.5) Education Secondary, n (%) 7 (100) 2 (18) 6 (60) Tertiary, n (%) 0 (0) 9 (82) 4 (40)

Pararore. 2020	45	Participatory Design	Mobile phone based application	Anxiety and Panic Disorder	Clinical Setting	12 patients (11 women, one man), 2 psychotherapists and an ICT engineer

Parel et al. 2022	46	Co-design	PC	Persistent Depressive Disorder	Unstated	Not given

Patterson et al. 2022	47	Co-design	Web-based application	Anxiety and Depression	Clinical Setting	Table 1. Participant demographics. Demographics Focus group participants (n=6) CBTa experts (n=6) Age (years), mean (SD) 39.25 (8.88) 47.6 (14.72) Gender, n (%)b 0 1 (17) Man Woman 5 (83) 5 (83) Preferred not to say 1 (17) 0 Sexual orientation, n (%)b Heterosexual 4 (66) 6 (100) Bisexual 1 (17) 0 Preferred not to say 1 (17) 0 Race, n (%)b White 5 (83) 6 (100) Preferred not to say 1 (17) 0

Peck et al. 2020	48	Participatory Design	Web-based application	Peer support for Young People Experiences Psychosis	Clinical Setting	Participatory Content Development Workshops Two Peer Support Workers (both female) and ten Youth Early Psychosis Program service users (3 males and 7 females). Interviewing and Filming Ten young adults (4 females, 6 males) aged 18 to 31 years old (M = 23.10, SD = 3.84) with an experience of psychosis were recruited to be filmed and interviewed about their recovery.

Peters et al. 2018	49	Participatory Design	Mobile phone based application	General Mental Health	Industry	60 workers aged between 26 and 65 years, 92% (55/60) male, from male-dominated workplaces in rural (16/60, 27%), suburban (14/60, 23%), and urban (30/60, 50%) locations

Povey et al. 2020	50	Co-design	Mobile phone based application	Suicide prevention	Community mental health	45 Young people aged 10-18 years. Break down of female and male not clearly stated.

Reupert et al. 2019	51	Participatory Design	Web-based application	Mental Health and Wellbeing for Young Adults Whose Parents Have Mental Illness and/or Substance Use Problems	Community mental health	66 participants

Rizia et al. 2015	52	Co-design	Mobile phone based application	Early detection of mental illness	Community mental health	Not stated

Santesteban Echarri et al. 2020	53	Co-design	Mobile phone based application	Cannabis usage monitoring	University	Five participants (four CHR and one HC) attended the first focus group (age: M = 22.4, SD = 3.0; two females), and six (three CHR and three HC) attended the second focus group (age: M = 22.8, SD = 2.8; one female, three males, two transgender).

Schmidt et al. 2021	54	Co-design	Web-based application	Anxiety and Depression	Clinical Setting	5 patients diagnosed with IHD and comorbid anxiety and/or depression. No demographic details given.

Severes et al. 2024	55	Co-design	Mobile phone based application	General Mental Health	University - and clinical	Two sub-groups of participants (n = 52): 20 randomly selected students from the university and 32 patients – also students – engaged in therapy services with the university counselling service.

Sigurðardóttir et al. 2022	56	Co-design	Mobile phone based application with Wearable input	Wellbeing monitoring for patients diagnosed with schizophrenia	Clinical Setting	13 healthcare professionals

Sin et al. 2019	57	Co-design	Web-based application	Carers of people with psychosis	Clinical Service Setting	An Expert Advisory Group (EAG) comprising individuals with lived experience of psychosis, carers, health care professionals, researchers, voluntary organization workers, and eLearning experts (n=14) Carer Group comprised 10 men and 14 women. The range of the carers' ages was 22 to 83 years (mean 59 [standard deviation, SD 12.7]) with the median age being 61 years.

Stawarz et al. 2020	58	User-Centred Design	Web-based application	CBT for Depression	Clinical Setting	18 participants who received CBT in the past, mean age of the participants was 48.5 years (SD 13.4 years; range 22-72 years), and the majority (13/18, 72%) were women. 12 therapists, mean age of the therapists was 43 years (SD 8.8 years; range 30-57 years), and the majority (13/18, 72%) were women. They were all white people. On average, they had worked as a CBT therapist for 8.1 years (SD 5.0 years; range 3-20 years).

Stoyanov et al. 2021	59	Participatory Design	Mobile phone based application	General Mental Health	Clinical Setting	Characteristics Age group 12 to 15 years (n=7), n 16 to 19 years (n=14), n 20 to 25 years (n=4), n Gender Female 7 8 3 Male 0 6 1 Ethnicity White, Australian 6 6 3 White, New Zealander 0 1 0 Asian 0 5 1 Middle Eastern 1 1 0 European 0 1 0 Education Completed primary school 0 1 0 Partially completed high school 7 9 0 Completed year 12 0 4 2 Bachelor's degree 0 0 2 Employment status Full-time employment 0 0 0 Part-time or casual employment 0 4 1 Full-time student 7 4 2 Part-time student 0 1 0 Unemployed 0 5 1 Living arrangement With parents or guardians 7 12 2 With friends or in shared accommodations 0 2 1 Alone 0 0 1 Relationship status Single 7 13 3 In an exclusive relationship 0 1 1 Currently receiving psychological treatment No 6 13 2 Yes 1 1 1 Prefer not to say 0 0 1

Terp et al. 2016	60	Co-design	Mobile phone based application	Schizophrenia	Clinical Setting	Young adults with schizophrenia (n = 4), healthcare providers (n = 7), software designers (n = 3), graphic designer (n = 1), graphic recorder (n = 1), and team leader (n = 1)

Terp et al. 2017	61	Co-design	Mobile phone based application	Schizophrenia	Clinical Setting	Six participants between 19 - 27 years.

Torous et al. 2019	62	Co-design	Mobile and Web-based platform	Administration and engagement	Clinical setting	Not stated

Vereschangin et al. 2023	63	Co-design	Mobile phone based application	Support for student mental health and substance use	University setting	

Vial et al. 2023	64	Co-design	Mobile phone based application	Mental health support access	Clinical Setting	persons with a lived experience of mental health problems (n=10), peer support workers (n=10), and health professionals (n=10). Aged 18-65 years

Wadley et al. 2013	65	Co-design	Mobile phone based application	Psychosis	Clinical Setting	6 current and former mental health clients, 8 clinicians

Waterman et al. 2018	66	Co-design	Mobile phone based application	Mental health support and crisis planning	Clinical Setting	Not stated

Werner-Seidler et al. 2017	67	Participatory Design	Mobile phone based application	Sleep Disturbance	Clinical Setting	Participants (N=21) Mean (standard deviation) Range Gender (female), n (%) 15 (71) Age, in years 14.10 (1.26) 12-16 years School year 8.76 (5.65) 6-10 Language mostly spoken at home (English), n (%) 19 (90) Time spent on phone per day (hours) 3.56 (2.72) 0.50-9

Wiljer et al. 2017	68	Co-design	Mobile phone based application	Mental health support access	University	65 post-secondary students

Wrightson-Hester et al. 2023	69	Co-design	Mobile and Web-based application	Mental health support	Clinical Setting	young people with lived experiences of mental health issues (n=7) 4 nonbinary people, 2 women, and 1 man, aged 16 to 24 years.
Yoo et al. 2020	70	Co-design	Web-based application	Mental health support and oversight	Clinical Service Setting	Details of the backgrounds of the team members. Types of researchers Number of researchers Job role Types of work Research experience years HCI researchers 3 1 PhD student, 2 Computer Science professors Research in social media analytics, health sensing, and design 5-32 Clinical researchers 4 1 psychiatrist, 1 clinical psychologist, and 2 clinical research coordinators Mental health care delivery to patients and clinical and intervention research 6-10

Appendix 4: Structured Ethical Reflection

Value	Developing partnerships	Constructing research questions	Planning project/ action	Recruiting participants	Collecting data/ taking action	Analysing data/ evaluating action	Member checking	Going public (presentation and publication)
'Power with' & 'Power within'	Taking a horizontalising approach to partnership. Encourage partners to feel able to step (or not) into influential	Who was or was not included in this process, who was in mind when considering?	How have I encouraged stakeholders to help plan this project? Do stakeholders feel welcome to impact the	What different participant groups do I include in the work, what power do they bring, what power will they have, what	On whose terms and why? Removing barriers and providing supports.	On whose terms and why? Removing barriers and providing supports. Who decides what success looks like?	How can stakeholders really feel safe providing constructive and possibly critical feedback?	What's the message and on whose behalf?

	positions within the process.		course of this project?	power will they leave with?				
Transparenc y	Be open from the start; people have a right to know as much as possible about where the research comes from and why, that's	Don't try to hide anything with them, don't change them to fit the data or narrative!	Detail the process of planning from initial inception. Be clear about what is possible in terms of impact on the project and planning.	Be clear about project ask, give a fairly exhaustive overview.	Consent, proactively consider pitfalls and externalities, don't hedge.	Be brave, let the data speak for itself, if anything, help it critique the project, promote rigour.	Let them know that they are essential! That they are the project and the project is them.	Worts n' all!

	informed choice!							
Pedagogical	A learning process for all. Leverage tools and forms for shared learning in all directions. Promote as a learning and teaching process/opportunity.	What can be learnt from the questions?	How can participation become a learning process?	What are the learning needs of participants? What are their learning objectives? What are the learning objectives of the project?	How can complicated processes become learning moments? What learning is 'necessary' for action? What can be learnt from actions?	What might the project teach? What do I (and perhaps others) need to learn to address the data correctly? What can be learnt from the data and process?	What do they want to learn and to share? Can this research reach this level of recursivity? What is appropriate?	How to find the different learnings, the different notes and tones, learning for whom, and why? How does this research teach and share?

					What data, why?			
Joyful	Be someone who is enjoyable to be around, consider others' right to enjoyment in the process. Think about your own joy in the process. Laugh and		Think creatively and think laterally, create spaces and processes for levity and creativity.	Use materials with nice colours, consider the reader's experience.	Try to make the workshops fun! Think of novel ways to collect data. Try to bring a lightness to the subject matter; it's essential work, but joy and levity are	Think of novel ways to analyse the data. Think creatively, use bright colours for coding. Find open and safe ways to invite and facilitate	Try to make the process of feeding back as streamlined and straightforward as possible. Meet prospective participants where they are at.	Find creative and novel ways to present findings in ways that are positive and inspiring. Tell stories of hope.

	joke where possible!				also important.	feedback and evaluation.		

Appendix 5: Research Flyer

Are You Interested in How Artificial Intelligence (AI) Could Be Used to Support Cognitive Behavioural Therapists Working with First Episode Psychosis?



This research needs participants to give their perspectives on how Artificial Intelligence might best be used to support the work of CBTp practitioners. We are looking for the views of:

- People who have received CBTp.
- People who have delivered CBTp.
- People who supervise CBTp practitioners.
- People who commission CBTp services.

For the past three months a group of clinicians who routinely deliver Cognitive Behavioural Therapy for Psychosis have been developing a prototype application that would leverage AI to support the delivery of their day-to-day work. They have also developed a set of design guidelines that they feel would be of benefit to software developers designing future applications.

This research would now benefit from you drawing on your experience and expertise to assess the app and guidelines that the CBTp practitioners developed.

Your participation would require that you review the application and guidelines and fill out a questionnaire, it should take approximately 1hr of your time.

You will receive a £20 Amazon voucher for your participation.

To participate or more information, please contact the chief investigator at:
ih22250@essex.ac.uk

This research project has received a favourable ethical opinion from North-West - Greater Manchester South Research Ethics Committee.



IRAS Project ID: 335628
V1 1/12/23

Appendix 6: Research Information Sheet

Information Sheet

Research title: Creating guidelines for artificially intelligent (AI) driven software to support CBTp practitioners working with clients experiencing first episode of psychosis.

Research team: Ismael Hayden (Chief Investigator); Dr Katerina Bourazeri; Miss Sophia Carbonero; Dr Faiyaz Doctor; Dr Vito De Feo

Affiliation: University of Essex

Contact Information: ih22250@essex.ac.uk

Before you decide whether to participate in this research, it is important for you to understand why the research is being conducted, what your participation will involve, and the potential risks and benefits associated with your participation. Please take your time to read this form carefully and ask any questions you may have.

Purpose of the Research:

This research is being carried out for two reasons. The first is to create a dummy prototype of an AI-driven application to support Cognitive Behavioural Therapists in their work with those who are experiencing a first episode of psychosis. Second, the research seeks to create a set of guidelines for future software developers who might create software applications to support CBTp practitioners in their work. It is hoped that both the prototype and guideline will

be used to support future software development and improve clinical care for those experiencing a first episode of psychosis.

You are invited to join a group of stakeholders who are going to give feedback on a dummy prototype AI app and accompanying design guidelines that will be created by CBTp practitioners to imagine how it might be used in their work with individuals experiencing a first episode of psychosis. We are also interested in your views on the use of AI in mental health care generally. You do not need any experience or expertise in software development, you are being invited to provide insights based on your experience delivering CBTp.

It is important to note that your participation in this research is entirely voluntary.

Procedures:

You will be provided with information that outlines the application prototype and the guidelines that were developed by a working group. A questionnaire will be provided that will require you to draw upon your relevant experience to reflect on questions concerning the application prototype and guidelines created by the workshop participants.

Timeline

Reviewing the application and guidelines and filling out the questionnaire should take approximately 1hr.

Risks and benefits

As the research will request you to reflect on your experiences it may be the case that emotionally distressing memories will be recovered, please be sure you are considerate of this and have whatever support you feel necessary in place.

In terms of benefits, you have the opportunity to participate in a project seeking to bring about positive change in a setting that might be important to you and is certainly important to individuals experiencing psychosis and those working to support them.

Data use and confidentiality:***How will we use information about you?***

We will need to use information from you for this research project.

This information will include:

- Your name
- Your age
- Your contact details
- Which participant group you belong to i.e. Service Users, Working Group, CBTp Practitioners, CBTp Supervisors, CBTp Service Commissioners

People will use this information to do the research or to make sure that the research is being done properly.

People who do not need to know who you are will not be able to see your name or contact details. Your data will have a code number instead.

We will keep all information about you safe and secure.

Once we have finished the study, we will delete your data within three months. We will write our reports in a way that no-one can work out that you took part in the study.

What are your choices about how your information is used?

- You can stop being part of the study at any time, without giving a reason, and if you request we will delete or destroy your associated data.
- We need to manage your records in specific ways for the research to be reliable. This means that we won't be able to let you see or change the data we hold about you.

Where can you find out more about how your information is used?

You can find out more about how we use your information

- at www.hra.nhs.uk/information-about-patients/
- by reviewing the HRA's Patient Data and Research leaflet available from www.hra.nhs.uk/patientdataandresearch
- by asking one of the research team
- by sending an email to the research team at ih22250@essex.ac.uk
- by sending an email to the research sponsor's Data Protection Officer dataprotectionofficer@essex.ac.uk
- by calling the research sponsor's Data Protection Officer on 01206 872285

Voluntary Participation:

Participation in this research is entirely voluntary and if you choose to participate you may withdraw from the research at any time without penalty or consequence. You can withdraw by means of letting the chief investigator know either in person or by emailing the email address written at the top of this form. If you wish for data specific to you to be removed, please make this clear at the point of expressing your wish to withdraw from participation.

What is the legal basis for using the data and who is the Data Controller?

This research is considered to be in the public interest in that it seeks ultimately to support public mental health. The research will be delivered in compliance with General Data Protection

Compliance and the Data Protection Act 2018. If you have concerns in this regard you can email to the research team at ih22250@essex.ac.uk or you can email the University's Information Assurance Manager (Clare Chatfield) at dpo@essex.ac.uk.

Questions or concerns:

If you have any concerns about any aspect of the study or you have a complaint, in the first instance please contact the chief investigator of the project, Ismael Hayden [email: ih22250@essex.ac.uk]. If are still concerned, you think your complaint has not been addressed to your satisfaction or you feel that you cannot approach the chief investigator, please contact the departmental Director of Research in the department responsible for this project, Susan McPherson [email: smcpher@essex.ac.uk]. If you are still not satisfied, please contact the University of Essex Research Integrity Manager, Mantalena Sotiriadou [email: ms21994@essex.ac.uk].

Dissemination:

The following journals will be approached for publication:

The International Journal of Action Research

The Journal of Health Research

The Journal of Public Health Research

The National Institute for Health and Care Research

The following conferences will be approached for inclusion:

The European Conference on Mental Health

The Collaborative Action Research Conference

This research project has received a favourable ethical opinion from North-West - Greater Manchester South Research Ethics Committee research ethics committee.

Appendix 7: Research Consent Form**Consent Form**

Title of the Project: Creating guidelines for artificially intelligent driven software to support CBTp practitioners working with clients experiencing first episode of psychosis.

Research Team: Ismael Hayden (Chief Investigator); Dr Katerina Bourazeri; Ms Sophia Carbonero; Dr Faiyaz Doctor; Dr Vito De Feo

Please initial box

1. **I confirm that I** have read and understand the Information Sheet dated 26/09/23 for the above study. I have had an opportunity to consider the information, ask questions and have had these questions answered satisfactorily.

2. I understand that my participation is voluntary and that I am free to withdraw from the project at any time without giving any reason and without penalty. I understand that any data collected up to the point of my withdrawal will be destroyed/deleted upon my request.

3. I understand that, due to the nature of this research, I may have to reflect on potentially emotionally upsetting experiences, I am willing to do this and feel I have appropriate support in place if needed.

4. I understand that the identifiable data provided will be securely stored and accessible only to the members of the research team directly involved in the project, and that confidentiality will be maintained.

5. I understand that my fully anonymised data will be used for the purposes of the research as detailed in the information sheet including dissemination to research publications and conferences detailing in therein.

6. I agree to take part in the above study.

Appendix 8: One-to-one interview schedule

Introduction

- Thanks for engaging in the research...
- Reiterate the purpose of the research and the one-on-one workshop.
- Emphasise the collaborative nature of the research and the value of their engagement

Reflective Questions

- Can you share your overall experience of participating in the workshops?
- What were your initial expectations of the research, and how have they evolved?
- How has your understanding of AI changed throughout the workshops?
- Has it changed how you think about your job day to day
- Can you describe any 'aha' moments or significant insights you gained?
- How have the workshops influenced your views on using AI in mental health?
- What are your thoughts on the collaborative approach used in the workshops?
- Can you share any suggestions for improving the research?

Prototype Evaluation

- What are your thoughts on the AI-driven prototype application we've developed?
- Do you think the prototype meets the needs of CBTp practitioners?
- Can you share any suggestions for improving the prototype?
- What are your thoughts on the potential impact of the prototype on CBTp practice for others or your own?

Guidelines Development

- What are the key principles that should guide the development of AI software applications in mental health?

- What are the ethical considerations that should be addressed in the development and use of AI in mental health?
- What are the potential benefits and risks of using AI in mental health?
- How can AI be used to enhance, rather than replace, human interaction in mental health care?
- What are the essential features that an AI application should have to be truly supportive of CBTp practitioners?

Appendix 9: CBTp Companion app

The CBTp companion app is designed to streamline user workflow, enhance client engagement, and provide the tools needed to deliver effective CBTp interventions. Below is a list of app functions that a working group of CBTp therapists felt would best support them in their work.

App Functions

Reflection support:

- **Reflective journal:** Document thoughts, observations, and reflections related to work in a dedicated journal.
- **Supervision sharing:** Seamlessly share session recording and notes with a supervisor for easy feedback and support.
- **Learning tracker:** Track learning and development, receive insights and ideas based on the data within your application.

Intervention support:

- **CBTp Toolkit:** Access a comprehensive library of worksheets, handouts, and resources for CBTp interventions.
- **Tailored Resources:** Library resources are adapted based on client interests and experiences, informing everything from session ideas and psychoeducation to behavioural experiments.

- **Virtual Space:** An online space to work alongside clients in creating images or avatars to carry out behavioural experiments or support reflection and client expression. And a space for richer interaction with CBTp chatbots that can support clients between sessions.
- **Communication tools:** Text, email, calling, and video call all in one place, enabling ease of scheduled communication.
- **Assessments:** Electronic versions of important assessments that can be tracked over time and accessed by appropriate people.
- **Fidelity to the model:** Analysis of session transcripts to support therapists to remain in line with CBTp protocols.

Admin Support:

- **Clinical Notes and Information Storage:** Storage and retrieval of clinical notes, client input, and relevant information all in one application.
- **Session Summariser:** Automatically generate concise summaries of therapy sessions, highlighting key themes and insights, as well as supporting with risk assessments.
- **Thematic Analyser:** Identify patterns and trends in client data, such as diaries or sleep logs to inform treatment planning.
- **Intelligent Reminders:** Ability to set reminders for appointments, follow-ups, and homework, from the app that integrates across your devices and platforms (mobile, laptop, Outlook, etc.), ensuring continuity and quality of care.
- **Collaborative Tools:** Ability to securely share session summaries, treatment plans, and resources with clients, caregivers, and colleagues, fostering transparency, engagement, and collaboration.
- **Research:** Access research and libraries from within the app to support therapeutic creativity, whilst maintaining fidelity to the model.

Appendix 10: Example stakeholder questionnaire

CBTp practitioners

1. What are your initial thoughts about the concept of the application? Do you think it would positively or negatively impact your clinical practice? How?
2. What aspects of your work do you think this product would impact? How?
3. Do you have any concerns or reservations you have about the concept of this product?
4. What are the most compelling aspects or functionalities of the application?
5. How do you imagine this application fitting into your existing routines or workflows?
6. What applications do you make use of that you think might be replaced by this application?
7. If you were to suggest improvements or enhancements to the application idea, what would they be, and why do you think they are important?

Appendix 11: Letter of Ethical Approval**North West - Greater Manchester South Research Ethics Committee**

2

Redman Place

Stratford

London,

E20 1JQ

18 February 2025

Mr Ismael Hayden
Queens Wood Lodge
42 Muswell Hill Road
N10 3JP

Dear Mr Hayden

Study title:	Creating guidelines for artificially intelligent driven software to support CBTp practitioners working with clients experiencing first episode psychosis.
REC reference:	24/NW/0085
Protocol number:	NA
Amendment number:	ETH2324-1574
Amendment date:	21 January 2025
IRAS project ID:	335628

The above amendment was reviewed at the meeting of the Sub-Committee held on 13 February 2025 by the Sub-Committee in correspondence.

Ethical opinion

The members of the Committee taking part in the review gave a favourable ethical opinion of the amendment on the basis described in the notice of amendment form and supporting documentation.

Approved documents

The documents reviewed and approved at the meeting were:

<i>Document</i>	<i>Version</i>	<i>Date</i>
Completed Amendment Tool [2025-01-22 335628_ETH2324-1574_Locked]	1	21 January 2025
Other [CBTp Companion & Guidelines]	1	21 January 2025
Other [Poster focus groups (both)]	1	21 January 2025
Participant consent form [Consent form focus groups]	1	21 January 2025
Participant information sheet (PIS) [Information Sheet Devs]	1	21 January 2025
Participant information sheet (PIS) [Information Sheet ExE]	1	21 January 2025
Research protocol or project proposal [Protocol Track Changes]	3	
Research protocol or project proposal [Protocol Clean]	3	

Membership of the Committee

The members of the Committee who took part in the review are listed on the attached sheet.

Working with NHS Care Organisations

Sponsors should ensure that they notify the R&D office for the relevant NHS care organisation of this amendment in line with the terms detailed in the categorisation email issued by the lead nation for the study.

Amendments related to COVID-19

We will update your research summary for the above study on the research summaries section of our website. During this public health emergency, it is vital that everyone can promptly identify all relevant research related to COVID-19 that is taking place globally. If you have not already done so, please register your study on a public registry as soon as possible and provide the HRA with the registration detail, which will be posted alongside other information relating to your project.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

HRA Learning

We are pleased to welcome researchers and research staff to our HRA Learning Events and online learning opportunities— see details at: <https://www.hra.nhs.uk/planning-and-improving-research/learning/>

IRAS Project ID - 335628:

Please quote this number on all correspondence

Yours sincerely



Pp

Dr Derrick Martin Chair

E-mail: gmsouth.rec@hra.nhs.uk

Enclosures:

List of names and professions of members who took part in the review

Copy to:

Mr Ismael Hayden

North West - Greater Manchester South Research Ethics Committee**Attendance at Sub-Committee of the REC meeting on 13 February****2025****Committee Members:**

<i>Name</i>	<i>Profession</i>	<i>Present</i>	<i>Notes</i>
Professor Chris Cullen	Clinical psychologist (but no longer practicing clinically)	Yes	
Dr Derrick Martin	Retired Consultant Radiologist	Yes	Chair

Appendix 12: Ethics Submission

IRAS Form

Reference:

IRAS Version 6.3.6

Welcome to the Integrated Research Application System

IRAS Project Filter

The integrated dataset required for your project will be created from the answers you give to the following questions. The system will generate only those questions and sections which (a) apply to your study type and (b) are required by the bodies reviewing your study. Please ensure you answer all the questions before proceeding with your applications.

Please complete the questions in order. If you change the response to a question, please select 'Save' and review all the questions as your change may have affected subsequent questions.

Please enter a short title for this project (maximum 70 characters)
Creating an AI-app & guidelines for supporting CBTP practitioners [V1]

1. Is your project research?

☒ Yes ☐ No

2. Select one category from the list below:

- ☐ Ionising Radiation for combined review of clinical trial of an investigational medicinal product
- ☐ Ionising Radiation and Devices form for combined review of combined trial of an investigational medicinal product and an investigational medical device
- ☐ Clinical investigation or other study of a medical device
- ☐ Other clinical trial to study a novel intervention or randomised clinical trial to compare interventions in clinical practice
- ☐ Basic science study involving procedures with human participants
- ☒ Study administering questionnaires/interviews for quantitative analysis, or using mixed quantitative/qualitative methodology
- ☐ Study involving qualitative methods only
- ☐ Study limited to working with human tissue samples (or other human biological samples) and data (specific project only)
- ☐ Study limited to working with data (specific project only)
- ☐ Research tissue bank
- ☐ Research database

If your work does not fit any of these categories, select the option below:

☐ Other study

2a. Please answer the following question(s):

- a) Does the study involve the use of any ionising radiation? ☐ Yes ☒ No
- b) Will you be taking new human tissue samples (or other human biological samples)? ☐ Yes ☒ No
- c) Will you be using existing human tissue samples (or other human biological samples)? ☐ Yes ☒ No

3. In which countries of the UK will the research sites be located? (Tick all that apply)

☒ England

Date:

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IRAS Form

Reference:

IRAS Version 6.3.6

- ☐ Scotland
☐ Wales
☐ Northern Ireland

3a. In which country of the UK will the lead NHS R&D office be located:

- ☒ England
☐ Scotland
☐ Wales
☐ Northern Ireland
☐ This study does not involve the NHS

4. Which applications do you require?

- ☒ IRAS Form
☐ Confidentiality Advisory Group (CAG)
☐ HM Prison and Probation Service (HMPPS)

Most research projects require review by a REC within the UK Health Departments' Research Ethics Service. Is your study exempt from REC review?

- ☐ Yes ☒ No

5. Will any research sites in this study be NHS organisations?

- ☒ Yes ☐ No

5a. Are all the research costs and infrastructure costs (funding for the support and facilities needed to carry out the research e.g. NHS support costs) for this study provided by a NIHR Biomedical Research Centre (BRC), NIHR Applied Research Collaboration (ARC), NIHR Patient Safety Translational Research Centre (PSTRC), or an NIHR Medtech and In Vitro Diagnostic Co-operative (MIC) in all study sites?

Please see information button for further details.

- ☐ Yes ☒ No

Please see information button for further details.

5b. Do you wish to make an application for the study to be considered for NIHR Clinical Research Network (CRN) Support and inclusion in the NIHR Clinical Research Network Portfolio?

Please see information button for further details.

- ☐ Yes ☒ No

The NIHR Clinical Research Network (CRN) provides researchers with the practical support they need to make clinical studies happen in the NHS in England e.g. by providing access to the people and facilities needed to carry out research "on the ground".

If you select yes to this question, information from your IRAS submission will automatically be shared with the NIHR CRN. Submission of a Portfolio Application Form (PAF) is no longer required.

Date:

2

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IRAS Form

Reference:

IRAS Version 6.3.6

6. Do you plan to include any participants who are children?☐ Yes ☒ No**7. Do you plan at any stage of the project to undertake intrusive research involving adults lacking capacity to consent for themselves?**☐ Yes ☒ No

Answer Yes if you plan to recruit living participants aged 16 or over who lack capacity, or to retain them in the study following loss of capacity. Intrusive research means any research with the living requiring consent in law. This includes use of identifiable tissue samples or personal information, except where application is being made to the Confidentiality Advisory Group to set aside the common law duty of confidentiality in England and Wales. Please consult the guidance notes for further information on the legal frameworks for research involving adults lacking capacity in the UK.

8. Do you plan to include any participants who are prisoners or young offenders in the custody of HM Prison Service or who are offenders supervised by the probation service in England or Wales?☐ Yes ☒ No**9. Is the study or any part of it being undertaken as an educational project?**☒ Yes ☐ No

Please describe briefly the involvement of the student(s):

The student, who is undertaking a professional doctorate in clinical psychology, will be the Chief Investigator.

9a. Is the project being undertaken in part fulfilment of a PhD or other doctorate?☒ Yes ☐ No**10. Will this research be financially supported by the United States Department of Health and Human Services or any of its divisions, agencies or programs?**☐ Yes ☒ No**11. Will identifiable patient data be accessed outside the care team without prior consent at any stage of the project (including identification of potential participants)?**☐ Yes ☒ No

Date:

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IRAS Form

Reference:

IRAS Version 6.3.6

Integrated Research Application System**Application Form for Research administering questionnaires/interviews for quantitative analysis or mixed methodology study****IRAS Form (project information)**

Please refer to the E-Submission and Checklist tabs for instructions on submitting this application.

The Chief Investigator should complete this form. Guidance on the questions is available wherever you see this symbol displayed. We recommend reading the guidance first. The complete guidance and a glossary are available by selecting [Help](#).

Please define any terms or acronyms that might not be familiar to lay reviewers of the application.

Short title and version number: (maximum 70 characters - this will be inserted as header on all forms)
Creating an AI-app & guidelines for supporting CBTp practitioners [V1]

Please complete these details after you have booked the REC application for review.

REC Name:**REC Reference Number:****Submission date:****PART A: Core study information****1. ADMINISTRATIVE DETAILS****A1. Full title of the research:**

Creating guidelines for artificially intelligent driven software to support CBTp practitioners working with clients experiencing first episode psychosis.

A2-1. Educational projects

Name and contact details of student(s):

Student 1

	Title	Forename/Initials	Surname
	Mr		
Address			
Post Code			
E-mail			
Telephone			
Fax			

Give details of the educational course or degree for which this research is being undertaken:

Name and level of course/ degree:

Date:

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IRAS Form

Reference:

IRAS Version 6.3.6

Clinical Psychology (D Clin Psych)

Name of educational establishment:
University of Essex

Name and contact details of academic supervisor(s):

Academic supervisor 1

	Title	Forename/Initials	Surname
	■	■ ■ ■ ■	■ ■ ■ ■
Address	School of Computer Science & Electronic Engineering University of Essex Wivenhoe Park		
Post Code	CO4 3SQ		
E-mail	■ ■ ■ ■ ■ ■ ■ ■ ■ ■		
Telephone			
Fax			

Academic supervisor 2

	Title	Forename/Initials	Surname
	■	■ ■ ■ ■	■ ■ ■ ■
Address	School of Health and Social Care University of Essex Wivenhoe Park		
Post Code	CO4 3SQ		
E-mail	■ ■ ■ ■ ■ ■ ■ ■ ■ ■		
Telephone			
Fax			

Academic supervisor 3

	Title	Forename/Initials	Surname
	■	■ ■ ■ ■	■ ■ ■ ■
Address	School of Health and Social Care University of Essex Wivenhoe Park		
Post Code	CO4 3SQ		
E-mail	■ ■ ■ ■ ■ ■ ■ ■ ■ ■		
Telephone			
Fax			

Academic supervisor 4

	Title	Forename/Initials	Surname
	■	■ ■ ■ ■	■ ■ ■ ■
Address	School of Health and Social Care University of Essex Wivenhoe Park		
Post Code	CO4 3SQ		

Date:

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Reference:

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E-mail
Telephone
Fax

Please state which academic supervisor(s) has responsibility for which student(s):
Please click "Save now" before completing this table. This will ensure that all of the student and academic supervisor details are shown correctly.

Student(s)**Academic supervisor(s)****Student 1** Mr Ismael Hayden

- ☒ [Redacted]
- ☒ [Redacted]
- ☒ [Redacted]
- ☒ [Redacted]

A copy of a [current CV](#) for the student and the academic supervisor (maximum 2 pages of A4) must be submitted with the application.

A2-2. Who will act as Chief Investigator for this study?

- ☒ Student
☐ Academic supervisor
☐ Other

A3-1. Chief Investigator:

	Title	Forename/Initials	Surname
	[Redacted]	[Redacted]	[Redacted]
Post	Trainee Clinical Psychologist		
Qualifications	BSc MSc Psychology		
ORCID ID			
Employer	Essex Partnership University Trust		
Work Address	St Lukes Way		
	Runwell		
	Wickford		
Post Code	SS11 7XX		
Work E-mail	[Redacted]		
* Personal E-mail	[Redacted]		
Work Telephone	[Redacted]		
* Personal Telephone/Mobile	[Redacted]		
Fax			

* This information is optional. It will not be placed in the public domain or disclosed to any other third party without prior consent.

A copy of a [current CV](#) (maximum 2 pages of A4) for the Chief Investigator must be submitted with the application.

A4. Who is the contact on behalf of the sponsor for all correspondence relating to applications for this project?

This contact will receive copies of all correspondence from REC and HRA/R&D reviewers that is sent to the CI.

Date:

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IRAS Form

Reference:

IRAS Version 6.3.6

	Title Forename/Initials Surname
	■ ■■■■■ ■■■■■
Address	University of Essex
	Wivenhoe Park
	Colchester
Post Code	CO4 3SQ
E-mail	■■■■■■■■■■■■■■■■■■■■
Telephone	■■■■■■■■■■
Fax	■■■■■■■■■■

A5-1. Research reference numbers. Please give any relevant references for your study:

Applicant's/organisation's own reference number, e.g. R & D (if available):	Not at this point
Sponsor's/protocol number:	NA
Protocol Version:	NA
Protocol Date:	10/11/2023
Funder's reference number (enter the reference number or state not applicable):	NA
Project website:	NA

Additional reference number(s):

Ref.Number	Description	Reference Number
NA		NA

Registration of research studies is encouraged wherever possible. You may be able to register your study through your NHS organisation or a register run by a medical research charity, or publish your protocol through an open access publisher. If you have registered your study please give details in the "Additional reference number(s)" section.

A5-2. Is this application linked to a previous study or another current application?

☐ Yes ☒ No

Please give brief details and reference numbers.

2. OVERVIEW OF THE RESEARCH

To provide all the information required by review bodies and research information systems, we ask a number of specific questions. This section invites you to give an overview using language comprehensible to lay reviewers and members of the public. Please read the guidance notes for advice on this section.

A6-1. Summary of the study. Please provide a brief summary of the research (maximum 300 words) using language easily understood by lay reviewers and members of the public. Where the research is reviewed by a REC within the UK Health Departments' Research Ethics Service, this summary will be published on the Health Research Authority (HRA) website following the ethical review. Please refer to the question specific guidance for this question.

Interest in Artificial Intelligence (AI) has seen a recent rise generally with a subsequent rise in research addressing the potential benefits of AI in various contexts. However, a literature review shows that little to no research exists on the use of AI in support of Cognitive Behaviour Therapy for psychosis (CBTp) practitioners. Research that does exist addressing the use of AI in CBT generally is theoretical with nothing that specifically draws upon the experiences and perspectives of practitioners to develop software applications. Improving interventions for psychosis is of particular importance because although one in thirty-five of those accessing mental health services do

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so for psychosis, it accounts for one in every ten pounds spent by NHS mental health services with CBTp being the preferred intervention.

Employing Ethnographic Action Research, this project seeks to create a dummy application prototype and accompanying design guidelines. It is hoped the guidelines will guide the development of future AI-driven software which aims to support the quality and efficacy of CBTp practitioners in their work with clients experiencing first-episode psychosis.

This study has two aims:

1. To create a dummy prototype of an AI-driven software application to support CBTp practitioners in their work.
2. To create guidelines for the future design of AI-driven software applications to support CBTp practitioners.

A Working Group of CBTp practitioners will be invited to create a software application dummy prototype. Feedback groups comprising service users, CBTp practitioners, supervisors, & NHS commissioners will be invited to assess the output of the Working Group and give questionnaire feedback that will further shape the guidelines and prototype.

Participant engagement will be carried out online (MS-Teams) and at NHS (Essex Partnership University Trust) or Non-NHS (University of Essex) sites.

A6-2. Summary of main issues. Please summarise the main ethical, legal, or management issues arising from your study and say how you have addressed them.

Not all studies raise significant issues. Some studies may have straightforward ethical or other issues that can be identified and managed routinely. Others may present significant issues requiring further consideration by a REC, HRA, or other review body (as appropriate to the issue). Studies that present a minimal risk to participants may raise complex organisational or legal issues. You should try to consider all the types of issues that the different reviewers may need to consider.

Recruitment

Potential participants will be contacted by email by [REDACTED] in the case of CBTp practitioners; CBTp supervisors; Commissioners of CBTp services. or in the case of CBTp service users they will be contacted directly by their CBTp practitioners either by email, over the phone, or during sessions provided they have been identified as being engaged (or willing to engage) in service user feedback activities. Only members of their direct care team will have access to personal data prior to consenting to engage in the study.

Bias

To ameliorate bias, the researchers will draw up LeCompte (1989) who focuses on conscious bias awareness and offers critical questions and guidance. Whilst Carspecken (1996) and Vandeberg (2011) encourage a critical reflection of reflexivity in relation to power in the research/researched relationship. Being a qualitative research project, the write-up will include a reflexivity section drawing upon the above and other considerations.

Further, the Handbook of Ethnography in Healthcare Research encourages focus on "conditions-, meanings-, and reasoning analysis", this suggests that connections between personal meaning and reasons for actions in relation to conditions form the basis of analysis (Hackett and Hayre, 2020). In this context, this will allow the research to demonstrate how outputs in the form of the prototype and guideline can be directly retraced to participant reflections and practice needs. Validation testing in the form of stakeholder questionnaires will further help alleviate bias.

Inclusion/exclusion

Working Group

Participants will be currently practising CBTp with clients experiencing a first episode of psychosis accessing psychosis services. Psychosis here is defined in line with the DSM-5 which characterises Psychosis as the presence of at least two of the following: hallucinations, delusions, disorganised thinking (& speech), disorganised or abnormal motor behaviour, and negative symptoms (flattened affect, alogia etc) for a sustained period of time, usually six months (American Psychiatric Association, 2013).

Questionnaire Groups

Service users who have met the criteria for Psychosis according to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) and have received CBTp as part of their treatment protocol. The decision was taken to exclude individuals who are currently receiving CBTp as they may be in the acute phase of their support. Service users will be excluded if they are currently receiving CBTp as they may be in the acute phase of the support. Insight is a key factor in the structure of psychosis and is often diminished or absent for individuals in the acute phase of psychosis (American Psychiatric Society, 2013). As such it is decided that these individuals are excluded whilst the engage in therapeutic support.

Questionnaire Stakeholder Groups contd.

CBTp practitioners, CBTp supervisors, and NHS commissioners for CBTp services will all be included as they are

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relevant professional stakeholders.

Consent

All participants are capable of giving informed consent and the parameters of the research make the giving and revoking of consent straightforward.

Confidentiality

All data will be anonymised through coding and the use of pseudonyms.

Conflict of interest

No conflict of interest had been found following due consideration.

Risks, burdens and benefits

It is important to note that whilst there is some degree of intervention research and development in this research, it is important to note that this is purely conjecture and no working application will be created that would impact a practitioner's practice.

There is a risk of emotional harm from participation in workshop activities, for example, reflecting on painful experiences or perhaps considering challenging institutional dynamics - to mitigate this participants are asked to consider the impact of their reflective activities and to ensure they have the appropriate support resources in place for example their supervision.

Risk of emotional harm from participation in filling out questionnaires (service users) - to mitigate the risk questionnaires will only be received by those identified by the service as already engaging in wider client feedback activities.

Risk of emotional harm from participation in filling out questionnaires (supervisors and commissioners)- to mitigate participants are asked to consider the impact of reflective activities and to ensure they have the appropriate support resources in place.

A risk assessment protocol reveals a very low risk of emotional harm for all participants participating in the research, see attached risk assessment for details.

Legal:

There is a risk of malpractice which is mitigated by the carrying out of the above.

Management:

There are no significant management issues.

3. PURPOSE AND DESIGN OF THE RESEARCH

A7. Select the appropriate methodology description for this research. Please tick all that apply:

- ☐ Case series/ case note review
- ☐ Case control
- ☐ Cohort observation
- ☐ Controlled trial without randomisation
- ☐ Cross-sectional study
- ☐ Database analysis
- ☐ Epidemiology
- ☐ Feasibility/ pilot study
- ☐ Laboratory study
- ☐ Metanalysis
- ☒ Qualitative research
- ☒ Questionnaire, interview or observation study
- ☐ Randomised controlled trial

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☐ Other (please specify)

A10. What is the principal research question/objective? *Please put this in language comprehensible to a lay person.*

To what extent can artificially intelligent-driven software support CBTp practitioners in their work?

A11. What are the secondary research questions/objectives if applicable? *Please put this in language comprehensible to a lay person.*

What guidelines should support software developers seeking to create AI-driven applications in support of CBTp practitioners?

A12. What is the scientific justification for the research? *Please put this in language comprehensible to a lay person.*

In the UK one in four people experience mental health problems each year (Mind, 2017), a small proportion of these, one in thirty-five, are individuals experiencing psychosis (NHS Digital, 2014). Psychosis is when an individual loses contact with reality, either through the experience and belief in hallucinations or delusions (NHS, 2023). Despite the relatively smaller proportion, the cost of psychosis to society stands at a disproportion £11.8 billion compared to £118 billion for all mental health issues (McDaid et al., 2022), (NCCMH, 2022). This is due to psychosis being hard to treat due to individuals being prone to relapse and there being comorbidities with other mental and physical health issues. Further exacerbation stems from individuals often having poorer educational and occupational outcomes, and a greater likelihood of criminal detention under the Mental Health Act 1983 (NCCMH, 2022). In human terms, for those living with psychosis for a prolonged period, the statistical reality is again disproportionate with a greater likelihood of preventable diseases for which one is three times more likely to require an A&E visit, five times more likely to require an emergency admission (Jacobs et al., 2020), resulting in death on average 15-20 years younger than the general population and over 10 years younger than individuals suffering from other mental health issues such as anxiety or depression (Pratt et al., 2016).

In order to improve outcomes for this vulnerable population it is important to intervene early (NICE, 2014). The NICE recommended early intervention for psychosis is for individuals aged 14-65 to receive a package of care within two weeks of referral. The package consists of oral anti-psychotic medication in conjunction with 16 weeks of CBTp (Cognitive Behaviour Therapy for psychosis) delivered through integrated service provision often involving psychologists, care-coordinators, nurses, and psychiatrists (NICE, 2014).

Similar to the above wherein psychosis results in a disproportionate impact on society and the individual, for the clinician delivering CBTp, the complex and individually variable nature of the condition makes treatment challenging (Bull, 2009; Chandra et al., 2018; Morrison, 2017). For example, people experiencing psychosis often have difficulty distinguishing between what is real and what isn't (Georgaca, 2000), and reality-testing is central to cognitive restructuring which is a cornerstone of CBT (Clark, 2013). Much like reality testing in the outer world, insight into one's inner world is also central to CBT wherein one needs to identify and reflect on thought processes and emotional patterns to identify and change maladaptive thoughts and behaviours, which is also something those suffering from psychosis often struggle with (Kazantzis, 2018). Further, as mentioned above, there is the co-morbidity of other physical and mental health issues which complicate the treatment process with anxiety disorders, depression, and drug abuse all being common comorbid challenges that themselves are usually treated with CBT but again, CBT that leverages insight and cognitive restructuring (Achim et al., 2011; Bull, 2011; Clark, 2013; Kazantzis, 2018; Morrison, 2017).

The complicated nature of the presenting pathologies detailed above requires that "individually tailored" and evidenced treatments are followed, with failure to do so perhaps resulting in a "potentially harmful" outcome for the client (Morrison, 2017 p.2). Further heightening the need for bespoke clinical intervention, associated risk profiles that include possible suicide (Coentre, 2021), or violent behaviour (Wasser et al., 2017), must also be managed before, between, and within sessions. To this end, alongside CBTp, multi-disciplinary teams are leveraged and providing support from everything from medicinal and therapeutic care to housing and crisis care (Chandra et al., 2018). Whilst not coordinating all activities, the CBTp practitioner providing care for the client must keep track of a multitude of different factors when tailoring complex treatments for clients. The impact of this complexity, challenge, and risk may result in stress and burnout for the practitioner in turn becoming a potentially significant issue limiting the overall quality and efficacy of service provision (Baker, 2021; Kim et al., 2019; Omylinska-Thurston and Frost, 2022).

The use of technology in the form of software applications has been seen as a valuable tool in meeting the demands of modern mental health provision. An initial literature review found that though researchers in the US (e.g., John Torous & David Mohr) and in the UK (e.g., Dame Til Wyes and Shon Lewis) have written hundreds of articles on the subject of utilising software to support individual's mental health, this author was not able to find research focusing on software applications supporting CBT or indeed CBTp practitioners with their clinical practice in relation to managing complex caseloads, stress and burnout, and improving quality of service (Baker, 2021; Kim et al., 2019; Omylinska-Thurston & Frost, 2022).

The advancement of Artificial Intelligence (AI) technologies has led to innovative solutions for various fields and

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already offers the NHS a valuable tool for meeting the mental health needs of the UK (Graham et al., 2019). When seeking to replicate the responsiveness and reflexivity coupled with task orientation and structure outlined above, AI presents itself as a viable option. If one considers ChatGPT as the seminal AI interface, what sets it apart from earlier iterations is its seemingly reflexive, interpersonal nature (de Gregorio, 2023; Pang, 2023). In terms of support of tasks and administration, there are a plethora of tools online that have combined basic task management programmes with a thin layer of AI to improve user experience and interface and research has already begun to look at its application in healthcare settings (Glover and Zhi, 2022). Though they differ in intent, the Electronic Patient Record systems that support practitioners in managing their caseloads might take some inspiration from Customer Relationship Management systems in how they have leveraged AI to increase communication and engagement with clients, all of which are time and effort-intensive activities for practitioners but also understood to be central to a client's positive mental health outcomes (TheDataScientist, 2023).

This research would explore the potential of AI-driven software as a support for CBTp practitioners. Addressing the views and experiences of CBTp practitioners the research will seek two outputs:

1. first the creation of a prototype application in the form of a design plan and wireframing
2. the creation of a development guideline to aid entities in the creation of future applications.

It is hoped that this would set the groundwork for future developments in AI-leveraged software solutions to support CBTp practitioners. The research will focus on NHS CBTp practitioners drawn from the Essex Partnership University Trust and hopefully contribute to the growing body of knowledge on AI applications in mental health and inform decision-making by mental health care professionals, policymakers, and technology developers.

A13. Please summarise your design and methodology. *It should be clear exactly what will happen to the research participant, how many times and in what order. Please complete this section in language comprehensible to the lay person. Do not simply reproduce or refer to the protocol. Further guidance is available in the guidance notes.*

This research will use a blended methodological approach to the research design drawing together principles of Participatory Action Research, Thematic Analysis, and Ethnographic Research into Ethnographic Action Research. Whilst novel in health research, the approach has a lineage going back two decades in Information and Computer Technology (ICT) research (Tacchi, 2015).

As CBTp practitioners have both personal and professional complexities to manage, the attention this methodological approach pays to the wider context within which the research sits, whilst also attending to the "formal and informal, technical and social" aspects of the phenomena means is crucial (Tacchi, 2019, p. 220). Further, both components of the approach (Ethnography and Participatory Action Research) are "ethically committed to appreciating cultural differences and promoting the welfare of the groups they work with" which is ideal in the current setting where cultural considerations are crucial for understanding the idiosyncratic nature of psychosis for a given individual (Eisenhart, 2019; Jarvis et al., 2020).

Workshops (prototype and guideline creation)

From this philosophical foundation, the research design invites a working group of 6-8 participants to engage at all levels of the research. Facilitated by the Chief Investigator, the working group engages in a series of action-research spirals (Kemmis & McTaggart, 2000), with the goal of iterating from framing CBTp practice and the potential of AI to support CBTp practitioners, to the outlining of an AI prototype that supports CBTp practitioners, to the creation of general design guidelines.

There will be four workshops held one month apart with each being 2 hours in length. Workshops will take place online using Microsoft Teams and will be recorded and transcribed to aid reflection and allow for thematic and ethnographic analysis. Between workshops, participants will be invited to reflect on their professional lives through guided journaling activities, these reflections will be drawn on by participants when contributing to subsequent workshops but will not be shared in their entirety with the Chief Investigator or fellow participants, they are purely personal reflection and reference supports.

The Chief Investigator will participate in workshops as a participant observer in line with Action Research principles (Adams, 2010)

Stakeholder validation questionnaires

To help validate and/or improve the prototype and guidelines key stakeholders will be invited to address the workshop output (service users =6-8pts; CBTp practitioners =6-8; supervisors =6-8; commissioners =1-2pts). This will be in the form of questionnaires aimed at supporting reflection on the prototype overview and guidelines. This will take place between the 3rd and 4th workshops so that any recommendations resulting from a thematic analysis can be considered and incorporated if deemed appropriate by the group which will be decided by consensus.

Bias

To ameliorate bias, the Chief Investigator will draw up LeCompte (1989) who focuses on conscious bias awareness

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and offers critical questions and guidance. Whilst Carspecken (1996) and Vandeberg (2011) encourage a critical reflection of reflexivity in relation to power in the research/researched relationship. As a qualitative research project, the write-up will include a reflexivity section drawing upon the above and other considerations.

Further the Handbook of Ethnography in Healthcare Research encourages focus on "conditions-, meanings-, and reasoning analysis", this suggests that connections between personal meaning and reasons for actions in relation to conditions form the basis of analysis (Hackett and Hayre, 2020). In this context, this will allow the research to demonstrate how outputs in the form of the prototype and guideline can be directly retraced to participant reflections and practice needs. Validation testing in the form of stakeholder questionnaires will further help alleviate bias.

Timeline

The research is expected to last 18 months (Dec 2023-April 2025)

Dec 2023 - Mar 2024 Preparation and Ethics

April-June 2024 four action research spirals (workshops)

July 2024 Stakeholder Questionnaires

April-Aug 2024 Transcription and Analysis

Aug 2024-Mar 2025 Write up project

April 2025 Submit project

Participant identification

Identification of workshop participants will be through purposive sampling inviting participants from The University of Essex Doctorate in Clinical Psychology programme. Participants will be currently practising CBTp with clients experiencing a first episode of psychosis accessing first episode psychosis services within Essex University Partnership Trust. If it transpires that there are not enough participants within the university, snowball sampling will be employed to identify further potential participants drawing from Essex Partnership and University Trust services.

Questionnaire participants will be identified through first episode psychosis services operating with Essex University Partnership Trust.

Analysis

Thematic Analysis will be employed to address qualitative output from questionnaires and used to inform the creation of the design guidelines.

Thematic analysis will be employed to identify emerging themes for each stage of an action research spiral. The write-up of the research process will be carried out by the Chief Investigator following the guidance of Jean Mc Niff's work Writing Up Your Action Research Project, participants will be engaged for transparency and to ensure validity (Mc Niff, 2016). As the research draws to a close, formative analysis iterated throughout the Action Research Spirals will become summative in nature as the Chief Investigator takes an overview to draw together data from the research whole into the application design and associated guidelines (Coghlan & Brydon-Miller, 2014). To provide an epistemological foundation pulling together the threads of data for analysis and write-up, the Handbook of Ethnography in Healthcare Research provides a frame of "conditions-, meanings-, and reasoning analysis", the frame suggests that connections between personal meaning and reasons for actions in relation to conditions form the basis of analysis (Hackett and Hayre, 2020). In this setting, this will allow the research to demonstrate how outputs in the form of the prototype and guideline can be directly retraced to participant reflections and practice needs.

A14-1. In which aspects of the research process have you actively involved, or will you involve, patients, service users, and/or their carers, or members of the public?

- ☐ Design of the research
- ☐ Management of the research
- ☐ Undertaking the research
- ☒ Analysis of results
- ☐ Dissemination of findings
- ☐ None of the above

Give details of involvement, or if none please justify the absence of involvement.

Service users will be invited to address the output of the working group's efforts both in terms of the guidelines and the prototype. This will then be used to help iterate the guidelines and prototype.

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4. RISKS AND ETHICAL ISSUES**RESEARCH PARTICIPANTS****A15. What is the sample group or cohort to be studied in this research?**

Select all that apply:

- ☐ Blood
- ☐ Cancer
- ☐ Cardiovascular
- ☐ Congenital Disorders
- ☐ Dementias and Neurodegenerative Diseases
- ☐ Diabetes
- ☐ Ear
- ☐ Eye
- ☐ Generic Health Relevance
- ☐ Infection
- ☐ Inflammatory and Immune System
- ☐ Injuries and Accidents
- ☒ Mental Health
- ☐ Metabolic and Endocrine
- ☐ Musculoskeletal
- ☐ Neurological
- ☐ Oral and Gastrointestinal
- ☐ Paediatrics
- ☐ Renal and Urogenital
- ☐ Reproductive Health and Childbirth
- ☐ Respiratory
- ☐ Skin
- ☐ Stroke

Gender: Male and female participants

Lower age limit: 18 Years

Upper age limit: 65 Years

A17-1. Please list the principal inclusion criteria (list the most important, max 5000 characters).**Working group participants:**

Participants will be currently practicing CBTp with clients experiencing a first episode of psychosis accessing psychosis services. If it transpires that there are not enough participants within the university, snowball sampling will be employed to identify further potential participants drawing from Essex Partnership and University Trust services.

Questionnaire participants:**CBTp Practitioners**

Participants will be currently practicing CBTp with clients experiencing a first episode of psychosis accessing psychosis services.

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Supervisors

Participants will be currently supervising those practising CBTp with clients experiencing a first episode of psychosis accessing psychosis services.

Service users

Participants will be currently or have some experience of accessing first episode psychosis services and have received CBTp.

Commissioners

EPUT Psychological Service commissioners will have responsibility for commissioning first episode psychosis services.

A17-2. Please list the principal exclusion criteria (list the most important, max 5000 characters).

Service user participants will be excluded if they are under 18 or over 65 and or their first episode psychosis care-coordinator or psychologist believes that it might not be suitable for them to engage in the research for reasons of potentially causing emotional distress or increased safeguarding risk.

Clients must have a level of written and spoken English such that they can read the requisite leaflet, information sheets, and consent forms.

RESEARCH PROCEDURES, RISKS AND BENEFITS**A18. Give details of all non-clinical intervention(s) or procedure(s) that will be received by participants as part of the research protocol. These include seeking consent, interviews, non-clinical observations and use of questionnaires.**

Please complete the columns for each intervention/procedure as follows:

1. Total number of interventions/procedures to be received by each participant as part of the research protocol.
2. If this intervention/procedure would be routinely given to participants as part of their care outside the research, how many of the total would be routine?
3. Average time taken per intervention/procedure (minutes, hours or days)
4. Details of who will conduct the intervention/procedure, and where it will take place.

Intervention or procedure	1	2	3	4
Workshop participation	4		2hrs	Chief Investigator. It will take place online
Journal activities	3		1hr	Self administered.
Stakeholder questionnaires	1		1hr	Self administered.
Sharing/reading of Participant Information Sheet	1		10mins	Chief Investigator. Emailed to participant
Sharing/completion of Consent form	1		5mins	Chief Investigator. Emailed to participant

A21. How long do you expect each participant to be in the study in total?

Workshop participants 3months

Questionnaire stakeholder participants (service users, CBTp practitioners, supervisors, commissioner(s)) 1hr

Chief Investigator and supervisors 18 months

A22. What are the potential risks and burdens for research participants and how will you minimise them?

For all studies, describe any potential adverse effects, pain, discomfort, distress, intrusion, inconvenience or changes to lifestyle. Only describe risks or burdens that could occur as a result of participation in the research. Say what steps would be taken to minimise risks and burdens as far as possible.

Risk of emotional harm from participation in workshop activities - to mitigate participants are asked to consider the impact of reflective activities and to ensure they have the appropriate support resources in place.

Risk of emotional harm from participation in filling out questionnaires (service users) - to mitigate the risk questionnaires will only be received by those identified by the service as already engaging in wider client feedback activities.

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Risk of emotional harm from participation in filling out questionnaires (supervisors, CBTp practitioners, and commissioners)- to mitigate participants are asked to consider the impact of reflective activities and to ensure they have the appropriate support resources in place.
A risk assessment has been carried out and has deemed the risk to be "very low" and this will be routinely reassessed monthly or as needed.

A23. Will interviews/ questionnaires or group discussions include topics that might be sensitive, embarrassing or upsetting, or is it possible that criminal or other disclosures requiring action could occur during the study?

☒ Yes ☐ No

If Yes, please give details of procedures in place to deal with these issues:

As working group participants will be asked to reflect on the professional practice in a guided but discursive manner there is the potential that distressing work-related experiences may be reflected on.

A24. What is the potential for benefit to research participants?

For all research participants, they have the potential benefit of engaging in research that seeks to improve the quality and efficiency of CBTp practice. This may have personal benefit for all involved as well as the potential to feel a sense of wellbeing from engaging in research that seeks to improve the public good.

A26. What are the potential risks for the researchers themselves? (if any)

Researchers have the potential to experience emotional distress resulting from participants recounting distressing experiences. To ameliorate this there will be two researchers present in all working group sessions so that they might support one another as needed (Chief Investigator and 1st Academic Supervisor)

RECRUITMENT AND INFORMED CONSENT

In this section we ask you to describe the recruitment procedures for the study. Please give separate details for different study groups where appropriate.

A27-1. How will potential participants, records or samples be identified? Who will carry this out and what resources will be used? For example, identification may involve a disease register, computerised search of GP records, or review of medical records. Indicate whether this will be done by the direct healthcare team or by researchers acting under arrangements with the responsible care organisation(s).

Working Group participants - (a) an email will be sent centrally by the admin for the University of Essex's Doctorate in Clinical Psychology programme. (b) [REDACTED], Consultant Clinical Psychologist for EIP & ARMS Services Trustwide will email potential participants. Emails will contain recruitment posters, participant information sheets, and consent forms.

Questionnaire participants: CBTp practitioners, CBTp supervisors, and CBTp service users - the research team will contact Psychosis Services across Essex University Partnership Trust by email requesting them to identify questionnaire participants from the relevant questionnaire groups.
Emails from the research team will contain recruitment posters, participant information sheets, and consent forms to be forwarded to potential participants.

Commissioners - will be contacted by email by the research team or by [REDACTED]. Emails will contain recruitment posters, participant information sheets, and consent forms.

A27-2. Will the identification of potential participants involve reviewing or screening the identifiable personal information of patients, service users or any other person?

☐ Yes ☒ No

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Please give details below:

A28. Will any participants be recruited by publicity through posters, leaflets, adverts or websites?

☒ Yes ☐ No

If Yes, please give details of how and where publicity will be conducted, and enclose copy of all advertising material (with version numbers and dates).

Posters will be emailed to prospective participants by respective representatives from Essex University Partnership Trust.

For Working Group participants emails will be sent by [REDACTED], Consultant Clinical Psychologist for EIP & ARMS services trust-wide.

In terms of the questionnaire participant groups (Service Users, CBTp practitioners, and Supervisors) participants will receive emails from Early Intervention in Psychosis service leads within the Essex University Partnership Trust. In terms of the questionnaire participant group (commissioners) participants will receive emails from [REDACTED], Consultant Clinical Psychologist for EIP & ARMS services trust-wide.

A29. How and by whom will potential participants first be approached?

Working group participants - an email will be sent by [REDACTED], Consultant Clinical Psychologist for EIP & ARMS services trust-wide. The email will contain a recruitment letter and poster.

Stakeholder participants - Early Intervention in Psychosis services across Essex University Partnership Trust will be contacted by email to identify questionnaire participants from the relevant stakeholder groups. In particular, individuals will be contacted through the following methods:

CBTp practitioners - will be contacted by the Chief Investigator, service leads, & CBTp supervisors by email or it may be the case that discussion arises as part of normal work contact i.e., supervision, team meetings etc. The email will contain a recruitment letter and poster.

Service Users - will be contacted through email by service leads, CBTp practitioners, CBTp supervisors, or as part of general clinical work wherein a clinician may suggest participation with a service user they feel might benefit from engagement. The email will contain a recruitment letter and poster. Service users will only be engaged if they have been identified as being engaged (or consented to engage) in service user feedback activities. Only members of their direct care team will have access to personal data prior to consenting to engage in the study.

Supervisors - will be contacted by service leads or by [REDACTED], Consultant Clinical Psychologist for EIP & ARMS services trust-wide by email or it may be the case that discussion arises as part of normal work contact i.e., supervision, team meetings etc. The email will contain a recruitment letter and poster.

Commissioners - will be contacted directly by the by [REDACTED], Consultant Clinical Psychologist for EIP & ARMS services trust-wide or it may be the case that discussion arises as part of normal work contact i.e. team meetings etc. The email will contain a recruitment letter and poster.

A30-1. Will you obtain informed consent from or on behalf of research participants?

☒ Yes ☐ No

If you will be obtaining consent from adult participants, please give details of who will take consent and how it will be done, with details of any steps to provide information (a written information sheet, videos, or interactive material). Arrangements for adults unable to consent for themselves should be described separately in Part B Section 6, and for children in Part B Section 7.

If you plan to seek informed consent from vulnerable groups, say how you will ensure that consent is voluntary and fully informed.

Upon declaring an interest to join the research the research team will furnish potential participants with an information sheet and written consent form.

If you are not obtaining consent, please explain why not.

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Please enclose a copy of the information sheet(s) and consent form(s).

A30-2. Will you record informed consent (or advice from consultees) in writing?

☒ Yes ☐ No

A31. How long will you allow potential participants to decide whether or not to take part?

Potential participants will have at least one week to decide whether or not to take part.

A33-1. What arrangements have been made for persons who might not adequately understand verbal explanations or written information given in English, or who have special communication needs?(e.g. translation, use of interpreters)

Due to the scope of the research, it is not possible to translate information, provide interpreters, or facilitate those with special communication needs.

A35. What steps would you take if a participant, who has given informed consent, loses capacity to consent during the study? Tick one option only.

- ☒ The participant and all identifiable data or tissue collected would be withdrawn from the study. Data or tissue which is not identifiable to the research team may be retained.
- ☐ The participant would be withdrawn from the study. Identifiable data or tissue already collected with consent would be retained and used in the study. No further data or tissue would be collected or any other research procedures carried out on or in relation to the participant.
- ☐ The participant would continue to be included in the study.
- ☐ Not applicable – informed consent will not be sought from any participants in this research.
- ☐ Not applicable – it is not practicable for the research team to monitor capacity and continued capacity will be assumed.

Further details:

CONFIDENTIALITY

In this section, personal data means any data relating to a participant who could potentially be identified. It includes pseudonymised data capable of being linked to a participant through a unique code number.

Storage and use of personal data during the study

A36. Will you be undertaking any of the following activities at any stage (including in the identification of potential participants)?(Tick as appropriate)

- ☐ Access to medical records by those outside the direct healthcare team
- ☐ Access to social care records by those outside the direct social care team
- ☐ Electronic transfer by magnetic or optical media, email or computer networks
- ☐ Sharing of personal data with other organisations
- ☐ Export of personal data outside the EEA
- ☒ Use of personal addresses, postcodes, faxes, emails or telephone numbers
- ☒ Publication of direct quotations from respondents
- ☐ Publication of data that might allow identification of individuals
- ☒ Use of audio/visual recording devices

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☒ Storage of personal data on any of the following:

- ☐ Manual files (includes paper or film)
- ☐ NHS computers
- ☐ Social Care Service computers
- ☐ Home or other personal computers
- ☒ University computers
- ☐ Private company computers
- ☐ Laptop computers

Further details:

Email addresses (for workshop participants i.e. NHS professionals) will be stored securely on the university's cloud storage (Microsoft OneDrive) for the duration of the project and deleted thereafter: email addresses are given as part of the consent form.

Publication of direct quotes will likely exist within the research write-up, quotes will be anonymised.

Workshop activities are all to be carried out on MS Teams. MS Teams will record and store the meetings on the university's cloud storage (Microsoft OneDrive). Once recordings are transcribed and anonymised the recordings will be deleted by the Principal Academic Supervisor.

Data will be retained by the Principle Academic Supervisor for a period of 5 years and thereafter will be erased or destroyed according to GDPR and NHS best practices.

A37. Please describe the physical security arrangements for storage of personal data during the study?

Physical questionnaires will be scanned upon receipt and uploaded to the university's cloud storage (Microsoft OneDrive) they will then be shredded using NHS facilities.

PIS and Consent Forms will be scanned upon receipt and uploaded to the university's cloud storage (Microsoft OneDrive) they will then be shredded using NHS facilities.

A38. How will you ensure the confidentiality of personal data? Please provide a general statement of the policy and procedures for ensuring confidentiality, e.g. anonymisation or pseudonymisation of data.

Identifiable data will be anonymised with the use of coding. Pseudonymisation will be employed in the write-up if necessary. In the case of email addresses, coding key, and pseudonymisation, the information upon which this is based, will be kept within a password-secured Word document and stored within the university's cloud storage (Microsoft OneDrive).

A40. Who will have access to participants' personal data during the study? Where access is by individuals outside the direct care team, please justify and say whether consent will be sought.

The direct team will have access to participant's data during the study.

██████████
██████████████████
████████████████████

Storage and use of data after the end of the study

A41. Where will the data generated by the study be analysed and by whom?

The data will be analysed by the Chief Investigator using software on a laptop. All servers will be contained within the EU and GDPR will be followed.

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A42. Who will have control of and act as the custodian for the data generated by the study?

	Title	Forename/Initials	Surname
	■	■	■
Post	Trainee Clinical Psychology		
Qualifications	MSc		
Work Address	The Lodge Wickford		
Post Code	SS11 7XX		
Work Email	■		
Work Telephone	■		
Fax			

A43. How long will personal data be stored or accessed after the study has ended?

- ☒ Less than 3 months
- ☐ 3 – 6 months
- ☐ 6 – 12 months
- ☐ 12 months – 3 years
- ☐ Over 3 years

A44. For how long will you store research data generated by the study?

Years: 1

Months: 8

A45. Please give details of the long term arrangements for storage of research data after the study has ended. Say where data will be stored, who will have access and the arrangements to ensure security.

After the study has ended and data has been analysed the data will be deleted any paper data will be destroyed using NHS paper shredding facilities.

INCENTIVES AND PAYMENTS**A46. Will research participants receive any payments, reimbursement of expenses or any other benefits or incentives for taking part in this research?**

☒ Yes ☐ No

If Yes, please give details. For monetary payments, indicate how much and on what basis this has been determined.

£20-£50 Amazon voucher

£20 for questionnaire participants

£50 for workshop participants (to be received upon completion of the 4 workshop sessions)

A47. Will individual researchers receive any personal payment over and above normal salary, or any other benefits or incentives, for taking part in this research?

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☐ Yes ☒ No

A48. Does the Chief Investigator or any other investigator/collaborator have any direct personal involvement (e.g. financial, share holding, personal relationship etc.) in the organisations sponsoring or funding the research that may give rise to a possible conflict of interest?

☐ Yes ☒ No**NOTIFICATION OF OTHER PROFESSIONALS**

A49-1. Will you inform the participants' General Practitioners (and/or any other health or care professional responsible for their care) that they are taking part in the study?

☐ Yes ☒ No

If Yes, please enclose a copy of the information sheet/letter for the GP/health professional with a version number and date.

PUBLICATION AND DISSEMINATION

A50. Will the research be registered on a public database?

☒ Yes ☐ No

Please give details, or justify if not registering the research.
Clinicaltrials.gov

Registration of research studies is encouraged wherever possible.
You may be able to register your study through your NHS organisation or a register run by a medical research charity, or publish your protocol through an open access publisher. If you are aware of a suitable register or other method of publication, please give details. If not, you may indicate that no suitable register exists. Please ensure that you have entered registry reference number(s) in question A5-1.

A51. How do you intend to report and disseminate the results of the study? Tick as appropriate:

- ☒ Peer reviewed scientific journals
- ☒ Internal report
- ☒ Conference presentation
- ☒ Publication on website
- ☐ Other publication
- ☒ Submission to regulatory authorities
- ☐ Access to raw data and right to publish freely by all investigators in study or by Independent Steering Committee on behalf of all investigators
- ☐ No plans to report or disseminate the results
- ☐ Other (please specify)

A52. If you will be using identifiable personal data, how will you ensure that anonymity will be maintained when publishing the results?

N/A

Date:

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Reference:

IRAS Version 6.3.6

A53. How and when will you inform participants of the study results?

If there will be no arrangements in place to inform participants please justify this.
Workshop participants will be informed through email.

Questionnaire participants:-
Results will be shared using the routes that were used to identify participants.

5. Scientific and Statistical Review**A54. How has the scientific quality of the research been assessed? Tick as appropriate:**

- ☐ Independent external review
- ☐ Review within a company
- ☐ Review within a multi-centre research group
- ☐ Review within the Chief Investigator's institution or host organisation
- ☐ Review within the research team
- ☒ Review by educational supervisor
- ☐ Other

Justify and describe the review process and outcome. If the review has been undertaken but not seen by the researcher, give details of the body which has undertaken the review:

The proposal was reviewed by two academic members of staff at the University of Essex and detailed feedback provided. Feedback was incorporated. The amended proposal was then reviewed by the academic supervisor and by a second academic member of staff before permission to apply to the Health Research Authority and the Research Ethics Committee is given.

For all studies except non-doctoral student research, please enclose a copy of any available scientific critique reports, together with any related correspondence.

For non-doctoral student research, please enclose a copy of the assessment from your educational supervisor/ institution.

A56. How have the statistical aspects of the research been reviewed? Tick as appropriate:

- ☐ Review by independent statistician commissioned by funder or sponsor
- ☐ Other review by independent statistician
- ☐ Review by company statistician
- ☐ Review by a statistician within the Chief Investigator's institution
- ☐ Review by a statistician within the research team or multi-centre group
- ☐ Review by educational supervisor
- ☐ Other review by individual with relevant statistical expertise
- ☒ No review necessary as only frequencies and associations will be assessed – details of statistical input not required

In all cases please give details below of the individual responsible for reviewing the statistical aspects. If advice has been provided in confidence, give details of the department and institution concerned.

Title Forename/Initials Surname

Department
Institution

Date:

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Reference:

IRAS Version 6.3.6

Work Address

Post Code

Telephone

Fax

Mobile

E-mail

Please enclose a copy of any available comments or reports from a statistician.

A57. What is the primary outcome measure for the study?

Qualitative:

1. To address the viability of AI-driven software in supporting CBTp practitioners in their clinical practice
2. To address the viability of creating a guidelines to support designers in creating an AI-driven software application

A58. What are the secondary outcome measures?(if any)

NA

A59. What is the sample size for the research? How many participants/samples/data records do you plan to study in total? If there is more than one group, please give further details below.

Total UK sample size: 33

Total international sample size (including UK):

Total in European Economic Area:

Further details:

Working group:

6-8

Questionnaire participants:

Service users 3-6

CBTp practitioners 6-12

CBTp Supervisors 3-6

CBTp Commissioners 1-3

A60. How was the sample size decided upon? If a formal sample size calculation was used, indicate how this was done, giving sufficient information to justify and reproduce the calculation.

For Ethnographic Action Research, the number of participants varies depending on context, in this instance addressing context and knowledge-specific phenomena "it is not uncommon to have a sample size of one to four individuals" Efron & Ravid, 2020, p62), however for the co-design of public health interventions, "recommendations have been made to recruit cohorts of between 6 and 12 participants for focus group studies", as this work is somewhat more involved than focus group work, the research will aim to recruit between 6 and 8 participants (Leask et al., 2019).

A61. Will participants be allocated to groups at random?
☐ Yes ☒ No
A62. Please describe the methods of analysis (statistical or other appropriate methods, e.g. for qualitative research) by which the data will be evaluated to meet the study objectives.

Date:

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This research will use a blended methodological approach to the research design drawing together principles of Participatory Action Research, Thematic Analysis, and Ethnographic Research into Ethnographic Action Research. Whilst novel in health research, the approach has a lineage going back two decades in Information and Computer Technology (ICT) research (Tacchi, 2015). The benefit of the approach when devising guidelines for the development of software to support CBTp practitioners personally and with their often-complex caseloads is that it pays attention to the wider framework within which the research sits attending to the "formal and informal...technical and social" aspects of the phenomena to understand "opportunities and barriers" (Tacchi, 2019, p. 220). Further, both components of the approach are "ethically committed to appreciating cultural differences and promoting the welfare of the groups they work with" which is ideal in the current setting where cultural considerations are crucial for understanding the idiosyncratic nature of psychosis for a given individual (Eisenhart, 2019; Jarvis et al., 2020).

Thematic analysis will be employed to identify emerging themes for each stage of an action research spiral i.e., workshops will be transcribed and subjected to manual thematic analysis.

To provide an epistemological foundation pulling together the threads of data for analysis and write-up, the Handbook of Ethnography in Healthcare Research encourages focus on "conditions-, meanings-, and reasoning analysis", this suggests that connections between personal meaning and reasons for actions in relation to conditions form the basis of analysis (Hackett and Hayre, 2020). In this context, this will allow the research to demonstrate how outputs in the form of the prototype and guideline can be directly retraced to participant reflections and practice needs.

As the research draws to a close, formative analysis iterated throughout the Action Research Spirals will become summative in nature as the chief investigator takes an overview to draw together data from the research whole into the application design and associated guidelines (Coghlan & Brydon-Miller, 2014).

Thematic analysis will also be used to address the stakeholder questionnaire data.

6. MANAGEMENT OF THE RESEARCH

A63. Other key investigators/collaborators. Please include all grant co-applicants, protocol co-authors and other key members of the Chief Investigator's team, including non-doctoral student researchers.

	Title	Forename/Initials	Surname
Post	■	■	■
Qualifications	Consultant Clinical Psychologist for EIP & ARMS services trustwide		
Employer	Consultant Clinical Psychologist for EIP & ARMS services trustwide		
Work Address	The Lodge, Lodge Approach		
	Runwell		
	Wickford		
Post Code	SS11 7XX		
Telephone	07944 923 292		
Fax			
Mobile			
Work Email	■		

A64. Details of research sponsor(s)

A64-1. Sponsor

Lead Sponsor

Date:

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Reference:

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Status: ☐ NHS or HSC care organisation☒ Academic☐ Pharmaceutical industry☐ Medical device industry☐ Local Authority☐ Other social care provider (including voluntary sector or private organisation)☐ Other

Commercial status:

Non-

Commercial

*If Other, please specify:***Contact person**

Name of organisation University of Essex

Given name [REDACTED]

Family name [REDACTED]

Address Wivenhoe Park

Town/city Colchester

Post code CO3 4SQ

Country United Kingdom

Telephone [REDACTED]

Fax [REDACTED]

E-mail [REDACTED]

Legal representative for clinical investigation of medical device (studies involving Northern Ireland only)*Clinical Investigations of Medical Devices that take place in Northern Ireland must have a legal representative of the sponsor that is based in Northern Ireland or the EU***Contact person**

Name of organisation

Given name

Family name

Address

Town/city

Post code

Country

Telephone

Fax

E-mail

A65. Has external funding for the research been secured?*Please tick at least one check box.*

Date:

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Reference:

IRAS Version 6.3.6

- ☐ Funding secured from one or more funders
- ☐ External funding application to one or more funders in progress
- ☒ No application for external funding will be made

What type of research project is this?

- ☐ Standalone project
- ☐ Project that is part of a programme grant
- ☐ Project that is part of a Centre grant
- ☐ Project that is part of a fellowship/ personal award/ research training award
- ☒ Other

Other – please state:
Doctoral Thesis

A66. Has responsibility for any specific research activities or procedures been delegated to a subcontractor (other than a co-sponsor listed in A64-1) ? Please give details of subcontractors if applicable.

- ☐ Yes ☒ No

A67. Has this or a similar application been previously rejected by a Research Ethics Committee in the UK or another country?

- ☐ Yes ☒ No

Please provide a copy of the unfavourable opinion letter(s). You should explain in your answer to question A6-2 how the reasons for the unfavourable opinion have been addressed in this application.

A68-1. Give details of the lead NHS R&D contact for this research:

	Title	Forename/Initials	Surname
	■	■	■
Organisation	Essex University Partnership Trust		
Address	The Lodge		
	Lodge Approach		
	Wickford		
Post Code	SS11 7XX		
Work Email	■		
Telephone	■		
Fax			
Mobile			

Details can be obtained from the NHS R&D Forum website: <http://www.rdforum.nhs.uk>

A69-1. How long do you expect the study to last in the UK?

Planned start date: 01/02/2024
Planned end date: 31/08/2025
Total duration:

Date:

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IRAS Form

Reference:

IRAS Version 6.3.6

Years: 1 Months: 6 Days: 31

A71-1. Is this study?

- ☐ Single centre
- ☒ Multicentre

A71-2. Where will the research take place? (Tick as appropriate)

- ☒ England
- ☐ Scotland
- ☐ Wales
- ☐ Northern Ireland
- ☐ Other countries in European Economic Area

Total UK sites in study 2

Does this trial involve countries outside the EU?

- ☐ Yes ☒ No

A72. Which organisations in the UK will host the research? Please indicate the type of organisation by ticking the box and give approximate numbers if known:

☒ NHS organisations in England	1
☐ NHS organisations in Wales	
☐ NHS organisations in Scotland	
☐ HSC organisations in Northern Ireland	
☐ GP practices in England	
☐ GP practices in Wales	
☐ GP practices in Scotland	
☐ GP practices in Northern Ireland	
☐ Joint health and social care agencies (eg community mental health teams)	
☐ Local authorities	
☐ Phase 1 trial units	
☐ Prison establishments	
☐ Probation areas	
☐ Independent (private or voluntary sector) organisations	
☒ Educational establishments	1
☐ Independent research units	
☐ Other (give details)	

Total UK sites in study: 2

A73-1. Will potential participants be identified through any organisations other than the research sites listed above?

Date:

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IRAS Form

Reference:

IRAS Version 6.3.6

☐ Yes ☒ No
A74. What arrangements are in place for monitoring and auditing the conduct of the research?

Supervision will be provided by the academic supervisor(s) at the University of Essex and the workplace supervisor at the Trust in order to monitor the conduct and progress of the research. The project may be subject to an audit undertaken by the Essex University Partnership Trust.

A76. Insurance/ indemnity to meet potential legal liabilities

Note: in this question to NHS indemnity schemes include equivalent schemes provided by Health and Social Care (HSC) in Northern Ireland

A76-1. What arrangements will be made for insurance and/or indemnity to meet the potential legal liability of the sponsor(s) for harm to participants arising from the management of the research? Please tick box(es) as applicable.

Note: Where a NHS organisation has agreed to act as sponsor or co-sponsor, indemnity is provided through NHS schemes. Indicate if this applies (there is no need to provide documentary evidence). For all other sponsors, please describe the arrangements and provide evidence.

- ☐ NHS indemnity scheme will apply (NHS sponsors only)
- ☒ Other insurance or indemnity arrangements will apply (give details below)

The University of Essex provides indemnity against negligent harm caused as a direct result of an employee's or a student's actions. The Chief Investigator is a student of the University.

Please enclose a copy of relevant documents.

A76-2. What arrangements will be made for insurance and/ or indemnity to meet the potential legal liability of the sponsor(s) or employer(s) for harm to participants arising from the design of the research? Please tick box(es) as applicable.

Note: Where researchers with substantive NHS employment contracts have designed the research, indemnity is provided through NHS schemes. Indicate if this applies (there is no need to provide documentary evidence). For other protocol authors (e.g. company employees, university members), please describe the arrangements and provide evidence.

- ☒ NHS indemnity scheme will apply (protocol authors with NHS contracts only)
- ☐ Other insurance or indemnity arrangements will apply (give details below)

Please enclose a copy of relevant documents.

A76-3. What arrangements will be made for insurance and/ or indemnity to meet the potential legal liability of investigators/collaborators arising from harm to participants in the conduct of the research?

Note: Where the participants are NHS patients, indemnity is provided through the NHS schemes or through professional indemnity. Indicate if this applies to the whole study (there is no need to provide documentary evidence). Where non-NHS sites are to be included in the research, including private practices, please describe the arrangements which will be made at these sites and provide evidence.

- ☐ NHS indemnity scheme or professional indemnity will apply (participants recruited at NHS sites only)
- ☒ Research includes non-NHS sites (give details of insurance/ indemnity arrangements for these sites below)

Participant engagement will take place online (workshops) and fall under the university's insurance and indemnity.

Please enclose a copy of relevant documents.

Date:

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IRAS Form

Reference:

IRAS Version 6.3.6

A78. Could the research lead to the development of a new product/process or the generation of intellectual property?☒ Yes ☐ No ☐ Not sure

Date:

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Reference:

IRAS Version 6.3.6

PART C: Overview of research sites

Please enter details of the host organisations (Local Authority, NHS or other) in the UK that will be responsible for the research sites. For further information please refer to guidance.

Investigator identifier	Research site	Investigator Name
IN1	☒ NHS/HSC Site ☐ Non-NHS/HSC Site	Forename [REDACTED] Middle name [REDACTED] Family name [REDACTED] Email [REDACTED] Qualification (MD...) DClinPsych Country United Kingdom
	Organisation name ESSEX PARTNERSHIP UNIVERSITY NHS FOUNDATION TRUST Address THE LODGE LODGE APPROACH RUNWELL WICKFORD Post Code SS11 7XX Country ENGLAND	
IN2	☐ NHS/HSC Site ☒ Non-NHS/HSC Site	Forename [REDACTED] Middle name [REDACTED] Family name [REDACTED] Email [REDACTED] Qualification (MD...) PhD Country United Kingdom
	Institution name University of Essex Department name Clinical Psychology Street address Wivenhoe Par Town/city Colechester Post Code CO4 3SQ Country United Kingdom	

Date:

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IRAS Form

Reference:

IRAS Version 6.3.6

PART D: Declarations**D1. Declaration by Chief Investigator**

1. The information in this form is accurate to the best of my knowledge and belief and I take full responsibility for it.
2. I undertake to fulfil the responsibilities of the chief investigator for this study as set out in the UK Policy Framework for Health and Social Care Research.
3. I undertake to abide by the ethical principles underlying the Declaration of Helsinki and good practice guidelines on the proper conduct of research.
4. If the research is approved I undertake to adhere to the study protocol, the terms of the full application as approved and any conditions set out by review bodies in giving approval.
5. I undertake to notify review bodies of substantial amendments to the protocol or the terms of the approved application, and to seek a favourable opinion from the main REC before implementing the amendment.
6. I undertake to submit annual progress reports setting out the progress of the research, as required by review bodies.
7. I am aware of my responsibility to be up to date and comply with the requirements of the law and relevant guidelines relating to security and confidentiality of patient or other personal data, including the need to register when necessary with the appropriate Data Protection Officer. I understand that I am not permitted to disclose identifiable data to third parties unless the disclosure has the consent of the data subject or, in the case of patient data in England and Wales, the disclosure is covered by the terms of an approval under Section 251 of the NHS Act 2006.
8. I understand that research records/data may be subject to inspection by review bodies for audit purposes if required.
9. I understand that any personal data in this application will be held by review bodies and their operational managers and that this will be managed according to the principles established in the Data Protection Act 2018.
10. I understand that the information contained in this application, any supporting documentation and all correspondence with review bodies or their operational managers relating to the application:
 - Will be held by the REC (where applicable) until at least 3 years after the end of the study; and by NHS R&D offices (where the research requires NHS management permission) in accordance with the NHS Code of Practice on Records Management.
 - May be disclosed to the operational managers of review bodies, or the appointing authority for the REC (where applicable), in order to check that the application has been processed correctly or to investigate any complaint.
 - May be seen by auditors appointed to undertake accreditation of RECs (where applicable).
 - Will be subject to the provisions of the Freedom of Information Acts and may be disclosed in response to requests made under the Acts except where statutory exemptions apply.
 - May be sent by email to REC members.
11. I understand that information relating to this research, including the contact details on this application, may be held on national research information systems, and that this will be managed according to the principles established in the Data Protection Act 2018.
12. Where the research is reviewed by a REC within the UK Health Departments Research Ethics Service, I understand that the summary of this study will be published on the website of the Health Research Authority (HRA) together with the contact point for enquiries named below. Publication will take place no earlier than 3 months after the issue of the ethics committee's final opinion or the withdrawal of the application.

Contact point for publication*(Not applicable for R&D Forms)**HRA would like to include a contact point with the published summary of the study for those wishing to seek further*

Date:

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Reference:

IRAS Version 6.3.6

information. We would be grateful if you would indicate one of the contact points below.

- ☒ Chief Investigator
☐ Sponsor
☐ Study co-ordinator
☐ Student
☐ Other – please give details
☐ None

Access to application for training purposes (Not applicable for R&D Forms)

Optional – please tick as appropriate:

☒ I would be content for members of other RECs to have access to the information in the application in confidence for training purposes. All personal identifiers and references to sponsors, funders and research units would be removed.

This section was signed electronically by [REDACTED] on 22/04/2024 10:56.

Job Title/Post: Trainee Clinical Psychologist

Organisation: University of Essex

Email: [REDACTED]

Date:

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Reference:

IRAS Version 6.3.6

D2. Declaration by the sponsor's representative

If there is more than one sponsor, this declaration should be signed on behalf of the co-sponsors by a representative of the lead sponsor named at A64-1.

I confirm that:

1. This research proposal has been discussed with the Chief Investigator and agreement in principle to sponsor the research is in place.
2. An appropriate process of scientific critique has demonstrated that this research proposal is worthwhile and of high scientific quality.
3. Any necessary indemnity or insurance arrangements, as described in question A76, will be in place before this research starts. Insurance or indemnity policies will be renewed for the duration of the study where necessary.
4. Arrangements will be in place before the study starts for the research team to access resources and support to deliver the research as proposed.
5. Arrangements to allocate responsibilities for the management, monitoring and reporting of the research will be in place before the research starts.
6. The responsibilities of sponsors set out in the UK Policy Framework for Health and Social Care Research will be fulfilled in relation to this research.

Please note: The declarations below do not form part of the application for approval above. They will not be considered by the Research Ethics Committee.

7. Where the research is reviewed by a REC within the UK Health Departments Research Ethics Service, I understand that the summary of this study will be published on the website of the National Research Ethics Service (NRES), together with the contact point for enquiries named in this application. Publication will take place no earlier than 3 months after issue of the ethics committee's final opinion or the withdrawal of the application.
8. Specifically, for submissions to the Research Ethics Committees (RECs) I declare that any and all clinical trials approved by the HRA since 30th September 2013 (as defined on IRAS categories as clinical trials of medicines, devices, combination of medicines and devices or other clinical trials) have been registered on a publically accessible register in compliance with the HRA registration requirements for the UK, or that any deferral granted by the HRA still applies.

This section was signed electronically by [REDACTED] on 23/04/2024 17:04.

Job Title/Post: Research Integrity Manager

Organisation: University of Essex

Email: [REDACTED]

IRAS Form

Reference:

IRAS Version 6.3.6

D3. Declaration for student projects by academic supervisor(s)

1. I have read and approved both the research proposal and this application. I am satisfied that the scientific content of the research is satisfactory for an educational qualification at this level.
2. I undertake to fulfil the responsibilities of the supervisor for this study as set out in the UK Policy Framework for Health and Social Care Research.
3. I take responsibility for ensuring that this study is conducted in accordance with the ethical principles underlying the Declaration of Helsinki and good practice guidelines on the proper conduct of research, in conjunction with clinical supervisors as appropriate.
4. I take responsibility for ensuring that the applicant is up to date and complies with the requirements of the law and relevant guidelines relating to security and confidentiality of patient and other personal data, in conjunction with clinical supervisors as appropriate.

Academic supervisor 1

This section was signed electronically by [REDACTED] on 22/04/2024 11:51.

Job Title/Post: Dr
Organisation: University of Essex
Email: [REDACTED]

Academic supervisor 2

This section was signed electronically by [REDACTED] on 23/04/2024 16:48.

Job Title/Post: Senior Lecturer
Organisation: University of Essex
Email: [REDACTED]

Academic supervisor 3

This section was signed electronically by [REDACTED] on 24/04/2024 08:38.

Job Title/Post: Lecturer MH nursing
Organisation: University of Essex
Email: [REDACTED]

Academic supervisor 4

This section was signed electronically by [REDACTED] on 22/04/2024 10:56.

Job Title/Post:
Organisation:
Email: [REDACTED]

Appendix 13: Codes and Themes

Codes and Occurrences from First and Second Passes:

Reflexive! (1)

WG 121 Sophie

Like not just clarifying, but you sort of use different words sometimes and you really. I don't know. Offer your own reflection, I guess, and check that out and I think that's been really good.

Adding but checking reflection with group!!! (1)

WG 121 Sophie

Yeah, I really like how you, but after somebody says something, you really summarise it and you like. It sort of add clarity to it, which I really like. You're very good at kind of doing that, I think.

This is what I set out to do (1)

WG 121 Sophie

I think there's something maybe about really coming back to the need. I'd be interested in—because I think it has got so broad and there are so many things here. It's

almost like, what is the need? What is the gap? What is the thing that we are sort of trying to come back to? And that might help it be refined.

Defining the boundaries of the app!!! (1)

WG 121 Sophie

It feels like almost you could have one app and then all these different things would be almost like add-ons because there's so much.

Reflection on output (2)

WG 121 Sophie

Being adaptable that I think all these things. I think I agree with what you said in terms of it feels very broad and it covers a lot. Like for example at the top where it's got VR avatars dialogue, that could be an app in itself.

WG 121 Sophie

I think I think it's good. I think it's like the fundamentals in terms of absolutely in the centre, you've got that kind of empathy, that kind of trustworthy, transparent AI figure. And then you've got kind of absolutely like the big bag of psychology tools is absolutely essential, The reminders, I think that's we've kept coming back to the alarms.

Co-production (1) App functions

WG 121 Sophie

Yeah, I think it'd be helpful to have that co-production, I guess more.

Widening representation (1)

WG 121 Sophie

And maybe even other people that we've talked about like care Cos or Just to have maybe a richer discussion or some different perspective discussion would be interesting to sort of hear what people thought.

Call for service users to be involved in some way (2)

WG 121 Mina

Kind of already said that with the service user, sort of like the experience, but.

WG 121 Sophie

It would be interesting, I think to have service users involved.

Sophie noticing her criticism is a bias, are clinical psychologists biased by nature - reflect back on worry about it replacing us 14:02 (0)

Biasing (3)

WG 121 Sophie

It's really hard 'cause you, you know, with all qualitative research, you know, you of course, are going to have an impact on that research, right?

WG 121 Sophie

I think we just touched on this about how there is maybe that bias to those people that it wouldn't work for.

WG 121 Sophie

That information you share perhaps did make us think and look at particular things, but I felt that that was sort of useful and needed, and maybe a bit of a shortcut to something that otherwise we would have eventually got there.

On their inner process!!! (6)

WG 121 Sophie

I think I think it's good. I think it's like the fundamentals in terms of absolutely in the centre, you've got that kind of empathy, that kind of trustworthy, transparent AI figure. And then you've got kind of absolutely like the big bag of psychology tools is absolutely essential, The reminders, I think that's we've kept coming back to the alarms.

WG 121 Sophie

Yeah, I think it'd be helpful to have that co-production, I guess more.

WG 121 Sophie

And maybe even other people that we've talked about like care Cos or Just to have maybe a richer discussion or some different perspective discussion would be interesting to sort of hear what people thought.

WG 121 Sophie

It's really hard 'cause you, you know, with all qualitative research, you know, you of course, are going to have an impact on that research, right?

WG 121 Sophie

And it's been helpful to have kind of—you've given us some information. So then to sort of have a framework for that discussion that follows, I think that's been really useful.

WG 121 Sophie

So I think maybe that... I don't know if it's an 'aha!' moment, but it's more just, I think I've been holding my clients in mind when we've been talking about different things and thinking specifically about each client.

Changing views: holding the client in mind (1)

WG 121 Sophie

I think I've had perhaps a more positive view on AI. I think when I first came in, I had this... maybe I still do to some extent have this feeling of, 'OK, are we going to be out of jobs? Is AI going to take over?' Maybe not fully, but you know, there's something interesting about creating something that, in part, is doing some of our role, isn't it? And that's an interesting concept—thinking about that. So I think maybe my shift has been more to working with AI as opposed to it being... I don't know if that makes sense, as opposed to it being therapist

Generative (1)

WG 121 Sophie

I was thinking—I was. So I thought you might be in that. It'd be interesting to see what another group would come up with and if it was similar or not. Yeah.

Feedback on process (8)

WG 121 Sophie

Yeah, I really like how you, but after somebody says something, you really summarise it and you like. It sort of add clarity to it, which I really like. You're very good at kind of doing that, I think.

WG 121 Sophie

I think there's something maybe about really coming back to the need. I'd be interested in—because I think it has got so broad and there are so many things here. It's almost like, what is the need? What is the gap? What is the thing that we are sort of trying to come back to? And that might help it be refined.

WG 121 Sophie

That information you share perhaps did make us think and look at particular things, but I felt that that was sort of useful and needed, and maybe a bit of a shortcut to something that otherwise we would have eventually got there.

WG 121 Sophie

And it's been helpful to have kind of—you've given us some information. So then to sort of have a framework for that discussion that follows, I think that's been really useful.

WG 121 Sophie

I think it's, I would say probably it's been more of a gradual learning process, as opposed to kind of 'aha!' moments.

WG 121 Sophie

But you explained that in the first session—how that would look, and how this would be a very sort of gradual process of us, kind of, you know, the methodology behind it. Yeah, which has been good to be... I think it's been really interesting to be involved in that process, and it's so interesting to think of you.

WG 121 Sophie

I perhaps didn't think it would be such sort of specifics—like maybe about what would this really look like. I don't know. I can't remember really what I thought, but it's interesting to really think about specifics, and maybe that's where it's tricky to sort of think about, is that doable.

WG 121 Alice

And even that first session, being able to just go through different uses and different things and trying them out, I guess it's sort of introduced me to a lot of new things that I wouldn't have previously been introduced to.

Learning by doing (1)**WG 121 Sophie**

I really liked being in a group because I think, because I came into it quite sort of—I don't know—not really knowing much about it, it's been really helpful to sort of hear other people's ideas. It sort of makes you think about things that happen, about the kind of conversation. I think you sort of see it develop; you sort of go in, not really knowing where it's going to end up. So I found that really interesting to kind of hear other people's ideas, and so I've enjoyed that.

Group process! (4)**WG 121 Alice**

Yeah, the clinicians like—we're, yeah, we've all sort of moved through the process together. And there is that kind of group, I guess, like you would in any therapy group or something. You go through those, you know, group processes together as well, don't you?

And there's some kind of shared learning and shared experience, I think, which is really valuable.

WG 121 Alice

So I don't know if there's something in that what you say about that kind of vulnerability - like part and, you know, could I suppose -

HAYDEN, Ismael (HERTFORDSHIRE PARTNERSHIP UNIVERSITY NHS FOUNDATION TRUST) 30:32 Yeah.

Alice 30:40 I mean, I don't know—I have a tendency. Well, I like to think I have good relationships with people I see, at least. But I guess there is something different in this nature of a meeting as opposed to something that we might be doing at work or something that's, you know, around supervision. But actually, you know, you are sharing things about your practice or things that you might say, 'I wouldn't use it for this' or 'I would for that.' Like, I suppose there is something about that if you also think about the different relationships within the group as well.

WG 121 Alice

'Cause I wondered when I joined it, and then I hadn't really realized, to begin with, who was joining. And then I suddenly thought, 'Oh, I don't want that to be a barrier for either Sophie or Mina to think, "Oh no, maybe I can't."' But, like I say, I think we've got quite good relationships anyway. And I do think that, yeah, I didn't think it would, but you never know where there's going to be a bit of an unconscious kind of barrier or...

WG 121 Sophie

I really liked being in a group because I think, because I came into it quite sort of—I don't know—not really knowing much about it, it's been really helpful to sort of hear other people's ideas. It sort of makes you think about things that happen, about the kind of conversation. I think you sort of see it develop; you sort of go in, not really knowing where it's

going to end up. So I found that really interesting to kind of hear other people's ideas, and so I've enjoyed that.

Vulnerability in the group process (6)

WG 121 Sophie

But I think it's just being, you know, aware that these things exist and that you can use them, and they can have real benefit. And it's pretty amazing, isn't it? Like particularly the creating of images. You know, I've downloaded that since I've done the focus groups, and I've been using that ChatGPT—not for actually necessary CBT stuff. Like I was doing a pottery thing and I said, 'Oh, you know, design what this would look like.' And I gave it some things, and it came out with something... and things like that, you know, using it just for other sorts of things. It's been really amazing.

WG 121 Sophie

I think I've had perhaps a more positive view on AI. I think when I first came in, I had this... maybe I still do to some extent have this feeling of, 'OK, are we going to be out of jobs? Is AI going to take over?' Maybe not fully, but you know, there's something interesting about creating something that, in part, is doing some of our role, isn't it? And that's an interesting concept—thinking about that. So I think maybe my shift has been more to working with AI as opposed to it being... I don't know if that makes sense, as opposed to it being therapist

WG 121 Sophie

But you explained that in the first session—how that would look, and how this would be a very sort of gradual process of us, kind of, you know, the methodology behind it. Yeah, which has been good to be... I think it's been really interesting to be involved in that process, and it's so interesting to think of you.

WG 121 Sophie

Like, personally, I really didn't know much about AI at all. And actually, it made me realize that perhaps I'm getting quite behind with technology. Like, it's interesting, isn't it? Because you sort of think that you're quite up to date, like you're quite tech-savvy, and then you think, oh, OK, actually this is maybe— I could, you know, you could easily get quite out of date with all these things.

WG 121 Mina

Yeah, I think I do. Just because people with psychosis don't, they always get left, don't they? Because they're the passive ones. They're the ones that don't voice anything. It's our job to advocate for them, and that's what this is.

WG 121 Mina

Do you think this is worth creating?

On barriers to using a new app (2)

WG 121 Mina

Because people are stressed and they're working.

WG 121 Mina

Yeah, and again to give space to it, and it's—you know, the benefits and value, I guess it would just need to be sold, isn't it?

Other's values and needs (1)

WG 121 Mina

Because you were the first person to ask to look at the notes to get the list of the things. So that made me think, oh, I wonder, does this create that connection?

Thinking about the group's thinking (1)

WG 121 Mina

Because you were the first person to ask to look at the notes to get the list of the things. So that made me think, oh, I wonder, does this create that connection?

Does the prototype meet the needs of CBTp practitioners (2)

WG 121 Alice

Yeah, I would say so, definitely, yeah.

WG 121 Mina

Yeah, I think it does. I think it does. It sort of considers core principles that we wanted—like empathy, transparency, trust—and then the knowledge and the creative side of things, I think it does. I'm not sure if there's anything else that we missed, really.

In response to me mentioning amazon platform (1)

WG 121 Mina

Yeah, I guess it'd have to be something like that, wouldn't it? Because there's just so much that we want from an app.

Platform! (2)

WG 121 Sophie

It feels like almost you could have one app and then all these different things would be almost like add-ons because there's so much.

WG 121 Mina

I'm thinking like one brand—like one app but with lots of different sort of... So a bit like, I guess, meta with Facebook and WhatsApp, and something a bit more sort of joined up. Something for the client, something for family members, something for care coordinators, I don't know.

On the group (2)

WG 121 Mina

I think the flow's quite nice, and people were prioritizing the space, and everyone was always really respectful.

WG 121 Mina

Hmm. I think it's been really like a sort of safe space, I guess, because I kind of know the other members as well and I've worked with them. So for me, it has been sort of collaborative and, you know, comfortable to share ideas that might be a bit out there, maybe, or creative.

!!! Personas (7)

WG 121 Mina

I think day-to-day it would save time, which is something that we need to do. And I guess trying to incorporate CBT in a more creative way, in a more kind of accessible way to

young people. I think with that client in particular, she really liked the way that the images turned out and, you know, making that and being really sort of collaborative and interactive between us doing a thing rather than just sort of talking.

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WG 121 Mina

Because we can't—like I was thinking about when we were doing a—we were trying to imagine—it was a care co, for example, and I had a particular care co in my head. Because that person, for me, was the first care co I met when I walked in the door. I thought—that's not a representative sample of all the care cos that exist in the world. Yeah, yeah.

Caution (2)

WG 121 Sophie

So I think perhaps that would be my reflection is that it feels like a lot.

WG 121 Mina

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What was lacking (1)

WG 121 Mina

I wondered if it would be a different shape if we had someone with lived experience in the room too.

One why stakeholders are crucial! (3)

WG 121 Mina

Yeah, it feels like we are part of the work. It feels like it's really sort of live and organic, and things are coming up. You don't know what sort of shape it's going to go, really, depending on what we all sort of find and think about things.

WG 121 Mina

I mean, it's been going on for some time, hasn't it? So, you know, people have been working on it, but I guess in this way, the workshops have been really sort of thoughtful and considered and strategic in how it could be used, rather than sort of rushing to get something out there.

WG 121 Mina

Yeah, I think so. I think so. Just 'cause I guess people are really vulnerable, aren't they? And I think trust as well. It was something that, for us as clinicians, for the service users, the idea of speaking to an AI bot or something—I mean, it didn't really work for me. I think if apps have sort of thought things through and done the groundwork and thought about what people actually want and need, then it should be more valuable. It should be more attentive to what people need.

Benefits of participation, Reflection of my approach (3)

WG 121 Mina

I guess that's really opened my eyes. I feel like I've been living in a bubble.

WG 121 Mina

Creativity aspect to AI, mostly. How to help someone think about certain ideas or adapting things to people's learning styles or creative interests.

WG 121 Mina

It has helped me think about if there's an easier way to do something. It has sort of sped some things up for me. I don't have to do as much reading. If I need to find something else quickly, either about a particular client group or culture or formulation model, like I do find myself always sort of searching every day for something, you know, work-related or even, you know, for my training as well in terms of sort of research, reviewing. Yeah.

Progression (4)

WG 121 Sophie

Like, personally, I really didn't know much about AI at all. And actually, it made me realize that perhaps I'm getting quite behind with technology. Like, it's interesting, isn't it? Because you sort of think that you're quite up to date, like you're quite tech-savvy, and then you think, oh, OK, actually this is maybe—I could, you know, you could easily get quite out of date with all these things.

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WG 121 Mina

So at first, I thought that there wasn't a value that I could bring, but I can see now what I was able to bring, which was the sort of clinical side of things—the experiences that I've had working with people. Even now, like I'm using AI—I think all of us are now more, which is telling in itself.

WG 121 Mina

it's quite overwhelming, like the scope of ideas and how it can be used. So, yeah, I think it has become sort of clearer along the way.

The value of knowing nothing (3)

WG 121 Mina

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WG 121 Mina

I guess a learning experience, 'cause I came to this process with like no knowledge of AI. And part of me coming along was to learn more and to see how it can be used clinically. I think all the way through, I've had sort of—it felt like really helpful work, and it's innovative and creative, and it feels meaningful that we're doing something important.

WG 121 Alice

I've really enjoyed it. I think I came into this with zero AI knowledge, or I don't think I knew what AI was. Or it's just, it was a word that was sort of thrown about, and I've never used it. So I suppose coming into something completely new—which initially I was like, I'm not sure if that's a good thing—because how am I supposed to kind of think of what an app might look like if I don't even know what AI really is or what it's used for?

What she got from the experiences (3)

WG 121 Mina

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WG 121 Alice

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Alice's doodle! (2)

WG 121 Mina

That was so good.

WG 121 Mina

Yeah. I mean, she captured everything, didn't she really. That we spoke about.

Reflecting on the image exercise On Alice's doodle – it's messy because it's messy
(1)

WG 121 Alice

Like I was like, she could make all, like, neat and nice. But then I thought, oh, but it takes it away.

Unique position of Principal Clinical Psychologist (3)

WG 121 Alice

So, you having both of those hats—using it yourself and supervising—gives you that unique insight into it.

WG 121 Alice

That is something that I don't think many will understand.

WG 121 Alice

And you know, you're not taking away somebody's own thinking, but you're supporting them to be able to reflect and think themselves ...

Lived experience (1)

WG 121 Mina

I wondered if it would be a different shape if we had someone with lived experience in the room too.

One why stakeholders are crucial! (1)

WG 121 Mina

Yeah, I think so. I think so. Just 'cause I guess people are really vulnerable, aren't they? And I think trust as well. It was something that, for us as clinicians, for the service users, the idea of speaking to an AI bot or something—I mean, it didn't really work for me. I

think if apps have sort of thought things through and done the groundwork and thought about what people actually want and need, then it should be more valuable. It should be more attentive to what people need.

Feedback on process (3)

WG 121 Mina

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WG 121 Alice

And I think there's something about keeping that training really refreshed and being able to have something that helps you remind you of things that you might have previously learned.

WG 121 Alice

So I think there is a quality improvement in actually having a much quicker way of doing some of these things. It will help in being able to bring those into sessions more because often I might go in and think, oh, I wish I'd done that, but I haven't had time.

Feedback on the process (5)

WG 121 Alice

And you know, you're not taking away somebody's own thinking, but you're supporting them to be able to reflect and think themselves, which.

WG 121 Alice

So, having something that can almost just help sort of prompt and remind you of things that you might have learned maybe 2-3 years ago will then, in turn, improve the quality of what you're doing.

WG 121 Alice

And I think there's something about keeping that training really refreshed and being able to have something that helps you remind you of things that you might have previously learned.

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WG 121 Alice

I think I struggle to narrow it down to CBTp because I look at this and I go, oh, but this would be great for like everything we do.

Differentiation from current use cases (1)

WG 121 Alice

So, that is different from how we might Google and use something; in there, that also makes it accessible as a joint space, doesn't it?

The benefit of this application (2)

WG 121 Alice

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WG 121 Alice

Then coming together, I think, is really, yeah, would be a really useful. Like, if you have all that together in one place, that's great.

Key features!!! (4)

WG 121 Mina

I think day-to-day it would save time, which is something that we need to do. And I guess trying to incorporate CBT in a more creative way, in a more kind of accessible way to young people. I think with that client in particular, she really liked the way that the images turned out and, you know, making that and being really sort of collaborative and interactive between us doing a thing rather than just sort of talking.

WG 121 Mina

Images or avatars. I think that they were the ones that I was thinking about, which I've actually just started to do with somebody. Because it more comes under the umbrella of relating therapy, but I've tried to make it more CBT by thinking about beliefs about herself and others, and how it would feel or how she would think about herself after relaying in the voices in a certain way.

WG 121 Mina

about bringing in an app sort of collaboratively with the client themselves and having a space to use together. But I think that's kind of in there already—and the visualizing and creating.

WG 121 Alice

that's not something that you would necessarily get from just a general search.

Balance and solution - find a reference for this approach (4)

WG 121 Sophie

So I think maybe that... I don't know if it's an 'aha!' moment, but it's more just, I think I've been holding my clients in mind when we've been talking about different things and thinking specifically about each client.

WG 121 Sophie

I think I've sometimes thought when it would really not work. As well as well as when it really would be supportive. So I think I've been holding people in mind as we've been talking and been thinking, how could this work and who with and when and.

WG 121 Alice

There's the bits on there that might feel a little bit more unique than some of the bits on there that might feel like things we can access already, I guess.

WG 121 Alice

Because if something's trying to do too much and actually it just doesn't work very well, and you actually don't really end up getting anything from it, then that's... But, you know, equally something can be incredibly useful if it does everything that it's supposed to be doing. But, yeah, maybe I suppose if they're always with these things, do you start smaller with something and then add to its capability over time?

Balance (1)

WG 121 Alice

I mean, at times I've wondered about that sort of where we've gone bigger than maybe I expected. Whether we're then sort of thinking of it as too much, and whether it would need to be more focused. Again, that's a bit hard to say without knowing. I don't know. I suppose that's where I've gone back into - well, maybe that is all of that is possible, and it's just about how it's organised or how it's done.

Unconscious process of art (1)

WG 121 Alice

Sorry, this is a complete distraction But when I'm looking at this picture what I've drawn as a safe. I keep looking at thinking It looks like a bomb, and That's made me think, you know, is there something about that like? Sort of dangerous side of it. Like this is something we don't really know about.

We don't know what we don't know! (1)

WG 121 Alice

So it may well be that actually, we're still kind of within basic limits of what AI could do. And actually, there's a much bigger scope that we don't even, you know.

Being generative (1)

WG 121 Alice

Yeah, I think you have. I think you have to in generating ideas, though, don't you? Because I think sometimes all of us might say something and be like, "Oh, I don't even know

how that would be possible," or we might think not, not even reach the possibilities of something because we're so not used to using AI.

What does this mean? (1)

WG 121 Alice

It's so difficult because I think you always naturally go back to that—you don't understand how this could all work, or like it's really difficult not to jump into that. And I have to sort of separate myself from, you know, I'm not an app developer. I don't—I'm never going to know the answer to that—to actually thinking of the practicalities of what it is that we would hope something could do or look like, rather than...

Personas - downside (4)

WG 121 Alice

Maybe it was that it didn't feel like it was kind of moving us forward into what we were doing?

WG 121 Alice

Like the people we chose, this probably would represent, like, a very small proportion of the people that we then see.

WG 121 Alice

'Oh, this is a persona,' but actually the people that we work with may be very, very different from those personas. And actually, because we work with such a range of people, equally, you know, the staff members. So, it was good thinking of it as almost the kind of stakeholders in something, or like, these are all the people; what might that person look like?

What might they get from it? Like, that I think was helpful. I think, yeah, then it maybe felt a bit like trying to be too narrow.

WG 121 Alice

And, but I think it goes back to that idea—maybe kind of mirroring that sense of it being difficult to put people into boxes and put therapy into boxes.

Didn't flow (1)

WG 121 Alice

There's something about it that felt like, yeah, exactly that. Like, I think up to that point, there was something about that one that felt like, yeah, it was almost like we were trying to go back and bring them in. It didn't feel as natural as when we sort of—so almost like at the start—thinking about them was helpful, but then it was hard to then. I don't know, I can't remember what it was, but there's something that didn't.

Clunky (1)

WG 121 Alice

There's something about it that felt like, yeah, exactly that. Like, I think up to that point, there was something about that one that felt like, yeah, it was almost like we were trying to go back and bring them in. It didn't feel as natural as when we sort of—so almost like at the start—thinking about them was helpful, but then it was hard to then. I don't know, I can't remember what it was, but there's something that didn't.

Needs work (1)

WG 121 Alice

I think at the start, when we started to look at the personas, I think I found it helpful because I was thinking, 'Oh yeah, this is good to think about, kind of who's bringing in.' But then I think later on, when we tried to go back to it, it felt like it lost something a bit. I can't remember the actual session and what it was about it, but it felt like it was getting a bit more difficult to go back to those. I don't know. I'm trying to remember which session it was or what we were trying to do.

Key moments (1)

WG 121 Alice

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Horizontalization - did I model this (1)

WG 121 Alice

'Cause I wondered when I joined it, and then I hadn't really realized, to begin with, who was joining. And then I suddenly thought, 'Oh, I don't want that to be a barrier for either Sophie or Mina to think, "Oh no, maybe I can't."' But, like I say, I think we've got quite good relationships anyway. And I do think that, yeah, I didn't think it would, but you never know where there's going to be a bit of an unconscious kind of barrier or...

Vulnerability!!! and the next part (11)

WG 121 Alice

So I don't know if there's something in that what you say about that kind of vulnerability - like part and, you know, could I suppose -

HAYDEN, Ismael (HERTFORDSHIRE PARTNERSHIP UNIVERSITY NHS FOUNDATION TRUST) 30:32 Yeah.

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WG 121 Alice

Other impact, I think, there's an excitement about it, and I noticed, like, I've definitely found that where I've gone, oh, like, you know, I've been saying before, look at this—like that can come out of this!

WG 121 Alice

And I think there's excitement around something kind of new and interesting. And for me, I find quite a kind of energizing.

WG 121 Alice

Then coming together, I think, is really, yeah, would be a really useful. Like, if you have all that together in one place, that's great.

WG 121 Alice

There's the bits on there that might feel a little bit more unique than some of the bits on there that might feel like things we can access already, I guess.

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WG 121 Alice

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Capacity building (1)

WG 121 Alice

Yeah, the clinicians like—we're, yeah, we've all sort of moved through the process together. And there is that kind of group, I guess, like you would in any therapy group or something. You go through those, you know, group processes together as well, don't you? And there's some kind of shared learning and shared experience, I think, which is really valuable.

Shared learning, shared emotions (1)

WG 121 Alice

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Personal benefit (6)

WG 121 Sophie

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WG 121 Sophie

And when I did my research for my doctorate, I remember being so amazed people took part. I remember, like, when I finished it, being like, I have to take part in research. So actually, part of me feels really good about, like, now taking part in research.

WG 121 Sophie

Like, personally, I really didn't know much about AI at all. And actually, it made me realize that perhaps I'm getting quite behind with technology. Like, it's interesting, isn't it? Because you sort of think that you're quite up to date, like you're quite tech-savvy, and then you think, oh, OK, actually this is maybe—I could, you know, you could easily get quite out of date with all these things.

WG 121 Mina

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WG 121 Alice

I think I came into this with zero AI knowledge, or I don't think I knew what AI was.

WG 121 Alice

Like I say, I've really enjoyed this experience, and there's been something quite nice about sort of sharing that with other people and in.

Plurality (1)

WG 121 Alice

We might all work with different people and notice different areas that one patient you might have been working with before could be really helpful, and then bring it back to the group.

Benefit of the group (4)

WG 121 Alice

Because it might often, I think, and sometimes we might have gotten— and I know I have to sometimes come in and, you know, it's been quite a busy day, and you're kind of coming into where we've all met. To begin with, I'm thinking, 'Gosh, I can't actually really remember anything from the last time or the last week.' And then once someone starts talking, you start going, 'Oh yeah, actually, it did happen to me,' or 'Oh, no, that reminds me of this person that I was thinking of using it with.' It really helps to, yeah, generate your own memory and ideas.

WG 121 Alice

So, I think a lot—we probably will have agreed on, and a lot is that I think we had a very similar approach to. That equally, you know, in the actual use of it, it might be that some of us would use certain things more than others

WG 121 Alice

But that whole idea of generating discussion is important in terms of having different ideas that bounce off each other and being able to go away and just kind of notice.

WG 121 Alice

I think that in itself has been helpful in that idea that we may have, you know, kind of different views or approaches to it and there might be something that I found that “oh gosh, that's not something I could use or would want to use”, yet somebody else might say, “actually that's something I would find Really helpful”.

Contextualising AI (1)

WG 121 Alice

before—so some—any use of other apps, not AI apps, but just general apps that I've used for therapies before, I've never found particularly useful. So like, either with the setup of them or, but I don't know. I've been working on the basic ones that I've used all the—yeah, I don't just—and I guess, yeah, I didn't really understand sort of how AI could be useful in that context.

Changing view (1)

WG 121 Alice

I think, I guess they probably influence my views into a more positive view of AI, 'cause I think previously, having not really had much understanding of it, it sort of felt like this

scary thing that could come in. And I don't know, although there are still parts of that. Actually, like seeing the benefits of it has been, yeah, I guess that's changed. In that I would see it now as something that could be an incredibly useful tool to have, whereas I think previously, I might have been like, 'I just don't know about how it could be useful in a therapy context.'

Socialisation! (2)

WG 121 Alice

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Ah ha! (1)

WG 121 Alice

Yeah, that was probably a bit of an 'aha!' moment. And then, you know, something that you sort of see. And when you recorded that session, didn't you, off YouTube, and then it did a summary and things like that? I was like, that was quite surprising.

Seeing it in action (1)

WG 121 Alice

Yeah, that was probably a bit of an 'aha!' moment. And then, you know, something that you sort of see. And when you recorded that session, didn't you, off YouTube, and then it did a summary and things like that? I was like, that was quite surprising.

Where it could work (1)

WG 121 Alice

But at the same time, some of the things around, you know, summarizing sessions and giving ideas of formulations and all of that kind of stuff, I thought, oh gosh, actually, that would be brilliant. If you can literally just pull that stuff together and, you know, if it can—the idea of that sort of pooling together themes that—

I should just do it myself (1)

WG 121 Alice

But that was a moment where it did make me really kind of question how some of this feels great. And actually, I'd then almost go back to having to rewrite what it wrote so that it felt like I had put enough into it. At which case, I'd be like, well, I might as well just write it in the first place.

Trialing (1)

WG 121 Alice

I think, like I just said, that one around when I did a trial: 'How could you - could you draft an ending letter for a patient who'd been in hospital and just gone back to college?' I put like three or four bullet points in there, and then it produced this whole letter. I was like, 'Goodness!' But I suppose the moment for me there was - I just couldn't use this.

Opening up the way I work, ethics (1)

WG 121 Alice

So yeah, it's opened up the way I work, I would say.

Streamlining (1)

WG 121 Alice

I might have previously spent quite a while on Google Scholar or something trying to find something that kind of quick access to, 'Oh, is there any research around this?' or 'Is there any light research around this particular topic?' So, it's developed my knowledge in areas that I've, you know, been trying to look into a bit more and felt that I haven't had as much time to kind of sit and read through the things I want to.

Practice (1)

WG 121 Alice

So I think it's—I don't know that it's changed my way of thinking about my job, but it's definitely introduced new ways of working that I might have previously thought and access things very quickly.

Use cases (3)

WG 121 Alice

So, that is different from how we might Google and use something; in there, that also makes it accessible as a joint space, doesn't it?

WG 121 Alice

Well, just that something can, yeah, listen to something and create a summary. It's that idea of being able to very quickly think of themes or formulations or suggestions.

WG 121 Alice

Or, 'How can I...' and I've sometimes just asked that question to, like, ChatGPT or something? And I thought, 'Oh, actually,' and then I've adapted what I suggested back again to something that I might use. But that's something I would never have had access to before or thought of using before.

Changing practice as a result (1)

WG 121 Alice

I do think it's changed how I approach some things or do some things, as in, like, now I guess a couple of those examples—like where I sent you that psychoed sheet for anxiety about dinosaurs—and things that it's helped me kind of think.

Scared of AI (1)

WG 121 Alice

There's that kind of fearful part of what it can do as well and. Yeah. So I suppose it's adjusting to those kind of things as well.

Cautionary tales (2)

WG 121 Alice

There's that kind of fearful part of what it can do as well and. Yeah. So I suppose it's adjusting to those kind of things as well.

WG 121 Alice

I think some of the other bit I suppose I've learned, but I don't know if that's necessarily relevant to this question. But, like, it's brought up things that I didn't expect in terms of, you know, with some of the kind of more personal reflections where I thought there's something that doesn't sit right with using AI for certain things.

Expectations (1)

WG 121 Alice

I think some of the other bit I suppose I've learned, but I don't know if that's necessarily relevant to this question. But, like, it's brought up things that I didn't expect in terms of, you know, with some of the kind of more personal reflections where I thought there's something that doesn't sit right with using AI for certain things.

Ethics (4)

WG 121 Alice

Sorry, this is a complete distraction But when I'm looking at this picture what I've drawn as a safe. I keep looking at thinking It looks like a bomb, and That's made me think, you know, is there something about that like? Sort of dangerous side of it. Like this is something we don't really know about.

WG 121 Alice

It just brought up so much around guilt and effort, and like, this feels too, I don't know, not real—maybe false.

WG 121 Alice

I think, like I just said, that one around when I did a trial: 'How could you - could you draft an ending letter for a patient who'd been in hospital and just gone back to college?' I put like three or four bullet points in there, and then it produced this whole letter. I was like, 'Goodness!' But I suppose the moment for me there was - I just couldn't use this.

WG 121 Alice

I think some of the other bit I suppose I've learned, but I don't know if that's necessarily relevant to this question. But, like, it's brought up things that I didn't expect in terms of, you know, with some of the kind of more personal reflections where I thought there's something that doesn't sit right with using AI for certain things.

Immersion (1)**WG 121 Alice**

Because, you know, every time you try something, you suddenly go, 'Oh my goodness! How did it do that?' So, I think there's so much more. So I feel like I've learned,

but I still feel like I wouldn't—I can't say I feel particularly confident in being able to talk about what AI does or what it, you know.

Work to be done! (1)

WG 121 Alice

But I feel like I'm kind of still learning a lot about it, and I still don't feel like— I mean, I don't know if anybody does feel this—I still don't feel like I kind of fully have even thought. I think it feels a bit like I've only just touched the surface with it, to be honest, and I imagine there's a lot more scope and capability and things that AI can do that I wouldn't have even considered or thought of.

Developing knowledge (1)

WG 121 Alice

Well, it's definitely developed—it's grown from nothing.

No expectations (1)

WG 121 Alice

Well, as I said, I didn't really have any understanding of it before, other than people having mentioned it and trainees might have spoken a bit about using it for things. But yeah, other than that, I've never used it

Value of domain expertise (1)

WG 121 Alice

Yeah, yeah. I think the strong - I feel like a lot of that will have been driven by the discussions that we've had and probably what we all bring as how we think as clinicians, and you know if we're with a person, I think that would probably be reflect -

Value of immersion (1)

WG 121 Alice

So, part of the process will have introduced that wide thinking as well, I think. And then the AI bits—that's probably more about sort of how— I guess kind of understanding that, well, I don't know—the different things that AI can do then brings into that, doesn't it? Because then you start going, “Actually, if it can do that, it could do this, or it could do...”

The natural inclination of participants (1)

WG 121 Alice

order if it's a bit of a combination, really, 'cause I think we naturally think in our work, and the group of us who've come together— I know we're all people who do think very systemically in our work. I think we probably naturally have those conversations and bring those. But then, part of, I guess from the beginning, thinking about the personas almost introduced that in itself as well.

Reflexive practice (1)

WG 121 Alice

It's not just about that individual being able to go away and do their homework on an app. It's also about how a therapist might be using it and how they might develop their own

kind of skills with it. And I suppose my expectation might have been more that it's for somebody to kind of go away and practice stuff.

Expectation of research (1)

WG 121 Alice

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Approach (1)

WG 121 Alice

It's felt more like, yeah, the kind of whole systemic approach of, like, how might a parent, how might a care-co, how might—like, that idea of who else—

Systemic approach (1)

WG 121 Alice

It's felt more like, yeah, the kind of whole systemic approach of, like, how might a parent, how might a care-co, how might—like, that idea of who else—

Looking at systems - ANT (1)

WG 121 Alice

And the more kind of systemic issues around it, so not just this is the kind of individualized CBT that translated from a manual into an electronic kind of app format, plus a bit of AI.

Moving beyond the particular intervention (1)

WG 121 Alice

I suppose in my mind, I might have thought it would just be very much aligned purely to what a CBT manualized approach might look like and how you translate that into an app.

Growing expectations. moving beyond expectations (2)

WG 121 Alice

And the more kind of systemic issues around it, so not just this is the kind of individualized CBT that translated from a manual into an electronic kind of app format, plus a bit of AI.

WG 121 Alice

I think I've got more from it than I expected, so I think, yeah, over time as it's fleshed out and as we've sort of done different bits and brought different things together, I think, I guess my expectations have changed. I don't know if they changed because it's still got the same overall focus, but I guess it's maybe more in-depth than I expected it to be.

Expectations setting (2)

WG 121 Alice

I suppose in my mind, I might have thought it would just be very much aligned purely to what a CBT manualized approach might look like and how you translate that into an app.

WG 121 Alice

So that, in itself, it's felt very much what I expected.

Benefits of multiple sessions (1)

WG 121 Alice

I think if you just had like a one-off session, then I think it would have been lost a bit, because I think it might have been an interesting discussion, but then it just sort of would have gone out of my mind again.

Time to think - ah ha moments (1)

WG 121 Alice

You'd have times where it might disappear and then sort of pop into your head again.

Action learning or action research? (1)

WG 121 Alice

But I think, yeah, that combination of presenting things and then being able to just have quite open forums, and being able to then go away in the week, come back, and think about things that we've noticed.

Openness (1)

WG 121 Alice

So it's been it's been quite guided in a lot of ways, hasn't it? Say which I think helped, particularly at the start of coming in, being like not really sure what this is or what what I signed to do here - I just thought sounded interesting.

Why I got involved (1)

WG 121 Alice

So it's been it's been quite guided in a lot of ways, hasn't it? Say which I think helped, particularly at the start of coming in, being like not really sure what this is or what what I signed to do here - I just thought sounded interesting.

Values of modalities (1)

WG 121 Alice

eah, I think the kind of mixed format of things where you presented things and given us things to think about has been useful as well.

Benefits of working together (1)

WG 121 Alice

And equally, the process, I think, of us doing it as a team, it's felt like a really nice process.

Value of novelty and learning. something new (1)

WG 121 Alice

Like, it's been really refreshing to do something very related to my work, but also it's all very kind of new learning to me.

Unsure of engagement due to lack of knowledge (1)

WG 121 Alice

So I suppose coming into something completely new—which initially I was like, I'm not sure if that's a good thing—because how am I supposed to kind of think of what an app might look like if I don't even know what AI really is or what it's used for?

Knowledge base (1)

WG 121 Alice

I think I came into this with zero AI knowledge, or I don't think I knew what AI was.

Recapping (1)

WG 121 Alice

So that's a bit of a recap.

Doing as trying and proving (1)

WG Session 4

Do you know what I mean when you use some of these in examples, it sort of brings in some of the ways that you might use AI because that's a bit that's hard to generate sometimes they're thinking about how you might do this stuff yourself so.

Vaule of working examples (1)

WG Session 4

Do you know what I mean when you use some of these in examples, it sort of brings in some of the ways that you might use AI because that's a bit that's hard to generate sometimes they're thinking about how you might do this stuff yourself so.

Trying things on the go (1)

WG Session 4

Will we ask just for fun ChatGPT what it thinks of our guidelines.

Doing in the moment (1)

WG Session 4

Will we ask just for fun ChatGPT what it thinks of our guidelines.

Bringing in AI (1)

WG Session 4

Will we ask just for fun ChatGPT what it thinks of our guidelines.

Providing avenues for feedback (1)

WG Session 4

Similar to the document that we had before and then. After the next week, we can kind of decide on them. In that document, I will put best picture of the app. I'll put the app in kind of dry functions. And then I put the design guidelines underneath. So we'll have it all in one document and we can kind of. If you have any other thoughts, you can suggest other guidelines and we can refine the the wording of these tools.

contextual understanding (1)

WG Session 4

Yeah, I guess understand in some way the, the people who would be using the app, yeah.

Being able to be open based on shared experiences (1)

WG Session 4

.Would we be able to say, oh, this is how I reacted and it brought up this dilemma for me, but with someone who's someone from a different professional background have that same reaction in trying out these - these different uses of AI

familiarity in the group is a good thing (1)

WG Session 4

enny I supervise now, and Mina, I've had sort of bits of supervisory - that we worked on the same team for a long time. Guess we all kind of know each other in some way - and our approach is in some way. So I don't know if they're permitted. Yeah. There's partly about the familiarity of each other as well. Maybe I don't know.

Power difference in the group (2)

WG Session 4

That's quite. I wouldn't have known that by the way, this group has discussed. That wouldn't be clear to me. This group feels a lot freer than a group that has had that power difference within it.

WG Session 4

So Katerina might know this - Alice is supervisor to both Mina and Sophie, or at least has been at one time or another.

Connect this to my being open from the very beginning saying I'm not gonna start with a lie (1)

WG Session 4

Something maybe about, I guess at the start of the group - I don't know in terms of, but there's something about feeling able to be quite transparent

Safety in the group (3)

WG Session 4

you've held the space really well and I appreciate all of that.

WG Session 4

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WG Session 4

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domain understanding (1)

WG Session 4

Guess I'm wondering if it would be helpful for them to have an understanding of psychosis.

Guidelines (38)

WG 121 Alice

I think at the start, when we started to look at the personas, I think I found it helpful because I was thinking, 'Oh yeah, this is good to think about, kind of who's bringing in.' But then I think later on, when we tried to go back to it, it felt like it lost something a bit. I can't remember the actual session and what it was about it, but it felt like it was getting a bit more difficult to go back to those. I don't know. I'm trying to remember which session it was or what we were trying to do.

WG 121 Alice

Because it might often, I think, and sometimes we might have gotten— and I know I have to sometimes come in and, you know, it's been quite a busy day, and you're kind of coming into where we've all met. To begin with, I'm thinking, 'Gosh, I can't actually really remember anything from the last time or the last week.' And then once someone starts talking, you start going, 'Oh yeah, actually, it did happen to me,' or 'Oh, no, that reminds me

of this person that I was thinking of using it with.' It really helps to, yeah, generate your own memory and ideas.

WG 121 Alice

Yeah, yeah. I think the strong - I feel like a lot of that will have been driven by the discussions that we've had and probably what we all bring as how we think as clinicians, and you know if we're with a person, I think that would probably be reflect -

WG 121 Alice

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WG 121 Alice

So, part of the process will have introduced that wide thinking as well, I think. And then the AI bits—that's probably more about sort of how— I guess kind of understanding that, well, I don't know—the different things that AI can do then brings into that, doesn't it? Because then you start going, "Actually, if it can do that, it could do this, or it could do..."

WG 121 Alice

So it's been it's been quite guided in a lot of ways, hasn't it? Say which I think helped, particularly at the start of coming in, being like not really sure what this is or what what I signed to do here - I just thought sounded interesting.

WG 121 Alice

You'd have times where it might disappear and then sort of pop into your head again.

WG 121 Alice

But I think, yeah, that combination of presenting things and then being able to just have quite open forums, and being able to then go away in the week, come back, and think about things that we've noticed.

WG 121 Alice

I think if you just had like a one-off session, then I think it would have been lost a bit, because I think it might have been an interesting discussion, but then it just sort of would have gone out of my mind again.

WG Session 4

Yeah, I guess understand in some way the, the people who would be using the app, yeah.

WG Session 4

Take steps to ensure group cohesion, scaffolding has been an important -.

WG Session 4

So pay attention to the makeup of your group and how this may be impacting how the group is engaging with each other.

WG Session 4

Something maybe about, I guess at the start of the group -I don't know in terms of, but there's something about feeling able to be quite transparent

WG Session 4

And I guess it's a bit like any kind of group rules really in establishing that sort of thing that you can feel kind of comfortable in sharing things within the group and that being OK and it's, you know, you might make mistakes with some of this stuff and like in exploring it and being OK with sharing things with each other.

WG Session 4

Iterative feedback loops.

WG Session 4

t says ethical considerations. So we're saying that this would be a guideline.

WG Session 4

Guess I'm wondering if it would be helpful for them to have an understanding of psychosis.

WG Session 4

I was just gonna say it's sort of, I guess makes it feel like it would be more generalisable or more relevant by sort of thinking about individual differences and maybe different - you know, valuing different perspectives or difficulties that might come up

WG Session 4

Of diverse enough group to get rich.

WG Session 4

Rich information, but also kind of to empower people to also share and participate. But then also acknowledging where people are at in terms of their knowledge base and not it not feeling too exposing, but I don't. But I don't think I made that sound guideline-y at all.

WG Session 4

I guess in terms of participation in the process and safety.

WG Session 4

groups could be targeted at whoever the end user would be

WG Session 4

So in some ways it's, you know, may it be that for like different groups for like say a service user group - like what could be helpful from a service user perspective and then a therapists group for what would be helpful from therapists perspective?

WG Session 4

That is something that you know you can see being relevant and helpful, a bit like what- What we said earlier about you kind of feeling exciting?

WG Session 4

It's been a positive one in the sense that it's - I think it's that space to think about something new that applies to your job.

WG Session 4

So I thought it was helpful and a different way of thinking about things and it does take you to that extreme view.

WG Session 4

Just as a kind of different because the examples they might have given might be very different with more experience of using it.

WG Session 4

I don't know what kind of driven by us in terms of what - think without being influenced by too much - and I think that's been very important.

WG Session 4

don't know if it's not necessarily come to terms with it. I think it's it's felt confusing maybe I feel like I've definitely got a much better understanding of what AI is, but it's probably just been difficult where the only apps I've ever seen.

WG Session 4

So I think being able to distinguish between maybe either what we're doing or - because I suppose the Joan is Awful stuff that felt very more AI than - do you see what I mean?

WG Session 4

I think the thing that's been a challenge throughout is the difference between an app and AI and how they kind of are brought together

WG Session 4

But like there's a balance I think of having space to see what naturally - you know people think but some very relevant prompts and information given when needed depending on the group, maybe.

WG Session 4

process acknowledging that and sort of changing and responding at different times - because I think at - on different sessions, you said, oh, we could do this or we could do that.

WG Session 4

And like I wondered whether like how different it might have been if we had somebody in the room that was quite knowledgeable on AI and had real kind of concrete views about things.

WG Session 4

we've all done this together throughout is really important and I think because it made me just think then as you were talking what it might have been like if you'd had it as more of an open space.

WG Session 4

closed group with the same people throughout has felt really helpful and I don't know what how that would have worked in the same format, having different people joining

WG Session 4

here were some examples like of - it sort of felt like a very.. well not structured, but it's had a process, hasn't it from the start

WG Session 4

I think being really inclusive of difference. And age ranges and different ethnic backgrounds and like use of technology. Like. So being really considerate and providing a space where people may be at all different sort of levels and positions and let alone AI but IT

power over and or support (1)

WG Session 4

I think because we all kind of knew each other, that made it a safer supportive space.

The positive side of knowing each other (1)

WG Session 4

I think because we all kind of knew each other, that made it a safer supportive space.

Not knowing where it's going (1)

WG Session 4

Those invitations to do different things, or to think about different things, not really knowing where the group's going to end up.

Worth our while (1)

WG Session 4

It's been a positive one in the sense that it's - I think it's that space to think about something new that applies to your job.

Thinking about something new but useful (2)

WG Session 4

That is something that you know you can see being relevant and helpful, a bit like what- What we said earlier about you kind of feeling exciting?

WG Session 4

It's been a positive one in the sense that it's - I think it's that space to think about something new that applies to your job.

Helpful to see extreme view sci-fi (1)

WG Session 4

So I thought it was helpful and a different way of thinking about things and it does take you to that extreme view.

Not wanting to be influenced (1)

WG Session 4

And so I don't, I guess I don't want to be influenced by.

Learning by doing (2)

WG 121 Sophie

But I think it's just being, you know, aware that these things exist and that you can use them, and they can have real benefit. And it's pretty amazing, isn't it? Like particularly the creating of images. You know, I've downloaded that since I've done the focus groups, and I've been using that ChatGPT—not for actually necessary CBT stuff. Like I was doing a pottery thing and I said, 'Oh, you know, design what this would look like.' And I gave it some things, and it came out with something... and things like that, you know, using it just for other sorts of things. It's been really amazing.

WG Session 4

We it's been quite good to go away and try things and come back and sort of discuss that together.

Mapping the landscape (1)

WG Session 4

I think different apps out there and different possible features that AI could do, and I think you went through different apps and I thought that was useful if that's what you mean by.

Learning what AI can do (1)

WG Session 4

I think different apps out there and different possible features that AI could do, and I think you went through different apps and I thought that was useful if that's what you mean by.

Balancing the form of the group (1)

WG Session 4

Just as a kind of different because the examples they might have given might be very different with more experience of using it.

Giving them the space to decide (1)

WG Session 4

I don't know what kind of driven by us in terms of what - think without being influenced by too much - and I think that's been very important.

The challenge throughout (1)

WG Session 4

I think the thing that's been a challenge throughout is the difference between an app and AI and how they kind of are brought together

Sci-fi prototyping (1)

WG Session 4

and I think that's where some of the ethical stuff comes up as well

Being real about my hopes (1)

WG Session 4

And it feels like you have to be genuine - there's been times where I've been disappointed a little bit with where the group's gone because it wasn't in my fantasy that I had in the beginning.

Balancing bias (1)

WG Session 4

But like there's a balance I think of having space to see what naturally - you know people think but some very relevant prompts and information given when needed depending on the group, maybe.

The learning journey (7)

WG 121 Sophie

And it's been helpful to have kind of—you've given us some information. So then to sort of have a framework for that discussion that follows, I think that's been really useful.

WG 121 Sophie

I think it's, I would say probably it's been more of a gradual learning process, as opposed to kind of 'aha!' moments.

WG 121 Sophie

I perhaps didn't think it would be such sort of specifics—like maybe about what would this really look like. I don't know. I can't remember really what I thought, but it's interesting to really think about specifics, and maybe that's where it's tricky to sort of think about, is that doable.

WG 121 Alice

And even that first session, being able to just go through different uses and different things and trying them out, I guess it's sort of introduced me to a lot of new things that I wouldn't have previously been introduced to.

WG Session 4

don't know if it's not necessarily come to terms with it. I think it's it's felt confusing maybe I feel like I've definitely got a much better understanding of what AI is, but it's probably just been difficult where the only apps I've ever seen.

WG Session 4

at times it can feel confusing

WG Session 4

meeting people where they're at in terms of AI and like being able to give information. And sort of have relevant prompts

Freedom (1)

WG Session 4

Or actually, why don't you go off and do this and then. So, I thought that was really useful.

Research follows the participants not the participants following the research (1)

WG Session 4

process acknowledging that and sort of changing and responding at different times - because I think at - on different sessions, you said, oh, we could do this or we could do that.

Group cohesion (1)

WG Session 4

we've all done this together throughout is really important and I think because it made me just think then as you were talking what it might have been like if you'd had it as more of an open space.

Learning together (1)

WG Session 4

And like I wondered whether like how different it might have been if we had somebody in the room that was quite knowledgeable on AI and had real kind of concrete views about things.

They did feel free to think and explore (1)

WG Session 4

And you know - how that would have shaped the findings?

Considering the group (1)

WG Session 4

Yeah, I think the space has been really responsive as well to like different learning needs and where we're all kind of at in terms of our knowledge base.

Different learning needs (1)

WG Session 4

Yeah, I think the space has been really responsive as well to like different learning needs and where we're all kind of at in terms of our knowledge base.

Responsive space (2)

WG Session 4

process acknowledging that and sort of changing and responding at different times - because I think at - on different sessions, you said, oh, we could do this or we could do that.

WG Session 4

Yeah, I think the space has been really responsive as well to like different learning needs and where we're all kind of at in terms of our knowledge base.

Structured but not structured (1)

WG Session 4

here were some examples like of - it sort of felt like a very.. well not structured, but it's had a process, hasn't it from the start

Reflecting on the process (1)

WG Session 4

I don't know if you'd call it scaffolding, but the idea that like at the start you'd you know, there was more of an outline

Big moment!!! (1)

WG Session 4

It seemed very clear when, when I, when I spoke with both Mina and Alice, that we wait for Sophie before we we end this process that we've been on because it feels like a psychologically minded process that we did that - we know endings are important and we know that endings for groups and individuals are important.

Ethics and benefits of participation (1)

WG Session 4

Yeah, I think you know, quite often things are designed without the person who might be using it in mind, and I think that feels to me very important that from the start that the people who will be using it to be involved.

Deciding to flesh out the app (1)

WG Session 4

And I was just going to say, I think that would be really helpful. I think it a little bit like Sophie said at the start. Sometimes when you have more of a kind of example of something, it's, yeah, really. And then it might help kind of highlight the bits that might feel that they're I don't know too big or don't really go well together or I don't know. You don't really know till you look at these things, do you? But yeah, I think that'd be really helpful.

Thinking aloud (1)

WG Session 4

So we might like it, but we made it so it's important to get it checked to see if it to see if it's worth - that makes sense? Katerina, do you want to come in on that is am I? Am I making sense - what I'm saying there?

Good piece of dialogue (1)

WG Session 4

No, I think it's a good. It's a good enough start, isn't it?

Ownership (2)

WG Session 4

Or actually, why don't you go off and do this and then. So, I thought that was really useful.

WG Session 4

No, I think it's a good. It's a good enough start, isn't it?

Checking in (1)

WG Session 4

We feel like it's still, it's too big?

Using their words and concerns (1)

WG Session 4

We feel like it's still, it's too big?

Sense checking (2)

WG Session 4

It seemed very clear when, when I, when I spoke with both Mina and Alice, that we wait for Sophie before we we end this process that we've been on because it feels like a psychologically minded process that we did that - we know endings are important and we know that endings for groups and individuals are important.

WG Session 4

We feel like it's still, it's too big?

Scale of the job (1)

WG Session 4

Yeah, that's feels overwhelming.

Pride in the work together (1)

WG Session 4

I definitely feel proud of what we've.

Power of examples and demonstration (1)

WG Session 4

So I think almost like being able to sort of see both those sides a bit more like with those kind of examples, I guess that we've talked about how that might look.

Making it real (1)

WG Session 4

Yeah, absolutely. I think before it was, yeah, I think before maybe it was a bit more abstract to me or a bit more vague like I wasn't.

Putting knowledge into practice (2)

WG 121 Sophie

But I think it's just being, you know, aware that these things exist and that you can use them, and they can have real benefit. And it's pretty amazing, isn't it? Like particularly the creating of images. You know, I've downloaded that since I've done the focus groups, and I've been using that ChatGPT—not for actually necessary CBT stuff. Like I was doing a pottery thing and I said, 'Oh, you know, design what this would look like.' And I gave it some things, and it came out with something... and things like that, you know, using it just for other sorts of things. It's been really amazing.

WG Session 4

I think that's kind of the biggest take away is that this kind of knowledge is something that could be used.

Learning as we go (2)

WG Session 4

having more of an understanding

WG Session 4

The examples like the dinosaur example and the images and the being able to look at apps.

Creative options (1)

WG Session 4

So I guess I've taken away the sort of creative creative options I guess.

It's all so new (1)

WG Session 4

very new for me like AI and not really know much about it.

The novelty of AI (1)

WG Session 4

very new for me like AI and not really know much about it.

The sheer scale of AI (3)

WG Session 4

Yeah, that's feels overwhelming.

WG Session 4

it is so big and it does still feel massive to me as well, there's elements of it that's out of control. You want to bring this thing in to therapy, but then there's something else to hold in mind, the impact and our relationship with the technology.

WG Session 4

But I guess also the scope of what AI could possibly be able to do.

What was I thinking? (1)

WG Session 4

It feels like there's something quite unique happening here.

Something unique (1)

WG Session 4

It feels like there's something quite unique happening here.

Thinking aloud (1)

WG Session 4

In similar settings and managed settings I had the idea of or the intention to, so like give examples of design guidelines.

Explaining my reasoning (1)

WG Session 4

In similar settings and managed settings I had the idea of or the intention to, so like give examples of design guidelines.

owning the process (3)

WG Session 4

No, I think it's a good. It's a good enough start, isn't it?

WG Session 4

I definitely feel proud of what we've.

WG Session 3

It wasn't a question I was going to say. I've been, like, scribbling on a piece of paper or doodling. You might call it while we've been talking. So I might share it with you, but it's.

iteration (1)

WG Session 3

third iteration

Coming up with ideas on the fly (1)

WG Session 3

So I have your permission to put this third iteration of this transcript through like Gemini and ChatGPT to ask it to kind of focus in on this app even more?

Novelty (1)

WG Session 3

So I have your permission to put this third iteration of this transcript through like Gemini and ChatGPT to ask it to kind of focus in on this app even more?

learning from eachother (2)

WG Session 4

The examples like the dinosaur example and the images and the being able to look at apps.

WG Session 3

I probably would have said that it wouldn't necessarily be, but I think some of the thoughts we've had about that neutral side, I think that was more, yeah, would be more helpful.

idea sharing (1)

WG Session 3

I probably would have said that it wouldn't necessarily be, but I think some of the thoughts we've had about that neutral side, I think that was more, yeah, would be more helpful.

Changing views in conversation (1)

WG Session 3

I probably would have said that it wouldn't necessarily be, but I think some of the thoughts we've had about that neutral side, I think that was more, yeah, would be more helpful.

supervision (3)

WG Session 3

I probably would have said that it wouldn't necessarily be, but I think some of the thoughts we've had about that neutral side, I think that was more, yeah, would be more helpful.

WG Session 3

Feedback, reflective space - this kind of like, I guess it brings you into the work as opposed to kind of taking these tools, you can find this, you can do that, and do you want to be analyzing me as well?

WG Session 3

I think it could be helpful. I think it could be really helpful, yeah.

reflective space (3)

WG Session 3

I probably would have said that it wouldn't necessarily be, but I think some of the thoughts we've had about that neutral side, I think that was more, yeah, would be more helpful.

WG Session 3

Feedback, reflective space - this kind of like, I guess it brings you into the work as opposed to kind of taking these tools, you can find this, you can do that, and do you want to be analyzing me as well?

WG Session 3

I think it could be helpful. I think it could be really helpful, yeah.

Mood tracking (1)

WG Session 3

Obviously it's an important feature, but.

Confidentiality (1)

WG Session 3

But again, it's something that would then need something around it because we have to be careful in terms of confidentiality and things then being filtered through the team that you might not necessarily want to yet or done in a sensitive way.

Activity adaptations (1)

WG Session 3

I used to put EMDR. Even just asking, "Oh, can this particular tool be used? What did I do?" And oh yeah, there's a tool in EMDR called a future template. I asked, "Can the future template be used but with drawings instead of pen and paper?" and then it talked me through how you would do this whole thing with drawings instead of pen and paper. So I think that's really helpful.

Giving form to the voices (2)

WG Session 3

Yeah, I I think that would be helpful.

WG Session 3

Self or giving visual giving form to the voices and stuff like that.

Bringing life to text and ideas (1)

WG Session 3

39Yes, they were talking about more the avatar of the voice, like you would make an avatar of the voice, I think.

Virtual therapeutic space (3)

WG Session 3

Yeah, sure.

WG Session 3

a virtual therapy space where different things may be embodied, whether it's you creating an avatar of your perfect self or your...

WG Session 3

I would say yes.

Prompts and reminders (2)

WG Session 3

That's again a tricky one because I suppose does it feel it does feel essential?

WG Session 3

I think it's one of those things that would depend on what you're doing and the person, and whether that could almost feel to be prompted.

Streamlining and cost effectiveness (1)

WG Session 3

And then there was a lot about streamlining as well as you know, streamlining, summarising the work and having access to specific parts of it for different reasons.

Enhance clinician skills (1)

WG Session 3

I'd almost it like to enhance our skills and enhance the therapy by having access to those various or specific experiences.

A bag of tools. (1)

WG Session 3

But I guess aid or like a big bag of tools.

AID psychoeducation (3)

WG Session 3

Yeah, same.

WG Session 3

That's central.

WG Session 3

I don't know; it's quite hard to— but like we've talked about it having the psychoeducation or the videos or, I don't know, it being able to aid in some way, it being able

to make things feel either easier or quicker or more creative, or I don't know exactly what, but.

Qualities of App (6)

WG Session 3

got to be engaging as well, because I think something that feels a bit too plain and dull wouldn't be used so much.

WG Session 3

in terms of that, like needing to hold so much information and be able to find so much information, because I guess we're expecting to do a lot of the thinking that we can't do, and then— but equally be very creative with it.

WG Session 3

Very big and colorful brain.

WG Session 3

Some terms of like Consent and Informed consent.

WG Session 3

Flexibility. We've spoken a few times about it being personalized and, yeah, person-centered, I guess. So flexibility within it. Transparent, maybe, as well is coming to mind.

WG Session 3

I guess I'm thinking empathy; the ability to think from different perspectives, positions.

! (1)

WG Session 3

Sounds good.I like creative things.

Sounds good, I like creative things. (1)

WG Session 3

Sounds good.I like creative things.

Using visualisation as a creative tool. (1)

WG Session 3

One was thinking a way of envisaging this will be to kind of create—like to try to humanize this thing as a person.

AI is a teacher. (1)

WG Session 3

That would be so helpful as a teaching tool as well Because thinking if you're supervising someone and you want to demonstrate, you know, give an example of a certain skill.

Session recorder (1)

WG Session 3

So if I can sort of ask the AI to find me doing this, that would have been great.

Fidelity to the model. (1)

WG Session 3

eah. Although I do think CBTp is more flexible than CBT, they're still obviously looking for, in terms of the course, for you to show particular skills. I mean, maybe AI will mark all our audios in the future, but yeah.

Building CBT competencies (1)

WG Session 3

So, I guess it would be interesting to know—well, think about if there was a way of getting feedback. I guess on sessions and if it would give you pointers of, I don't know, your agenda setting needs improvement, or I don't know, whatever CBT type thing it might be able to feedback on from a kind of more practical, I guess, kind of CBT competencies, I guess, and recordings.

Quality control (1)

WG Session 3

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Use cases for (2)

WG Session 4

So that bit was really helpful for the ethical bit of it was, he said to his care coordinator “I’ve kept it and I’m, you know, Alice obviously went to a lot of effort to adapt that for me for” and I was like, oh gosh, that’s where it made me feel so guilty.

WG Session 3

I literally just said, “Can you design a CBT behavioral experiment for somebody who’s anxious about...?”

Doing their own research. (1)

WG Session 3

I literally just said, “Can you design a CBT behavioral experiment for somebody who’s anxious about...?”

Potential of AI (2)

WG 121 Alice

Because, you know, every time you try something, you suddenly go, ‘Oh my goodness! How did it do that?’ So, I think there’s so much more. So I feel like I’ve learned, but I still feel like I wouldn’t—I can’t say I feel particularly confident in being able to talk about what AI does or what it, you know.

WG Session 3

I don’t think ChatGPT or these AI apps will be impacted in the same way. We will develop a way of exploring that, but by countertransference and things like projective identification, where it’s like, I feel really stuck with this client, and they want me to feel stuck

because every time I say something, they just do this thing. Whereas this AI thinks, no: here's a load of ideas because there are loads of them.

Virtual realities (2)

WG Session 3

I think we already kind of said about sort of simulating things and yeah.

Creating simulations with the AI (1)

WG Session 3

I think we already kind of said about sort of simulating things and yeah.

AI is a research assistant and assistant psychologist. (1)

WG Session 3

So I used ChatGPT then to look at, like, what are the safety stats for the Channel Tunnel and things like that.

Unintended consequences (1)

WG Session 3

But yeah, sometimes we have had some people who communicate by text or app, so if something like that could be incorporated into it, I think that would be good if we do have people who are mute.

Unintended benefits (1)

WG Session 3

But yeah, sometimes we have had some people who communicate by text or app, so if something like that could be incorporated into it, I think that would be good if we do have people who are mute.

App functions. (22)

WG 121 Sophie

It feels like almost you could have one app and then all these different things would be almost like add-ons because there's so much.

WG Session 4

different uses in the therapy room or in supervision or in just your own sort of reflective practice or - you know, sort of preparing for sessions and things. Just in multiple kind of uses of it, I think.

WG Session 3

And just developing therapist practice more broadly as well.

WG Session 3

Feedback, reflective space - this kind of like, I guess it brings you into the work as opposed to kind of taking these tools, you can find this, you can do that, and do you want to be analyzing me as well?

WG Session 3

I think it could be helpful. I think it could be really helpful, yeah.

WG Session 3

Obviously it's an important feature, but.

WG Session 3

That's again a tricky one because I suppose does it feel it does feel essential?

WG Session 3

But again, it's something that would then need something around it because we have to be careful in terms of confidentiality and things then being filtered through the team that you might not necessarily want to yet or done in a sensitive way.

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WG Session 3

Yeah, I I think that would be helpful.

WG Session 3

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WG Session 3

Yeah, sure.

WG Session 3

a virtual therapy space where different things may be embodied, whether it's you creating an avatar of your perfect self or your...

WG Session 3

39Yes, they were talking about more the avatar of the voice, like you would make an avatar of the voice, I think.

WG Session 3

I think it's one of those things that would depend on what you're doing and the person, and whether that could almost feel to be prompted.

WG Session 3

I'd almost it like to enhance our skills and enhance the therapy by having access to those various or specific experiences.

WG Session 3

I don't know; it's quite hard to— but like we've talked about it having the psychoeducation or the videos or, I don't know, it being able to aid in some way, it being able to make things feel either easier or quicker or more creative, or I don't know exactly what, but.

WG Session 3

So if I can sort of ask the AI to find me doing this, that would have been great.

WG Session 3

So, I guess it would be interesting to know—well, think about if there was a way of getting feedback. I guess on sessions and if it would give you pointers of, I don't know, your agenda setting needs improvement, or I don't know, whatever CBT type thing it might be able to feedback on from a kind of more practical, I guess, kind of CBT competencies, I guess, and recordings.

WG Session 3

I think we already kind of said about sort of simulating things and yeah.

WG Session 3

But yeah, sometimes we have had some people who communicate by text or app, so if something like that could be incorporated into it, I think that would be good if we do have people who are mute.

WG Session 3

Oh, even things like often, like going back to kind of basic routines or being able to develop schedules with like tick box things of like basic self-care stuff. Sometimes people are going back to, you know, I'm getting up, I'm cleaning my teeth, I'm managing to wash—like, you know. People can really sort of have to return to learning some real sort of basic needs, and sometimes having a bit of structure and guidance or prompts even to that could be helpful.

Calling back. (2)

WG Session 3

I'd almost it like to enhance our skills and enhance the therapy by having access to those various or specific experiences.

WG Session 3

Sophie, you were talking about seeing a client—instead of seeing a client, set a reminder on the phone—which made you think of this.

Summarising the group. (1)

WG Session 3

If it has access to clinical systems, it could be massive. So when you've got to do like a file review—and file reviews allow things where like—it's a convenient, heavy, heavy trawl if the client's been in many, many times before, and if AI were to do a file review, that would be amazing.

Data Protection (1)

WG Session 3

Asking the NHS to open up clinical records to Skynet, but I hear what you're saying.

Ethical problems. (1)

WG Session 3

Asking the NHS to open up clinical records to Skynet, but I hear what you're saying.

App functions (4)

WG Session 3

But I guess aid or like a big bag of tools.

WG Session 3

That would be so helpful as a teaching tool as well Because thinking if you're supervising someone and you want to demonstrate, you know, give an example of a certain skill.

WG Session 3

I literally just said, "Can you design a CBT behavioral experiment for somebody who's anxious about...?"

WG Session 3

So not only does the client get prompted of the outcome measures and you can see them and they can see them and they can see them on the graph and they're easy to put onto a letter, but they're also then easy to kind of have on a clinical system as well.

Bridges within the app. (1)

WG Session 3

So not only does the client get prompted of the outcome measures and you can see them and they can see them and they can see them on the graph and they're easy to put onto a letter, but they're also then easy to kind of have on a clinical system as well.

Imagining possibilities. (3)

WG Session 4

We it's been quite good to go away and try things and come back and sort of discuss that together.

WG Session 4

So I think almost like being able to sort of see both those sides a bit more like with those kind of examples, I guess that we've talked about how that might look.

WG Session 3

I mean, probably this isn't an AI thing though, but their measures would then kind of be linked to the system.

Blue-sky thinking. (1)

WG Session 3

I mean, probably this isn't an AI thing though, but their measures would then kind of be linked to the system.

Creating links (1)

WG Session 3

I mean, probably this isn't an AI thing though, but their measures would then kind of be linked to the system.

AI potential (1)

WG Session 3

And then to sort of engage the client in the use of the AI, they can create their own sort of self.

Learning from the AI. (2)

WG Session 3

specific skills and using that as a learning tool and have an example to draw on.

WG Session 3

You know you've learnt this from the AI.

Phobia works. (1)

WG Session 3

I think they do that sort of simulation stuff in phobia work. I don't know. Yeah.

Behavioural experiments. (3)

WG Session 3

Mina Yeah.

WG Session 3

I would say yes.

WG Session 3

behavioral experiments

Creating safe spaces for clients. (1)

WG Session 3

for example—someone might go away and practice a safe place exercise

Interactivity (1)

WG Session 3

Well, it's kind of related, but I guess it's just more about a way to summarize the work in a more creative, interactive way.

New modalities (1)

WG Session 3

I guess it's just a kind of creative way of summarising the data. So the therapist could make their own little avatar; the therapist's already there, or room, or whatever it is.

Opening new spaces (1)

WG Session 3

I guess it's just a kind of creative way of summarising the data. So the therapist could make their own little avatar; the therapist's already there, or room, or whatever it is.

personalisation and contextualisation (1)

WG Session 3

Yeah, I think like there's so many different cultures, subcultures, religions, like small groups. So it can be really hard to get those consultations too. Well, particular like, I don't know, victims of abuse or something like that, like of a very specific kind of abuse or. The kind of—if it can help the therapist hold those themes in mind or adapt the work.

Complement current paradigm not contradict it (1)

WG Session 3

things can work alongside each other and not necessarily contradict each other or complement each other. And yeah, so if there's a way of AI,

WEIRD (1)

WG Session 3

CBT being a very western approach and actually

Applicable beyond CBTp (1)

WG Session 3

This this could - this is important for any app or any therapy app or any AI.

Transparency with clients (2)

WG Session 3

Sharing usage and AI involvement in the

WG Session 3

The collaboration and that being the most important when you're. So you're both kind of collaborating to work with the AI and if the collaboration isn't there, if it's coming, if it's one sided then.

AI and data protection (1)

WG Session 3

AI and data protection

Good and bad (1)

WG Session 3

That's interesting, we're seeing AI in the room in two different ways, that it can be this support, in terms of it being neutral, but it also maybe could be a little bit unsettling for clients as well, so I can provide this support, but it also may be unsettling.

Blessing and curse (1)

WG Session 3

That's interesting, we're seeing AI in the room in two different ways, that it can be this support, in terms of it being neutral, but it also maybe could be a little bit unsettling for clients as well, so I can provide this support, but it also may be unsettling.

The AI remains invisible to the client (1)

WG Session 3

And I think I was commenting on your comment as well, Sophie, and when you were talking, it made me think of the therapist acting like a bit of a buffer.

Benefits of neutrality (1)

WG Session 3

Yeah, and then it also just makes me think about what we were talking about—how neutral AI is and whether, how clients would feel, if they would believe that AI was neutral.

Benefits of handing responsibility over (1)

WG Session 3

I guess it's interesting to think almost about AI coming up with an idea. I think that was in response to maybe like a behavioural experiment idea, and there could be, I guess, pros and cons to that. A pro could be that, well, this is what the AI has come up with. What? What do you think about giving this a go? So then it's not kind of the therapist or the client

coming up with this idea. It's like the AI, and that's almost part of the experiment in itself of like, well, you know - do you want to have a go at this idea? You know, so I guess it was almost like thinking about it as not a third person, but like a third kind of something else coming up with ideas in the room, which I just thought was an interesting idea almost.

Time saving (1)

WG Session 3

So that would take up if they can just access that themselves, you know, I wouldn't have to have that phone call, that meeting.

Summarisation (8)

WG 121 Alice

But I guess there is a time element, actually, where we think about if it's summarizing and drawing together information—there is actually definitely, because we can spend hours sometimes going through trying to pick out all the psychology notes off the system and trying to look at the different themes throughout.

WG 121 Alice

Well, just that something can, yeah, listen to something and create a summary. It's that idea of being able to very quickly think of themes or formulations or suggestions.

WG Session 4

Similar to the document that we had before and then. After the next week, we can kind of decide on them. In that document, I will put best picture of the app. I'll put the app in kind of dry functions. And then I put the design guidelines underneath. So we'll have it all in

one document and we can kind of. If you have any other thoughts, you can suggest other guidelines and we can refine the the wording of these tools.

WG Session 3

And then there was a lot about streamlining as well as you know, streamlining, summarising the work and having access to specific parts of it for different reasons.

WG Session 3

So, like writing a note for, you know, even if we discharge someone to the GP, if they were to come back into services, it's the kind of summary of what happened before.

WG Session 3

Well, it's kind of related, but I guess it's just more about a way to summarize the work in a more creative, interactive way.

WG Session 3

These are the sort of key themes that have come up throughout your sessions because, in some ways, before we write an ending letter, that's the kind of thing that I might go back over through all the notes to try and find.

WG Session 3

how useful it would be to have, like, after therapy ends, how to be able to almost have a little bit of a summary of each of your sessions. For some people, you know, being able to look back.

Food for thought (1)

WG Session 3

sometimes the ending letters can be quite a lot, can't they?

Co-creation (1)

WG Session 3

Yeah. I mean, if you're both kind of co-creating that as well. So if you're both sort of putting your summary points at the end together, and then by the end of it, you should have all the work in one place.

AI can be an aid, but not a replacement. (2)

WG Session 3

that ending letter is a symbol, isn't it?

WG Session 3

human connection is really important, and AI can be an aid, but not a replacement.

Augmentation (1)

WG Session 3

It felt the actual content was put together by me initially so I did it that way round, but I didn't actually try that with any AI, just it - but I could see that has been a really helpful tool.

Centaur (1)

WG Session 3

It felt the actual content was put together by me initially so I did it that way round, but I didn't actually try that with any AI, just it - but I could see that has been a really helpful tool.

the uncanny valley (2)

WG Session 3

that ending letter is a symbol, isn't it?

WG Session 3

It felt like even reading it through and I was just like, 'I can't get this - that it all just yeah, it didn't flow very well.

Find a useage balance (5)

WG Session 4

So that bit was really helpful for the ethical bit of it was, he said to his care coordinator "I've kept it and I'm, you know, Alice obviously went to a lot of effort to adapt that for me for" and I was like, oh gosh, that's where it made me feel so guilty.

WG Session 4

There is something that goes on, I think through our discussions as maybe like in terms of the process or through our discussions as may be highlighted that as well that some of these things feel so useful. And at the same time you can't help but go. Oh, but where did that sit with you as a, you know, therapist as well? Does that make sense?

WG Session 4

As how it might feel as a therapist or psychologist to be using AI in practice. And equally at the same time, being able to see the benefits of it.

WG Session 3

I guess it's interesting to think almost about AI coming up with an idea. I think that was in response to maybe like a behavioural experiment idea, and there could be, I guess, pros and cons to that. A pro could be that, well, this is what the AI has come up with. What?

What do you think about giving this a go? So then it's not kind of the therapist or the client coming up with this idea. It's like the AI, and that's almost part of the experiment in itself of like, well, you know - do you want to have a go at this idea? You know, so I guess it was almost like thinking about it as not a third person, but like a third kind of something else coming up with ideas in the room, which I just thought was an interesting idea almost.

WG Session 3

' And then I sent it back to her, she loved it, and then she made some amendments, but it felt like the value was that she'd written something that meant something to her in the beginning, then she gave it to this entity that is then able to kind of like sharpen it and then it goes back to her and she makes sure that her personality is still there.

Keeping an eye on the robot (1)

WG Session 3

But there's definitely a process, I think a therapist would then have to think about in terms of still paying enough attention to kind of go through it and adapt it.

Ethical balance (5)

WG 121 Alice

But that was a moment where it did make me really kind of question how some of this feels great. And actually, I'd then almost go back to having to rewrite what it wrote so that it felt like I had put enough into it. At which case, I'd be like, well, I might as well just write it in the first place.

WG Session 4

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WG Session 4

As how it might feel as a therapist or psychologist to be using AI in practice. And equally at the same time, being able to see the benefits of it.

WG Session 3

It wasn't really something I would use, but it was - but the bit that I noticed the most I think in terms of the reflection was actually gosh, I don't - there's something about the process of us writing something ourselves and I don't know whether it was almost a sort of - whether I'd feel a bit guilty that hadn't put the time into pulling it all together myself or whether it yeah felt a bit lazy or there was something in it that just made me go 'Oh gosh, what?

It doesn't need much (1)

WG Session 3

But equally when I saw it, I thought, 'I mean, partly it was obviously a bit beefed out in terms of like, because it didn't really have much content.

Suprised by AI's potential (1)

WG Session 3

And yeah, I was quite surprised how quickly it just wrote this, like full letter.

managing risk (1)

WG Session 3

I mean, there is some oversight and sort of objection, but I guess AI could extend that to even more of a neutral viewpoint about what happened.

Building on their ideas - I thought I was shaping but I was supporting, but then which ideas did I build on (1)

WG Session 3

I won't stop for too long on my one, but yeah, I just two things: there's one thing around the potential of AI to summarize our sessions or when we saw an example before, when I'd put in a fake transcript into it and it talked about what happened in that session and given tasks.

Adaptations (5)

WG Session 3

You'd ask - you know, 'what would somebody say? What would they think about it?' So if someone was really into Ronaldo, maybe not dinosaurs, but to go to your example, someone's really into Ronaldo and you could go, 'oh, what would Ronaldo think about this?' Something like that.

WG Session 3

They're really, really super interested in dinosaurs.

WG Session 3

particularly with autism, like if you can adapt something to an interest, you have so much more impact in terms of what the actual work looks like, but it takes a long time to do all of that stuff yourself.

WG Session 3

So I do it sort of adapted to an interest of football or I'm seeing someone at the moment who's everything goes back to dinosaurs, and I was thinking the other day like yeah, how can you adapt things to kind of involve dinosaurs?

WG Session 3

adapting to interests

Leading (1)

WG Session 3

What other people think?

Risk and safety (3)

WG Session 3

- is around safety and I think we have talked about it in previous sessions around. But again, maybe this depends who's using the app, but I guess yeah. Just thinking about safety and risk and that's just something we haven't spoken much about.

WG Session 3

Yeah, and you may not be in a space where you can use personal disclosure as well. So if it's really sort of early on - "

WG Session 3

And I've had situations with clients when I'm trying to do like a kind of almost like a positive disclosure to create some sort of thing around normalization like 'oh, I've been through that too, and I know you look up to me.

Formulations (1)

WG Session 3

Yeah, I guess it would need to know, you know, the person's experience and the formulation and how they -

What's possible (1)

WG Session 3

But I agree with what Alice said. It's like your brain then goes to kind of to how does this? What does this look like? And that's, you know, no idea. I think that's where it feels really tricky to sort of think about what it would look like and what's possible, maybe as well.

It grows on you (1)

WG Session 3

In our CBTp course we had a day in London recently, in the last, that must have been in the last couple weeks and I was talking about it with somebody who's in my supervision group and they were talking about some of the talking with voices, trials and avatars. And so,

you know, really interesting, which I don't think would have come up, but it was obviously on my brain. It was obviously on my mind.

Time between sessions (1)

WG Session 3

Think it will like maybe from my mind a lot more. And like I said, this two weeks seems to have just come from really quick.

Importance of plurality (1)

WG Session 3

my role and personally as well I might use Chat GPT to ask questions and things or like plan things I need to.

Each to their own (1)

WG Session 3

my role and personally as well I might use Chat GPT to ask questions and things or like plan things I need to.

Strengths and limitations (1)

WG Session 3

I think like we said before, everything you think of then just raises more questions, doesn't it?

The more you know the more you need to know (1)

WG Session 3

I think like we said before, everything you think of then just raises more questions, doesn't it?

possibilities (2)

WG Session 3

And how it's hard to communicate there and it could be perceived as sort of guardedness or psychosis, but really it's more about just orientating them to the space and whether AI could help with that in expressing themselves.

WG Session 3

It's interesting how something that kind of was never really in my mind before has started to, you know, come into mind a lot more either during sessions or afterward or just kind of. Yeah, I have a lot of moments that going, 'Oh, I wonder what I might make of that. Or I wonder what an app could do with that.' Definitely been much more in mind.

Growing in confidence as researchers (1)

WG Session2

It almost feels like they're getting more confident in what we're doing and what they can bring in terms of their insights and their reflections.

Generating the culture and environment (2)

WG Session 3

It's interesting how something that kind of was never really in my mind before has started to, you know, come into mind a lot more either during sessions or afterward or just kind of. Yeah, I have a lot of moments that going, 'Oh, I wonder what I might make of that. Or I wonder what an app could do with that.' Definitely been much more in mind.

WG Session2

It's it's really tricky because when you are creating something that's over four sessions and it you accept that it's, it's almost like you trying to get this creative flywheel up to speed and the first session it's like a bit of an information dump and it can feel quite passive.

Creating a flywheel (3)

WG Session 3

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Setting boundaries (1)

WG Session2

Not evening.

Shaping the research for the team (2)

WG Session2

Not evening.

WG Session2

OK, what if I sent you the characteristics that we have now in a Word document so that you have it on hand.

Triangulations (2)

WG Session 3

So I have your permission to put this third iteration of this transcript through like Gemini and ChatGPT to ask it to kind of focus in on this app even more?

WG Session2

Because that's gonna allow us to triangulate in on some of the key aspects of like, now this is essential that it has this.

Explaining the story (4)

WG Session 4

Objectives is to reflect on our overall research journey and key takeaways and identify which aspects or outputs of the research could possibly positively influence software development activities in mental health settings.

WG Session 4

It's really, really clear what they are, but it feels like we're doing something quite different here.

WG Session 4

In similar settings and managed settings I had the idea of or the intention to, so like give examples of design guidelines.

WG Session2

And I'm thinking so in the next session what we'll do is it's just - we want that app to take shape because in the fourth session, we're going to start to look at guidelines about how somebody might do this.

Capturing reflections (1)

WG Session2

so we captured some reflections at the beginning of today session by just asking you guys to to reflect on uh

Android more likely in this pop (1)

WG Session2

e Android is over represented amongst people suffering from psychosis because of various socio economic realities wherein kind of poverty plays a big part.

Poor people are crazy (1)

WG Session2

e Android is over represented amongst people suffering from psychosis because of various socio economic realities wherein kind of poverty plays a big part.

Practicalities (1)

WG Session2

Yeah. Like it, the practical side of it being something that either the end NHS would invest in or the actual end user doesn't have to then pay a lot of money for something because otherwise that's not gonna limit who it's available to.

Who pays? (1)

WG Session2

Yeah. Like it, the practical side of it being something that either the end NHS would invest in or the actual end user doesn't have to then pay a lot of money for something because otherwise that's not gonna limit who it's available to.

The benefit of group think (2)

WG Session2

f it just gets you really thinking, doesn't it?

WG Session2

It's interesting like to hear with the ideas and how many things come up actually.

Yes, I stuff I hadn't thought of.

Lead research openness (1)

WG Session2

didn't like it at all, but I've got kind of schizoid tendencies, so anything that kind of splits me in that way I'm like I can't, I'm struggling with being here without trying to be there as well, but I could see how useful it was to allow your perspective on what's going on for you.

LLM is all about relationships (1)

WG Session2

map out the relationship between the different voices and where they might sit with that

AI neural networks (1)

WG Session2

map out the relationship between the different voices and where they might sit with that

it can be anything (1)

WG Session2

Whether you have avatars in different parts of someones for people's voice maybe.

other settings (1)

WG Session2

VR at the moment where people create a bit of an image of a voice and then they have a conversation with an image of a voice that's been created, that kind of thing.

This speaks to my approach but is it as clean as I think? (1)

WG Session2

So glad somebody said that, I've wanted to say since this began. I just haven't wanted to say -

Standing back (1)

WG Session2

So glad somebody said that, I've wanted to say since this began. I just haven't wanted to say -

Influencing without influencing (1)

WG Session2

So glad somebody said that, I've wanted to say since this began. I just haven't wanted to say -

Care planning (1)

WG Session2

, have a particular session thinking about, like reviewing and then obviously then after translate that into forming part of a wider care plan.

other stakeholders (5)

WG Session 4

So in some ways it's, you know, may it be that for like different groups for like say a service user group - like what could be helpful from a service user perspective and then a therapists group for what would be helpful from therapists perspective?

WG Session 4

Because they're so vulnerable and generally, can be quite passive and go along with what people say so holding their best interests in mind as much as we can.

WG Session 3

What it feels like, and again, this is what AI allows, is that each stakeholder could come to the same data, and like a layer of AI across this data would allow each person to ask their own questions of the data.

WG Session2

e Android is over represented amongst people suffering from psychosis because of various socio economic realities wherein kind of poverty plays a big part.

WG Session2

community out there, different stakeholders,

deciding for people (1)

WG Session2

I guess I have people say, you know, really disturbing things, some people would take from that, that I'm not in that place anymore and actually it's validating because they're can see how much they've got better.

giving people power (1)

WG Session2

I guess I have people say, you know, really disturbing things, some people would take from that, that I'm not in that place anymore and actually it's validating because they're can see how much they've got better.

Creating community (1)

WG Session2

I guess I have people say, you know, really disturbing things, some people would take from that, that I'm not in that place anymore and actually it's validating because they're can see how much they've got better.

Balancing risk (2)

WG Session 3

And I've had situations with clients when I'm trying to do like a kind of almost like a positive disclosure to create some sort of thing around normalization like 'oh, I've been through that too, and I know you look up to me.

WG Session2

e quite risky though, yeah.

How to stay safe (1)

WG Session2

But then equally I can't see the sort of benefits of people feeling validated by other peoples experiences

Balancing (1)

WG Session2

But then equally I can't see the sort of benefits of people feeling validated by other peoples experiences

A community within the app (3)

WG Session2

people share different resources or things and and so actually having that open community of other CBT therapists I think could be quite useful.

WG Session2

community out there, different stakeholders,

WG Session2

community within an app and and that's something that would make me probably more hesitant about using it because I think a lot of the trust with therapist is also about where you lose a bit of control over what's going on.

Holding the group (1)

WG Session2

Do people wanna take it like a few minutes break.

Story (2)

WG Session 4

So workshop one - you guys have all had this recap.

WG Session2

Why don't we leave it where it is and we start to answer this question? So I think it's important that the client that the whatever we have maybe has the potential to be responsive to where we are, cause that speaks the things like risk for client safety if it were paying attention to that. If somebody's going off manual they've got 15 years experience or someone's gone off manual and they've got six months experience the difference that the guidance or support that the app might give back are gonna be different in those two places. But as you say, that does feel very I am technical in in and application.

What's too much (1)

WG Session2

I think that's where again, it feels tricky and almost trying to capture too much, but yeah.

Scale (1)

WG Session2

I think that's where again, it feels tricky and almost trying to capture too much, but yeah.

app (1)

WG Session2

Different times in different things. And when you're training in something, you kind of really want to know the worksheets and the manuals and the and I guess when that maybe feels more comfortable.

Finding the form (3)

WG Session2

. And so I, yeah, I don't know if this is becoming then too big.

WG Session2

So then would the AI need to know a lot about the client? If you ask us something about for how you're feeling.

WG Session2

Yeah, but I guess she in CBT language.

The indefinable qualities (1)

WG Session2

The therapist has a good trust in the app I think before you could even think about recommending it.

What makes a good app (1)

WG Session2

The therapist has a good trust in the app I think before you could even think about recommending it.

ethic (2)

WG Session 3

And then it just brought up the idea of like consent because the person would need - like how would the service user feel that we put all of their notes into an AI to condense or pull together?

WG Session2

The therapist has a good trust in the app I think before you could even think about recommending it.

Other people's needs. (2)

WG Session2

But there's one thing more not that I would like to see, but I notice isn't in a lot of apps that ability for people to kind of share with each other.

WG Session2

There was something about helping client transfer, new learning or new ideas and new behaviours.

Idea form (1)

WG Session2

And then, that in some ways, would be nice to have like that in different formats because actually the opportunity of having something like on a mobile device or an iPad is like the videos and things could be because often we might use the video or we might use a handout or.

The value of personas (6)

WG Session2

formulations, I guess and like formulating with a client, but there may be sharing that formulation with supervisors to sort of talk about - like current understanding or areas of stuckness or whatever it might be. B

WG Session2

But yeah, like kind of sharing, you know that diagrams or things like that or maintenance cycles or things like that, that might be helpful.

WG Session2

landscape awareness for signposting referrals for their MDT work and kind of within that again being able to summarise info and actions.

WG Session2

I think similar to some of the others in that sort of summaries of the supervisor's case or sort of agreed discussions. More action points.

WG Session2

So maybe an app that automatically sends appointments and things like that to Matt

WG Session2

I was just thinking about the opportunities for learning there. So you know, being able to see either a transcript of a session or, you know, recording of a session or that like actually that opportunity for learning could be quite important.

Strengths (24)**WG Session 3**

Yeah. I mean, if you're both kind of co-creating that as well. So if you're both sort of putting your summary points at the end together, and then by the end of it, you should have all the work in one place.

WG Session 3

You'd ask - you know, 'what would somebody say? What would they think about it?' So if someone was really into Ronaldo, maybe not dinosaurs, but to go to your example, someone's really into Ronaldo and you could go, 'oh, what would Ronaldo think about this?' Something like that.

WG Session 3

Yeah, I guess it would need to know, you know, the person's experience and the formulation and how they -

WG Session2

Whether you have avatars in different parts of someones for people's voice maybe.

WG Session2

VR at the moment where people create a bit of an image of a voice and then they have a conversation with an image of a voice that's been created, that kind of thing.

WG Session2

elements of CBTp that wouldn't necessarily be done on worksheets and things like that, is that more interactive stuff where you might be doing that, you know, having a dialogue with your voice or..

Hayden, Ismael 1:43:54 Umm.

Alice Creating an image of your voice or like that kind of stuff is where I could see a role for the AI. I

WG Session2

elements of CBTp that wouldn't necessarily be done on worksheets and things like that, is that more interactive stuff where you might be doing that, you know, having a dialogue with your voice or..

WG Session2

might wanna visual graph or something of what these outcome measures look like so if it could generate that unlike a summary of what that means.

WG Session2

So that it would like automatically send out assessments that they could fill in to get the outcome manage measures, OK.

WG Session2

have a particular session thinking about, like reviewing and then obviously then after translate that into forming part of a wider care plan.

WG Session2

So translation for accessibility and -

WG Session2

, I might adapt to particular thought challenge here around football or like add some images to it and make it something they can get a bit more interest in.

WG Session2

I guess I have people say, you know, really disturbing things, some people would take from that, that I'm not in that place anymore and actually it's validating because they're can see how much they've got better.

WG Session2

And being, you know that whole idea that I'm not alone in this and all of that.

WG Session2

community within an app and and that's something that would make me probably more hesitant about using it because I think a lot of the trust with therapist is also about where you lose a bit of control over what's going on.

WG Session2

Sometimes when you actually go through it made me think I wonder if you could put that into the system and it sort of pulls some of the common themes that might be or the, you

know, what they, I don't know, emotions or fears that were underlying everything that was happening at the time or because you often get those and you really wanna analyse them, don't you?

WG Session2

Yes, either systemically, either thinking about social graces or like that, you know, the much wider picture than the pure CBTp - or the core CBTp stuff.

WG Session2

If like, can you think systemically about this cause often within CBTp, it can become quite focused on that and actually we want to be able to think more systemically around something, don't we?

WG Session2

er AI almost kind of generating ideas

WG Session2

There was something about helping client transfer, new learning or new ideas and new behaviours.

WG Session2

But actually, if you've got access to different forms of psycho-ed, so for some people the video might be far more accessible than a written worksheet.

WG Session2

And the language would be. Can you put this into a different language?

WG Session2

I was just thinking about the opportunities for learning there. So you know, being able to see either a transcript of a session or, you know, recording of a session or that like actually that opportunity for learning could be quite important.

WG Session2

I was just thinking that the MDT sort of, you know, having to sort of summarise information, like big chunks of information break and quickly for an MDT.

Expanding the research (1)

WG Session2

So if it's kind of developed together.

Potential users (2)

WG Session2

I've got somebody comes to mind. I'm not sure hundred percent if it will be useful for you, but I've got kind of automatically comes to mind in terms of somebody who's often wanting a lot of information and things like that.

WG Session2

So yeah, I could see it. I could definitely see a role for family and care as being part of that.

Ethics. (6)

WG Session 4

So that bit was really helpful for the ethical bit of it was, he said to his care coordinator “I’ve kept it and I’m, you know, Alice obviously went to a lot of effort to adapt that for me for” and I was like, oh gosh, that’s where it made me feel so guilty.

WG Session 3

But again, it’s something that would then need something around it because we have to be careful in terms of confidentiality and things then being filtered through the team that you might not necessarily want to yet or done in a sensitive way.

WG Session 3

that ending letter is a symbol, isn’t it?

WG Session 3

human connection is really important, and AI can be an aid, but not a replacement.

WG Session2

But then equally I can’t see the sort of benefits of people feeling validated by other peoples experiences

WG Session2

Yeah, cause some people wouldn’t want everything shared, some people do. You wouldn’t necessarily want to say all of their therapy shared, but it might be key bits that someone says, oh,

Use cases (3)

WG Session 4

different uses in the therapy room or in supervision or in just your own sort of reflective practice or - you know, sort of preparing for sessions and things. Just in multiple kind of uses of it, I think.

WG Session 3

It's almost like having, like, an editor, somebody who can just you can bounce ideas off of. Or a supervisor. Do you know what I mean? When you when you send your letters to a supervisor? So I hear what you're saying that there's the ease of use, but there's also you don't want to lose

WG Session2

I think part of it when we think about the work that we mainly do with family or care is that like a lot of it is the kind of educational stuff around psychosis and what's going on for them.

Others examples (1)

WG Session2

And then there's the the few kind of startup ones like Starling or Monzo.

Can we build trust (1)

WG Session2

can build trust

Limitations (9)

WG 121 Sophie

I don't know. I guess the question is, are we trying to tailor to those people too?
Because actually, maybe it's just not going to be something that would be useful.

WG Session 3

It felt like even reading it through and I was just like, 'I can't get this - that it all just yeah, it didn't flow very well.

WG Session2

They won't remember all the skills and things, and conversations. The therapist will remember and know what was helpful, but often the clients don't. They remember the relational aspects to therapy.

WG Session2

So it's just feels like how do we extend the trust from therapist to this technology as well?

WG Session2

can build trust

WG Session2

Yeah, the unpredictability I guess of something coming through, you know.

WG Session2

Yeah. I mean, I've had people who won't use anything electronic.

WG Session2

I worked with like to somebody who would turn their phone off during the session and I'm working with somebody else who doesn't have a mobile phone.

WG Session2

We do commonly find other people, though, there is a lot around writing down because it's the reminder of school or it feels a bit like the idea of actually providing written things can be quite uncomfortable from that. It's probably more common, I would say, in terms of things they complied.

Taking the initiative (3)

WG Session 4

Because they're so vulnerable and generally, can be quite passive and go along with what people say so holding their best interests in mind as much as we can.

WG Session 3

It wasn't a question I was going to say. I've been, like, scribbling on a piece of paper or doodling. You might call it while we've been talking. So I might share it with you, but it's.

WG Session 1

was just thought it was amazing. Really. Umm, what these things can do and how little I know about it, I have actually, as we were talking, downloaded a couple of apps because I feel like I want to give them a go

Understanding different perspectives (8)

WG Session 4

So in some ways it's, you know, may it be that for like different groups for like say a service user group - like what could be helpful from a service user perspective and then a therapists group for what would be helpful from therapists perspective?

WG Session2

Those things aren't helpful for me. I wanna notifications just don't work, but I don't know if I'm just like an outlier.

WG Session2

I was just thinking about the opportunities for learning there. So you know, being able to see either a transcript of a session or, you know, recording of a session or that like actually that opportunity for learning could be quite important.

WG Session2

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WG Session2

They're paranoid about what they've written down to be their actual writing. So it's more built into that, but yeah.

WG Session 4

So I think being able to distinguish between maybe either what we're doing or - because I suppose the Joan is Awful stuff that felt very more AI than - do you see what I mean?

WG Session 4

I don't know if you'd call it scaffolding, but the idea that like at the start you'd you know, there was more of an outline

WG Session 4

So we like from what we're saying - is from what you guys are saying, yeah, this process has been good, I've got something from it, and I'm proud of the product that's come out of it, OK?

WG Session 4

So workshop one - you guys have all had this recap.

WG Session2

So we've already started with the storytelling brainstorming.

Ethical dilemmas (7)

WG Session 4

As how it might feel as a therapist or psychologist to be using AI in practice. And equally at the same time, being able to see the benefits of it.

WG Session 4

ethical dilemmas around it because it sort of felt a lot of the time that we think, oh, this could be good, but then actually go all.

WG Session 3

It wasn't really something I would use, but it was - but the bit that I noticed the most I think in terms of the reflection was actually gosh, I don't - there's something about the process of us writing something ourselves and I don't know whether it was almost a sort of - whether I'd feel a bit guilty that hadn't put the time into pulling it all together myself or whether it yeah felt a bit lazy or there was something in it that just made me go 'Oh gosh, what?

WG Session2

So it's just feels like how do we extend the trust from therapist to this technology as well?

WG Session2

can build trust

WG Session2

Yeah. I mean, I've had people who won't use anything electronic.

WG Session2

It encourages to examine how technology might affect society, culture and human behaviour, and also the unintended consequences, ethical dilemmas and social challenges.

stigma (2)

WG Session2

We do commonly find other people, though, there is a lot around writing down because it's the reminder of school or it feels a bit like the idea of actually providing written

things can be quite uncomfortable from that. It's probably more common, I would say, in terms of things they complied.

WG Session2

Stigma and labelling -

What to be cautious about (1)

WG Session2

But I think it loses those sort of personalisation and then and I just got bored of it after that experience.

Creating connections between their ideas and the landscape - I was trying to be a bridge (1)

WG Session2

Just on the drive in to into work, I was listening to book on AI and what things are gonna happen next?

One size does not fit all (3)

WG Session2

Those things aren't helpful for me. I wanna notifications just don't work, but I don't know if I'm just like an outlier.

WG Session2

I think it it depends on the person, isn't it?

WG Session2

trying to have something that fits everybody may not work.

Positivity (1)

WG Session2

Yes, let's go. Let's yeah, it seems to be alive in the moment. So yeah, let's talk.

Barrier to entry. (0)

Paraphrasing (2)

WG Session 4

So pay attention to the makeup of your group and how this may be impacting how the group is engaging with each other.

WG Session2

So it's quite a few things there isn't there. And again, in terms of what you're saying around is this AI doing it? Or is it just a kind of a glorified note taker.

It didn't flow very well!!! (2)

WG Session 3

It felt like even reading it through and I was just like, 'I can't get this - that it all just yeah, it didn't flow very well.

WG Session2

Yeah, I've never used anything like that before. Yeah.

Research Support (1)

WG Session2

The other thing I found though, because I never really used anything before. I've been using my Chat GPT on my phone but for things like is there any research around like this specific topic? It comes up quite quickly with something and I know previously you might Google or something, but yeah, I've been using it myself for these kind of quick. Is there a paper written about that? It's like, oh, yeah, there is. There's some summary points about it, so I am.

Could this make things worse?! (1)

WG Session2

I have to admit, I did fall asleep, the bits - it almost like makes me think where we work with people who are already making sort of often these sort of big jumps and links between things and like we work with a lot of real deep over thinkers, don't we in and that's often linked with their psychosis. It did make me wonder actually this sort of stuff makes you go that's crazy.

What does it even mean? (1)

WG Session2

How does that even like work? And actually the AI part of it. So that's a bit like Sophie saying. You've got to split between the AI part of it and the actual just using an app

what might replace paper. I think that AI part of it is the bit that makes you go oh god, how is that even possible?

Adding to rather than taking from (1)

WG Session2

I suppose it gives him an extra opportunity for rather than - so sometimes you might say, just store some notes in your phone - but if you've got very specific things on an app that someone might go away and make use of.

Pitt falls (2)

WG Session2

When I started talking more about you know feeling afraid of other people and that they might harm me, it didn't know what to say. Ohh.

WG Session2

I've seen someone relatively recently. They get paranoid about their handwriting, so actually any homework sheets or anything that involves handwriting wouldn't really work.

Service user needs (1)

WG Session2

I've seen someone relatively recently. They get paranoid about their handwriting, so actually any homework sheets or anything that involves handwriting wouldn't really work.

Bespoke adaptations (3)

WG Session 3

I used to put EMDR. Even just asking, "Oh, can this particular tool be used? What did I do?" And oh yeah, there's a tool in EMDR called a future template. I asked, "Can the future template be used but with drawings instead of pen and paper?" and then it talked me through how you would do this whole thing with drawings instead of pen and paper. So I think that's really helpful.

WG Session 3

we come across religion, spirituality so much in our work, and I found it really helpful just having that kind of additional consultation around, you know, how to think more about some of these things in therapy, but that's, yeah. So if something can incorporate within AI.

WG Session 1

Because they're thinking, I like the flexibility of working in CBTp and tailoring it to the person, so having options like that, you might not use all of them, or you could mold it or shape it to the person that you're working with. I don't

App functions (69)

WG Session 3

And then to sort of engage the client in the use of the AI, they can create their own sort of self.

WG Session 3

I think they do that sort of simulation stuff in phobia work. I don't know. Yeah.

WG Session 3

I guess it's just a kind of creative way of summarising the data. So the therapist could make their own little avatar; the therapist's already there, or room, or whatever it is.

WG Session 3

Yeah, I think like there's so many different cultures, subcultures, religions, like small groups. So it can be really hard to get those consultations too. Well, particular like, I don't know, victims of abuse or something like that, like of a very specific kind of abuse or. The kind of—if it can help the therapist hold those themes in mind or adapt the work.

WG Session 3

we come across religion, spirituality so much in our work, and I found it really helpful just having that kind of additional consultation around, you know, how to think more about some of these things in therapy, but that's, yeah. So if something can incorporate within AI.

WG Session 3

So that would take up if they can just access that themselves, you know, I wouldn't have to have that phone call, that meeting.

WG Session 3

how useful it would be to have, like, after therapy ends, how to be able to almost have a little bit of a summary of each of your sessions. For some people, you know, being able to look back.

WG Session 3

From sort of prompts or reminders and like notifications or if you're kind of developing an experiment together or a way to test something out, or, you know, a new way of doing something that they wanted to try, then a way of kind of supporting them to be able to do that out of the therapy room or thinking about.

WG Session 3

From sort of prompts or reminders and like notifications or if you're kind of developing an experiment together or a way to test something out

WG Session 3

If you know things like checking grammar or spelling, or to see if it flows, that could be really useful.

WG Session 3

So I feel like with ending letters, I feel like it could be really helpful to be able to.

WG Session 3

It felt the actual content was put together by me initially so I did it that way round, but I didn't actually try that with any AI, just it - but I could see that has been a really helpful tool.

WG Session 3

It's almost like having, like, an editor, somebody who can just you can bounce ideas off of. Or a supervisor. Do you know what I mean? When you when you send your letters to a supervisor? So I hear what you're saying that there's the ease of use, but there's also you don't want to lose

WG Session 3

So that was where I thought where I was finishing with somebody and I was writing an ending letter and I thought, 'oh, I wonder what ChatGPT would do with an ending letter.

WG Session 3

You'd ask - you know, 'what would somebody say? What would they think about it?' So if someone was really into Ronaldo, maybe not dinosaurs, but to go to your example, someone's really into Ronaldo and you could go, 'oh, what would Ronaldo think about this?' Something like that.

WG Session 3

But I guess there's so much out there that sometimes you need to sort of sift through videos or well, actually, it's all case studies to see how they might talk about their difficulties and whether that would be useful for your client to sort of hear and find sort of resonating themes.

WG Session 3

So the first I was thinking because in CBTp normalization is kind of seen as a bit of an intervention.

WG Session2

The main reminders I find people use the reminders for their medication.

WG Session2

things will go on in their week and just have a space to journal, write something about that as and when it's happening.

WG Session2

Whether you have avatars in different parts of someones for people's voice maybe.

WG Session2

So if you give it all the qualities and what the person thinks about it, then it should be able to create something that looks like that.

WG Session2

elements of CBTp that wouldn't necessarily be done on worksheets and things like that, is that more interactive stuff where you might be doing that, you know, having a dialogue with your voice or..

WG Session2

I guess reminders and appointments. We haven't mentioned about that I think that would be very practical but useful thing.

WG Session2

might wanna visual graph or something of what these outcome measures look like so if it could generate that unlike a summary of what that means.

WG Session2

So that it would like automatically send out assessments that they could fill in to get the outcome manage measures, OK.

WG Session2

, have a particular session thinking about, like reviewing and then obviously then after translate that into forming part of a wider care plan.

WG Session2

So translation for accessibility and -

WG Session2

, I might adapt to particular thought challenge here around football or like add some images to it and make it something they can get a bit more interest in.

WG Session2

people share different resources or things and and so actually having that open community of other CBT therapists I think could be quite useful.

WG Session2

I guess I have people say, you know, really disturbing things, some people would take from that, that I'm not in that place anymore and actually it's validating because they're can see how much they've got better.

WG Session2

community within an app and and that's something that would make me probably more hesitant about using it because I think a lot of the trust with therapist is also about where you lose a bit of control over what's going on.

WG Session2

But there's one thing more not that I would like to see, but I notice isn't in a lot of apps that ability for people to kind of share with each other.

WG Session2

Different times in different things. And when you're training in something, you kind of really want to know the worksheets and the manuals and the and I guess when that maybe feels more comfortable.

WG Session2

I guess thinking of like some of the chat AI function, things it could be, I'm feeling like this since I left this session and I don't know if it's there's something within that as well.

WG Session2

No, I was more thinking about like, yeah, but what you were saying about if there was avoidance or and if you plan to do something and then you didn't and what, why didn't we?

WG Session2

The other thing I was thinking is just, around like space for therapists reflections

WG Session2

Sometimes when you actually go through it made me think I wonder if you could put that into the system and it sort of pulls some of the common themes that might be or the, you

know, what they, I don't know, emotions or fears that were underlying everything that was happening at the time or because you often get those and you really wanna analyse them, don't you?

WG Session2

Yes, either systemically, either thinking about social graces or like that, you know, the much wider picture than the pure CBTp - or the core CBTp stuff.

WG Session2

So yeah, specific tasks like a behavioural experiment or a suggestion of a survey or..

WG Session2

Here's an idea for a behavioural experiment that could test that particular problem.

WG Session2

How often the ending letters - would be great, wouldn't it?

WG Session2

So at the end of therapy, you co create a document with the client, summarizing the key points and what they've learned and what would be useful for them to know in the future if they needed to refresh their memory about what they've learned.

WG Session2

There was something about helping client transfer, new learning or new ideas and new behaviours.

WG Session2

Yeah. Most based on your formation or based on kind of the focus of what you're doing and what follows on, yeah.

WG Session2

Umm, but then the week goes by and it's so easy to forget. So yeah, there is like prompts for next session. Umm.

WG Session2

Yeah, I guess summarising the main points from the session, it's also making me think about sometimes when I do this, it's really helpful, but I don't often do it, but like writing down my thoughts of the next session.

WG Session2

And the language would be. Can you put this into a different language?

WG Session2

And then, that in some ways, would be nice to have like that in different formats because actually the opportunity of having something like on a mobile device or an iPad is like the videos and things could be because often we might use the video or we might use a handout or.

WG Session2

CBTp kind of manual and likes session ideas or content or. Like worksheets, handouts, that kind of thing.

WG Session2

formulations, I guess and like formulating with a client, but there may be sharing that formulation with supervisors to sort of talk about - like current understanding or areas of stuckness or whatever it might be. B

WG Session2

But yeah, like kind of sharing, you know that diagrams or things like that or maintenance cycles or things like that, that might be helpful.

WG Session2

landscape awareness for signposting referrals for their MDT work and kind of within that again being able to summarise info and actions.

WG Session2

I think similar to some of the others in that sort of summaries of the supervisor's case or sort of agreed discussions. More action points.

WG Session2

So maybe an app that automatically sends appointments and things like that to Matt

WG Session2

I was just thinking about the opportunities for learning there. So you know, being able to see either a transcript of a session or, you know, recording of a session or that like actually that opportunity for learning could be quite important.

WG Session2

I was just thinking that the MDT sort of, you know, having to sort of summarise information, like big chunks of information break and quickly for an MDT.

WG Session2

So where maybe we have to, like, break things down into sort of really small chunks of information, like big reports we wouldn't necessarily share. Yeah.

WG Session2

I think part of it when we think about the work that we mainly do with family or care is that like a lot of it is the kind of educational stuff around psychosis and what's going on for them.

WG Session2

But if there was something that the therapist and the client could create together. I was even thinking like they could create an avatar of the therapist or something that symbolises the therapy and then you could input things like questions or prompts or something that you would want this AI avatar to say that you agree with the person in the room and then you can -

WG Session2

I tried to speak to the AI and just sort of say some of the things I think somebody might say who we work with and they it, it responded with really, it was really empathetic. I'm trying to find the screens outside right now.

WG Session2

here are other sections too, where you could do sort of mindfulness exercise or like and and some of the - I tried the sort of and or you can go into it and pay to speak to an actual person. I'm assuming they called it a coach it's supposed to be CBT. I think it's an American based thing.

WG Session2

Umm. And it has, like lots of different features, where you can chat with an AI and it's like you're sort of WhatsApping someone.

WG Session2

The other thing I found though, because I never really used anything before. I've been using my Chat GPT on my phone but for things like is there any research around like this specific topic? It comes up quite quickly with something and I know previously you might Google or something, but yeah, I've been using it myself for these kind of quick. Is there a paper written about that? It's like, oh, yeah, there is. There's some summary points about it, so I am.

WG Session 1

Do you know of any AI or App that creates images?

WG Session 1

I don't know what the prompt will be. I guess the—there's various different situations where I've—I kind of think. I mean, sometimes it might be somebody describing and, like, putting an image to what their voice might look like, or in EMDR, we do kind of work thinking about the different parts of the person and what they might be like. So sometimes people might give a description of something, and then to be able to create that into an image, or an image of someone's, like, safe place.

WG Session 1

Because they're thinking, I like the flexibility of working in CBTp and tailoring it to the person, so having options like that, you might not use all of them, or you could mold it or shape it to the person that you're working with. I don't

WG Session2

Like I was just thinking because I think someone said about clinical notes last time. Well and, but yeah, I don't know. That's kind of where my brain was going.

WG Session2

does make me think where a lot of people use files, and if someone could go away and sort something out and bring it back on their. They're have been moments where I've thought, it would be useful for them to go and do that.

WG Session2

Yeah, that's I guess a little bit like now we might set a task to go away and do, but actually within the session being ohh, let's look at this together like how we could fill something out together on an app or how we could get used to using something on an app.

Then it will help them kind of go away and bring something back and you've got the, I suppose a more accessible way of recording something and or a way that they might be more used to recording something.

Administration (4)

WG 121 Alice

But I guess there is a time element, actually, where we think about if it's summarizing and drawing together information—there is actually definitely, because we can spend hours sometimes going through trying to pick out all the psychology notes off the system and trying to look at the different themes throughout.

WG Session2

But actually, if you've got access to different forms of psycho-ed, so for some people the video might be far more accessible than a written worksheet.

WG Session2

The other thing I found though, because I never really used anything before. I've been using my Chat GPT on my phone but for things like is there any research around like this specific topic? It comes up quite quickly with something and I know previously you might Google or something, but yeah, I've been using it myself for these kind of quick. Is there a paper written about that? It's like, oh, yeah, there is. There's some summary points about it, so I am.

WG Session2

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Then it will help them kind of go away and bring something back and you've got the, I suppose a more accessible way of recording something and or a way that they might be more used to recording something.

Becoming action researchers (1)

WG Session2

Yeah, that's I guess a little bit like now we might set a task to go away and do, but actually within the session being ohh, let's look at this together like how we could fill something out together on an app or how we could get used to using something on an app. Then it will help them kind of go away and bring something back and you've got the, I suppose a more accessible way of recording something and or a way that they might be more used to recording something.

Buiding from co-researcher's points and experiences (1)

WG Session2

And and that's a really important point. So I think for the for - and we're gonna get to that at the end. We're gonna reflect back on this and what we have to the three key questions at the end.

Learning journey (2)

WG Session 4

The examples like the dinosaur example and the images and the being able to look at apps.

WG Session2

So I'm not particularly confident that I know that.

What is it we're doing again? (1)

WG Session2

I guess I'm not entirely sure if they are AI apps or not, or if they're just apps if that makes sense.

Opening up to new worlds (1)

WG Session2

I have definitely been thinking more about apps I guess.

Incorporating into practice (4)

WG 121 Alice

' It's helped me get through moments where I felt a bit stuck with, 'How can I design something in a therapy session that could help think about this particular problem?

WG Session2

And and sometimes we might email session notes afterwards and actually, if there was one place that you could do something like together, that's stored in one place or that they've got rid of is something. It's definitely come to mind. We do still use paper quite a lot.

WG Session2

I guess the apps that perhaps I've been talking about with patients

WG Session2

And I guess it was just thinking about my clients and sometimes I might, you know have a really good reflection of our session or you know what might be useful or and then there's a space to - I don't know voice recording thing, but then there's other means to do that as well.

Becoming researchers (1)

WG Session2

I think maybe once or twice and I was really trying to think about if I was gonna use it as a therapist and what would I use it for.

Moments of reflection (1)

WG Session2

I'm going to come out of the sharing for now so we can have a little chat?

Power (4)

WG Session 4

Because they're so vulnerable and generally, can be quite passive and go along with what people say so holding their best interests in mind as much as we can.

WG Session 1

we've all worked together.

WG Session 1

So, I'm Alice. I'm the principal clinical psychologist f

WG Session 1

Hayden, Ismael 1:52 Sophie, is it Sophie or Sophie?

Seeing them (1)

WG Session 1

Hayden, Ismael 1:52 Sophie, is it Sophie or Sophie?

Framing the research (1)

WG Session 1

And as you're going through your day, as you're doing your work, just have it in the back of your mind.

Holding the research journey (1)

WG Session 1

I'll send an email as well, just to kind of give a little bit of overview of what we've done, but also to kind of frame people's thinking.

learning from the research process (1)

WG Session 1

I don't know a lot about, you know - feel like I know way more. Lot more than I did when before.

Using the space for own learning journey (2)

WG Session 1

I don't know a lot about, you know - feel like I know way more. Lot more than I did when before.

WG Session 1

That something I've been interested in trying out, OK.

Exploring through doing (3)

WG Session 1

Yeah, like that. That's actually very similar to what this person described, which is really interesting.

WG Session 1

OK, well, that was a useful example of how you can kind of use it quite easily to do something for you.

WG Session 1

Alright, beautiful. Yeah. And then the apps. What do we reckon? Do we? Do we think that's a good idea to download a couple of apps and then, between now and when we next meet, just have a look at them? See what they're about and maybe consider how we might use them in our work? Yeah.

Honesty (1)

WG Session 1

I'm happy to plan to do these things; whether they actually happen might be a little bit, you know, different.

Differentiation (1)

WG Session 1

Because, like we said, all of the ones that we've kind of seen already are trying to tailor to a huge group of people, you know.

I don't want to jump the gun (1)

WG Session 1

I don't want to jump the gun too soon.

Drawing on experience (1)

WG Session2

And I guess it was just thinking about my clients and sometimes I might, you know have a really good reflection of our session or you know what might be useful or and then there's a space to - I don't know voice recording thing, but then there's other means to do that as well.

What would I want? (1)

WG Session 1

Because they're thinking, I like the flexibility of working in CBTp and tailoring it to the person, so having options like that, you might not use all of them, or you could mold it or shape it to the person that you're working with.

What are we thinking? (1)

WG Session 1

And are we thinking that when amalgamation or something completely new or, and yeah, like you say,

Showing they are impacting the research through reflecting back their words (2)

WG Session 1

Yeah, I think it's something I don't know much about. And so I think, yeah, it's really helpful to to know and where we might use it.

WG Session 1

I liked also what Alice, you were saying and what Mina was reiterating, around this feels overwhelming.

!!! (32)

WG 121 Mina

Kind of already said that with the service user, sort of like the experience, but.

WG 121 Mina

Because people are stressed and they're working.

WG 121 Mina

Yeah, and again to give space to it, and it's—you know, the benefits and value, I guess it would just need to be sold, isn't it?

WG 121 Mina

I guess that's really opened my eyes. I feel like I've been living in a bubble.

WG 121 Mina

So at first, I thought that there wasn't a value that I could bring, but I can see now what I was able to bring, which was the sort of clinical side of things—the experiences that I've had working with people. Even now, like I'm using AI—I think all of us are now more, which is telling in itself.

WG 121 Alice

Sorry, this is a complete distraction But when I'm looking at this picture what I've drawn as a safe. I keep looking at thinking It looks like a bomb, and That's made me think, you know, is there something about that like? Sort of dangerous side of it. Like this is something we don't really know about.

WG 121 Alice

I think, I guess they probably influence my views into a more positive view of AI, 'cause I think previously, having not really had much understanding of it, it sort of felt like this scary thing that could come in. And I don't know, although there are still parts of that. Actually, like seeing the benefits of it has been, yeah, I guess that's changed. In that I would see it now as something that could be an incredibly useful tool to have, whereas I think previously, I might have been like, 'I just don't know about how it could be useful in a therapy context.'

WG Session 4

here were some examples like of - it sort of felt like a very.. well not structured, but it's had a process, hasn't it from the start

WG Session 3

The collaboration and that being the most important when you're. So you're both kind of collaborating to work with the AI and if the collaboration isn't there, if it's coming, if it's one sided then.

WG Session 3

human connection is really important, and AI can be an aid, but not a replacement.

WG Session 3

But there's definitely a process, I think a therapist would then have to think about in terms of still paying enough attention to kind of go through it and adapt it.

WG Session 3

What other people think?

WG Session2

So glad somebody said that, I've wanted to say since this began. I just haven't wanted to say -

WG Session2

The therapist has a good trust in the app I think before you could even think about recommending it.

WG Session2

So it's just feels like how do we extend the trust from therapist to this technology as well?

WG Session2

Sometimes when you actually go through it made me think I wonder if you could put that into the system and it sort of pulls some of the common themes that might be or the, you know, what they, I don't know, emotions or fears that were underlying everything that was happening at the time or because you often get those and you really wanna analyse them, don't you?

WG Session2

Yeah, I guess summarising the main points from the session, it's also making me think about sometimes when I do this, it's really helpful, but I don't often do it, but like writing down my thoughts of the next session.

WG Session2

I was just thinking about the opportunities for learning there. So you know, being able to see either a transcript of a session or, you know, recording of a session or that like actually that opportunity for learning could be quite important.

WG Session2

Just on the drive in to into work, I was listening to book on AI and what things are gonna happen next?

WG Session2

Yes, let's go. Let's yeah, it seems to be alive in the moment. So yeah, let's talk.

WG Session2

Like I was just thinking because I think someone said about clinical notes last time. Well and, but yeah, I don't know. That's kind of where my brain was going.

WG Session2

Yeah, that's I guess a little bit like now we might set a task to go away and do, but actually within the session being ohh, let's look at this together like how we could fill something out together on an app or how we could get used to using something on an app. Then it will help them kind of go away and bring something back and you've got the, I suppose a more accessible way of recording something and or a way that they might be more used to recording something.

WG Session2

And and sometimes we might email session notes afterwards and actually, if there was one place that you could do something like together, that's stored in one place or that they've got rid of is something. It's definitely come to mind. We do still use paper quite a lot.

WG Session2

That's kind of where my brain was going.

WG Session2

And I guess it was just thinking about my clients and sometimes I might, you know have a really good reflection of our session or you know what might be useful or and then there's a space to - I don't know voice recording thing, but then there's other means to do that as well.

WG Session 1

Hayden, Ismael 1:52 Sophie, is it Sophie or Sophie?

WG Session 1

Yeah, I think it's something I don't know much about. And so I think, yeah, it's really helpful to to know and where we might use it.

WG Session 1

I don't know a lot about, you know - feel like I know way more. Lot more than I did when before.

WG Session 1

Yeah, like that. That's actually very similar to what this person described, which is really interesting.

WG Session 1

Let's—why don't we just do it now? As an experiment.

WG Session 1

And are we thinking that when amalgamation or something completely new or, and yeah, like you say,

WG Session 1

I never thought about asking people to download some apps and trying them out, so that's a great shout.

Trying something new (5)

WG Session2

The other thing I found though, because I never really used anything before. I've been using my Chat GPT on my phone but for things like is there any research around like this specific topic? It comes up quite quickly with something and I know previously you might Google or something, but yeah, I've been using it myself for these kind of quick. Is there a paper written about that? It's like, oh, yeah, there is. There's some summary points about it, so I am.

WG Session2

Yeah, I've never used anything like that before. Yeah.

WG Session2

Like I was just thinking because I think someone said about clinical notes last time.

Well and, but yeah, I don't know. That's kind of where my brain was going.

WG Session2

I have definitely been thinking more about apps I guess.

WG Session 1

I was thinking that it'll be good to try some of them out.

Holding both positions (1)

WG Session 1

But I was gonna say, but this at the same time, like it's. It's fascinating, really. In terms of like how some of these things can work and do work and could be so helpful in so many ways.

Overwhelmed by options (5)

WG 121 Sophie

It feels like almost you could have one app and then all these different things would be almost like add-ons because there's so much.

WG 121 Mina

it's quite overwhelming, like the scope of ideas and how it can be used. So, yeah, I think it has become sort of clearer along the way.

WG Session 4

Yeah, that's feels overwhelming.

WG Session2

How does that even like work? And actually the AI part of it. So that's a bit like Sophie saying. You've got to split between the AI part of it and the actual just using an app what might replace paper. I think that AI part of it is the bit that makes you go oh god, how is that even possible?

WG Session 1

So it's almost slightly overwhelming thinking, gosh, where to even start.

Helping find the word (1)

WG Session 1

I know there was a lot, so probably overwhelmed, is the thought.

Being real (2)

WG Session 1

I liked also what Alice, you were saying and what Mina was reiterating, around this feels overwhelming.

WG Session 1

I know there was a lot, so probably overwhelmed, is the thought.

Imagination brings up real emotions (8)

WG Session2

f it just gets you really thinking, doesn't it?

WG Session 1

I don't know what the prompt will be. I guess the—there's various different situations where I've—I kind of think. I mean, sometimes it might be somebody describing and, like, putting an image to what their voice might look like, or in EMDR, we do kind of work thinking about the different parts of the person and what they might be like. So sometimes people might give a description of something, and then to be able to create that into an image, or an image of someone's, like, safe place.

WG Session2

And and sometimes we might email session notes afterwards and actually, if there was one place that you could do something like together, that's stored in one place or that they've got rid of is something. It's definitely come to mind. We do still use paper quite a lot.

WG Session 1

Yeah, like that. That's actually very similar to what this person described, which is really interesting.

WG Session 1

That something I've been interested in trying out, OK.

WG Session 1

So it's almost slightly overwhelming thinking, gosh, where to even start.

WG Session 1

And it's how you—whether you kind of focus on one area of that or whether you're trying to incorporate a lot of areas of that—but it's massive, isn't it, when you actually start

thinking of all the different examples that sound like they were very different types of what they could offer.

WG Session 1

I was thinking, oh, this is really good. And then they said that and I was like, that's a bit weird.

Enlivening the imagination (6)

WG Session 4

So I think almost like being able to sort of see both those sides a bit more like with those kind of examples, I guess that we've talked about how that might look.

WG Session 1

That something I've been interested in trying out, OK.

WG Session 1

I was just thought it was amazing. Really. Umm, what these things can do and how little I know about it, I have actually, as we were talking, downloaded a couple of apps because I feel like I want to give them a go. So I am. It'll be interesting to like see what it's like, because I don't. I guess I was thinking I don't. I wouldn't usually use things like that. Didn't really an app person. I don't think I use apps that much, so yeah

WG Session 1

very thought-provoking.

WG Session 1

I was thinking, oh, this is really good. And then they said that and I was like, that's a bit weird.

WG Session 1

OK, it's one of those things that I can see, like immediately thought of people who would absolutely love it and equally people who would be like, that is not for me, yes.

Envisioning through demonstration (2)

WG Session 1

But I was gonna say, but this at the same time, like it's. It's fascinating, really. In terms of like how some of these things can work and do work and could be so helpful in so many ways.

WG Session 1

OK, it's one of those things that I can see, like immediately thought of people who would absolutely love it and equally people who would be like, that is not for me, yes.

Drawing on similar contexts (1)

WG Session 1

It's not CBTp, so it's kind of adjacent to where we are.

Learning from others (2)

WG 121 Alice

I think that in itself has been helpful in that idea that we may have, you know, kind of different views or approaches to it and there might be something that I found that "oh gosh, that's not something I could use or would want to use", yet somebody else might say, "actually that's something I would find Really helpful".

WG Session 1

So this is the first one, which is 'Mood Fit', and this is kind of analytics and, well, here it is.

Examples (1)

WG Session 1

So this is the first one, which is 'Mood Fit', and this is kind of analytics and, well, here it is.

Starting to build shared repository of understanding (3)

WG Session 1

I'm sorry, Ismael. I was just gonna say, Sophie, do you remember? There was one in our lectures that they brought up and they showed a news clip off YouTube about somebody using an app.

WG Session 1

Alice 34:08 I think we changed it like yeah, because it's like some people prefer service user some people prefer for a clot.

WG Session 1

Hayden, Ismael 53:09 Slowmo.

Getting in volved (2)

WG Session 1

Alice 1:34:54 Do you know of any AI or App that creates images?

WG Session 1

I'm sorry, Ismael. I was just gonna say, Sophie, do you remember? There was one in our lectures that they brought up and they showed a news clip off YouTube about somebody using an app.

Starting to take control (3)

WG Session 3

What other people think?

WG Session 1

I never thought about asking people to download some apps and trying them out, so that's a great shout.

WG Session 1

I'm sorry, Ismael. I was just gonna say, Sophie, do you remember? There was one in our lectures that they brought up and they showed a news clip off YouTube about somebody using an app.

drawing on their expertise (2)

WG Session 1

I'm sorry, Ismael. I was just gonna say, Sophie, do you remember? There was one in our lectures that they brought up and they showed a news clip off YouTube about somebody using an app.

WG Session 1

Is there like any app on, like, the Apple Store or on Google that, let's say, someone has a cause, can actually use and find some information or any support?

Ensuring representation (4)

WG Session 4

I was just gonna say it's sort of, I guess makes it feel like it would be more generalisable or more relevant by sort of thinking about individual differences and maybe different - you know, valuing different perspectives or difficulties that might come up

WG Session 4

Of diverse enough group to get rich.

WG Session 4

Rich information, but also kind of to empower people to also share and participate. But then also acknowledging where people are at in terms of their knowledge base and not it not feeling too exposing, but I don't. But I don't think I made that sound guideline-y at all.

WG Session 1

Does it feel important that we or useful that we created our two service users for now?

What's impossible/ limitations of approach (5)

WG Session 3

I think like we said before, everything you think of then just raises more questions, doesn't it?

WG Session2

an do the manualized rote tasks better than than us but once it's required to abstract and connect difficult ideas

WG Session2

trying to have something that fits everybody may not work.

WG Session2

When I started talking more about you know feeling afraid of other people and that they might harm me, it didn't know what to say. Ohh.

WG Session 1

So yeah, it's impossible to create a persona that encapsulates all group of people.

invitations to participation (3)

WG Session 4

Those invitations to do different things, or to think about different things, not really knowing where the group's going to end up.

WG Session 1

And as you're going through your day, as you're doing your work, just have it in the back of your mind.

WG Session 1

Is there anything for each of you? Is there anybody who you're thinking of

Inner musings become shared musing (3)

WG Session 1

I do have fantasies of what this might look like, but I don't have a set idea of what this should look like

WG Session 1

fantasy

WG Session 1

a fantasy of what this looks like, b

Fantasy (4)

WG Session 1

I do have fantasies of what this might look like, but I don't have a set idea of what this should look like

WG Session 1

fantasy

WG Session 1

e fantasies o

WG Session 1

a fantasy of

Values (1)

WG Session 1

"That's quite racist against Irish people."

Agreeing on our culture. (6)

WG Session2

And the research methodology is Ethnographic Action Research, so that is all of us working together as kind of participant researchers and the ethnographic approach is that you guys live this work and that's what makes this valuable.

WG Session2

So again, the name of the research is creating an app and guidelines for artificially intelligent, driven software to support CBT practitioners working with clients experiencing a first episode of Psychosis.

WG Session2

So we all remember the name, but I just repeat again just in case.

WG Session 1

I think that's really helpful, and I think it's, you know, I'm happy to have things sort of either named or discussed.

If, you know, I am in that position, and equally, if I say something that is problematic, I'm happy to have those discussions.

WG Session 1

I would prefer someone to say it to me as well, rather than it being left and then someone being left with it. Rather than just saying, if I've said something wrong, offensive, or yeah.

WG Session 1

Being a black man, I've had many things said to me that I imagine weren't very well thought through, and I try my best to give people the benefit of the doubt in, "Oh, I bet you didn't mean that the way I kind of received it.

Vulnerability. (4)

WG Session2

didn't like it at all, but I've got kind of schizoid tendencies, so anything that kind of splits me in that way I'm like I can't, I'm struggling with being here without trying to be there as well, but I could see how useful it was to allow your perspective on what's going on for you.

WG Session 1

I think that's really helpful, and I think it's, you know, I'm happy to have things sort of either named or discussed.

If, you know, I am in that position, and equally, if I say something that is problematic, I'm happy to have those discussions.

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Being a black man, I've had many things said to me that I imagine weren't very well thought through, and I try my best to give people the benefit of the doubt in, "Oh, I bet you didn't mean that the way I kind of received it.

Setting the rules of the space (2)

WG Session 1

I would prefer someone to say it to me as well, rather than it being left and then someone being left with it. Rather than just saying, if I've said something wrong, offensive, or yeah.

WG Session 1

So, this confidential space, anything that is said here is going to be anonymised—so nobody will ever know who said what.

Setting safety within the space (2)

WG Session 4

you've held the space really well and I appreciate all of that.

WG Session 1

So, this confidential space, anything that is said here is going to be anonymised—so nobody will ever know who said what.

Carrying our cases with us. (1)

WG Session 1

It's really hard not to think of people who are actual patients, isn't it? Because all I can think of are patient names.

Bringing in difference (1)

WG Session 1

Yeah, I was thinking kind of like black British Female.

Imagining different users. Imagining a different world. (3)

WG Session 1

Mina 35:13 I'm thinking other other professionals, maybe just generally people involved or family members or.

WG Session 1

Sophie 34:58 And so they may have different roles as well, I guess.

WG Session 1

Sophie 34:47 And I guess I'm thinking people, and like therapists, like, I guess, may have different backgrounds in the—in the sense they may have a psychology background, they have a mental health nurse background.

Personas (1)

WG Session 1

Uh, so basically, this kind of fictitious character or person help us to think like other people that are not present here—just to help us think outside of our own experiences and try also to think, in this case, because we're talking about like guidelines and the development of the potential app—what might be useful to other users.

setting the scene (2)

WG Session2

It encourages to examine how technology might affect society, culture and human behaviour, and also the unintended consequences, ethical dilemmas and social challenges.

WG Session 1

Uh, so basically, this kind of fictitious character or person help us to think like other people that are not present here—just to help us think outside of our own experiences and try also to think, in this case, because we're talking about like guidelines and the development of the potential app—what might be useful to other users.

Being part of a wider agenda (1)

WG Session 1

The development of the app is like an idea, and then somebody might decide to run with that idea.

The first step (1)

WG Session 1

The development of the app is like an idea, and then somebody might decide to run with that idea.

It's not the finished article (1)

WG Session 1

It's not the finished article, isn't it?

Inviting them in (5)

WG Session 4

So what were some of your biggest takeaways from from the experience?

WG Session 3

I see you nodding, Mina. You're the only person that's that Microsoft is letting me see, so I apologize if I'm just focusing on you.

WG Session 3

I guess I can just go and read down through them, but please actually no - can you guys each speak to your own comment?

WG Session2

Yes, let's go. Let's yeah, it seems to be alive in the moment. So yeah, let's talk.

WG Session 1

But what do you think about it, Mina?

Sharing responsibility (3)

WG Session 3

I guess I can just go and read down through them, but please actually no - can you guys each speak to your own comment?

WG Session2

Yes, let's go. Let's yeah, it seems to be alive in the moment. So yeah, let's talk.

WG Session 1

But what do you think about it, Mina?

Informal but central - bringing in their voice (1)

WG Session 1

“What do you think about this?”

Potential to change the research approach (1)

WG Session 1

So the idea is—and again, there is the potential for this to change—the idea is that a working group comes together to create the thing.

Deciding together (1)

WG Session 1

And again, just to say that in terms of future sessions, the nature of the approach is that we decide together as a group.

Building towards (2)

WG Session 4

So I think the process is like the way that it's been introduced gradually and with there's sort of been layers to building on the knowledge I guess at each stage I found that really helpful.

WG Session 1

hat first of all, it was me who had this idea. And then we are coming together now. And then the hope is that we go from 'we' to 'us' as we start to bring in commissioners,

service users, supervisors, and other CBT practitioners to look at whatever guidelines and prototype that we develop.

Iterative approach (2)

WG Session 4

So I think the process is like the way that it's been introduced gradually and with there's sort of been layers to building on the knowledge I guess at each stage I found that really helpful.

WG Session 1

That first of all, it was me who had this idea. And then we are coming together now. And then the hope is that we go from 'we' to 'us' as we start to bring in commissioners, service users, supervisors, and other CBT practitioners to look at whatever guidelines and prototype that we develop.

The plan for the day (1)

WG Session 1

So, this is the plan for us today.

Research journey (2)

WG Session 2

And I'm thinking so in the next session what we'll do is it's just - we want that app to take shape because in the fourth session, we're going to start to look at guidelines about how somebody might do this.

WG Session 1

And so, I did the initial plan, and then we're kind of acting and observing now. We'll have a little reflect at the end and then we'll plan together what Session 2 looks like, and then we'll go on and we'll do that together, and then we'll plan session three and so on and so forth.

Action Research Cycle (1)

WG Session 1

I don't know if you can see my cursor, but this is the kind of action research cycle.

opportunities from engagement (1)

WG Session 1

I think it also provides opportunities for professional growth and development.

Detailing the what? (1)

WG Session 1

Is this also for the clients? We're gonna think about that, where is the easiest lever to pull? Where can we do the most good with, not least effort, but you know what I mean. Where are the easy levers to pull? And so, in order to do that, we need to think about our clients, and we're also gonna be getting feedback from clients on whatever it is that we create as well.

Focus? (1)

WG Session 1

Is this also for the clients? We're gonna think about that, where is the easiest lever to pull? Where can we do the most good with, not least effort, but you know what I mean. Where are the easy levers to pull? And so, in order to do that, we need to think about our clients, and we're also gonna be getting feedback from clients on whatever it is that we create as well.

Who is it for? (1)

WG Session 1

It will hopefully have the understanding of the client's context because, again, to your point, Sophie, who's this for?

Shaping the research (4)

WG Session2

, I suppose. I don't know if it's possible to have something on a like can we all add to one document? If it's on like OneDrive or something, I'm thinking of with that, might then be easier to pull it together as well.

WG Session 1

Let's—why don't we just do it now? As an experiment.

WG Session 1

I never thought about asking people to download some apps and trying them out, so that's a great shout.

WG Session 1

It will hopefully have the understanding of the client's context because, again, to your point, Sophie, who's this for?

Bringing them in (1)

WG Session 1

It will hopefully have the understanding of the client's context because, again, to your point, Sophie, who's this for?

Under the hood/how the sausage is made (3)

WG Session 4

So we might like it, but we made it so it's important to get it checked to see if it to see if it's worth - that makes sense? Katerina, do you want to come in on that is am I? Am I making sense - what I'm saying there?

WG Session 1

And in that conversation, Katerina brought something to my mind that I never thought of before about this.

WG Session 1

So, it is hopefully going to be a benefit in that sense, of having a group of us here will help us all grow and develop in our practice.

Meta research (1)

WG Session 1

So, it is hopefully going to be a benefit in that sense, of having a group of us here will help us all grow and develop in our practice.

Improving by doing (1)

WG Session 1

One of the things that I was thinking about is that it will hopefully improve people's clinical practice because we're gonna be asking you guys to think quite deeply and at length about your clinical practice in terms of areas of strength and improvement.

Practice development (1)

WG Session 1

One of the things that I was thinking about is that it will hopefully improve people's clinical practice because we're gonna be asking you guys to think quite deeply and at length about your clinical practice in terms of areas of strength and improvement.

Transparent (1)

WG Session 1

" So, I think about, is that actually democratic?

Sharing thinking (2)

WG Session 4

So we might like it, but we made it so it's important to get it checked to see if it to see if it's worth - that makes sense? Katerina, do you want to come in on that is am I? Am I making sense - what I'm saying there?

WG Session 1

" So, I think about, is that actually democratic?

Up-skilling (4)

WG Session 4

I think that's kind of the biggest take away is that this kind of knowledge is something that could be used.

WG Session 1

Yeah, I think it's something I don't know much about. And so I think, yeah, it's really helpful to to know and where we might use it.

WG Session 1

As I say, in terms of the parameter of professional development, being participants in this will hopefully enhance your skills in research, critical thinking, and problem solving.

WG Session 1

In the process, we're helping to enhance skills and agency of our participants.

Benefit (5)

WG 121 Alice

So yeah, it's opened up the way I work, I would say.

WG Session 1

Yeah, I think it's something I don't know much about. And so I think, yeah, it's really helpful to to know and where we might use it.

WG Session 1

I don't know a lot about, you know - feel like I know way more. Lot more than I did when before.

WG Session 1

So, next we're going to look at the benefits of participation.

WG Session 1

In the process, we're helping to enhance skills and agency of our participants.

Research Culture (12)**WG 121 Sophie**

But you explained that in the first session—how that would look, and how this would be a very sort of gradual process of us, kind of, you know, the methodology behind it. Yeah, which has been good to be... I think it's been really interesting to be involved in that process, and it's so interesting to think of you.

WG Session 4

closed group with the same people throughout has felt really helpful and I don't know what how that would have worked in the same format, having different people joining

WG Session 4

I don't know if you'd call it scaffolding, but the idea that like at the start you'd you know, there was more of an outline

WG Session 4

It seemed very clear when, when I, when I spoke with both Mina and Alice, that we wait for Sophie before we we end this process that we've been on because it feels like a

psychologically minded process that we did that - we know endings are important and we know that endings for groups and individuals are important.

WG Session 3

It's interesting how something that kind of was never really in my mind before has started to, you know, come into mind a lot more either during sessions or afterward or just kind of. Yeah, I have a lot of moments that going, 'Oh, I wonder what I might make of that. Or I wonder what an app could do with that.' Definitely been much more in mind.

WG Session2

Because that's gonna allow us to triangulate in on some of the key aspects of like, now this is essential that it has this.

WG Session2

And the research methodology is Ethnographic Action Research, so that is all of us working together as kind of participant researchers and the ethnographic approach is that you guys live this work and that's what makes this valuable.

WG Session 1

I'll send an email as well, just to kind of give a little bit of overview of what we've done, but also to kind of frame people's thinking.

WG Session 1

Hayden, Ismael 33:59 Do you guys use the term service users?

WG Session 1

But what do you think about it, Mina?

WG Session 1

As I say, in terms of the parameter of professional development, being participants in this will hopefully enhance your skills in research, critical thinking, and problem solving.

WG Session 1

It's a reflexive process for myself and for Katerina.

Reflexive (2)

WG Session2

One of them is around - it's a little bit like group reflective practice and there's also individual reflective practice going on and then you support all those practice.

WG Session 1

It's a reflexive process for myself and for Katerina.

At the coal face (1)

WG Session 1

We really value your guys' knowledge as the people who are doing this every day.

Experience (1)

WG Session 1

And the idea is that this is to empower participants by valuing your knowledge and experience.

Tacit knowledge (2)

WG Session 1

Yeah, I think it's something I don't know much about. And so I think, yeah, it's really helpful to to know and where we might use it.

WG Session 1

And the idea is that this is to empower participants by valuing your knowledge and experience.

Value (2)

WG Session 1

We really value your guys' knowledge as the people who are doing this every day.

WG Session 1

And the idea is that this is to empower participants by valuing your knowledge and experience.

Developing a shared language (4)

WG Session 1

Alice 34:08 I think we changed it like yeah, because it's like some people prefer service user some people prefer for a clot.

WG Session 1

Hayden, Ismael 33:59 Do you guys use the term service users?

WG Session 1

It's a reflexive process for myself and for Katerina.

WG Session 1

And then the next session, we'll come back and we'll put that into practice.

Using the terms (1)

WG Session 1

And then the next session, we'll come back and we'll put that into practice.

Setting the tone (1)

WG Session 1

And then between sessions, we'll do some acting, which will be you guys going away and having to think about your practice as you work and maybe like logging a few ideas and observing yourselves.

Action (2)

WG Session 1

Yeah, like that. That's actually very similar to what this person described, which is really interesting.

WG Session 1

And then between sessions, we'll do some acting, which will be you guys going away and having to think about your practice as you work and maybe like logging a few ideas and observing yourselves.

team (1)

WG Session 1

So, I did the first planning, but at the end of this session, we'll hopefully plan the next session together.

together (1)

WG Session 1

So, I did the first planning, but at the end of this session, we'll hopefully plan the next session together.

What to expect (2)

WG Session 1

So what I was thinking was—what's the idea called, Katerina? Is it science fiction prototyping? I've just realised that now.

WG Session 1

The idea is for us to have four sessions, of which this is the first, but in each session, we're going to be looking at and developing this—guidelines and prototype application—but we've got a plan.

Principles (1)

WG Session 1

We're action-oriented.

Turning it on it's head (1)

WG Session 1

I'm not going to be asking you guys to be doing any of the kind of boring heavy lifting.

Teamwork (10)

WG 121 Alice

Yeah, the clinicians like—we're, yeah, we've all sort of moved through the process together. And there is that kind of group, I guess, like you would in any therapy group or something. You go through those, you know, group processes together as well, don't you? And there's some kind of shared learning and shared experience, I think, which is really valuable.

WG 121 Alice

Like I say, I've really enjoyed this experience, and there's been something quite nice about sort of sharing that with other people and in.

WG 121 Alice

And equally, the process, I think, of us doing it as a team, it's felt like a really nice process.

WG Session 4

I'll let the group decide because the group is taking these decisions.

WG Session 4

we've all done this together throughout is really important and I think because it made me just think then as you were talking what it might have been like if you'd had it as more of an open space.

WG Session 4

I definitely feel proud of what we've.

WG Session 4

look together

WG Session 1

I really want us to work together.

WG Session 1

So, I did the first planning, but at the end of this session, we'll hopefully plan the next session together.

WG Session 1

So, yeah, the idea is you're supposed to collaborate in collecting and analyzing data.

Sharing the work (1)

WG Session 1

So, yeah, the idea is you're supposed to collaborate in collecting and analyzing data.

Co-design (1)

WG Session 1

Is that the people who would be using this decide what's best, what best way could support.

Action Research (4)

WG Session2

One of them is around - it's a little bit like group reflective practice and there's also individual reflective practice going on and then you support all those practice.

WG Session 1

Today, we're gonna kind of immediately start to look at what this thing might look like because there's a recognition that this is an iterative process, that there's going to be cycles of this.

WG Session 1

We're action-oriented.

WG Session 1

Is that the people who would be using this decide what's best, what best way could support.

Justice (1)

WG Session 1

Is that the people who would be using this decide what's best, what best way could support.

Bottom-up-thing (1)

WG Session 1

a bottom-up thing

Values drive needs (1)

WG Session 1

What are the values that would be shared by people who are in that world

Collaborative (8)

WG Session2

, I suppose. I don't know if it's possible to have something on a like can we all add to one document? If it's on like OneDrive or something, I'm thinking of with that, might then be easier to pull it together as well.

WG Session2

OK, what if I sent you the characteristics that we have now in a Word document so that you have it on hand.

WG Session 1

We might decide, "Hey, let's never have another session again." We can do the rest of this through emails. I really hope we don't decide that, but we may decide that. I want us to come together to decide what the best approach is. We might decide to split into groups or to work on our own. I don't know.

WG Session 1

I really want us to work together.

WG Session 1

We'll hopefully improve the app that we're putting together.

WG Session 1

So, I did the first planning, but at the end of this session, we'll hopefully plan the next session together.

WG Session 1

Is that the people who would be using this decide what's best, what best way could support.

WG Session 1

e really authentically impacting

Authentic (2)

WG Session 1

I know there was a lot, so probably overwhelmed, is the thought.

WG Session 1

e really authentically impacting

Participatory (7)

WG Session 4

Yeah, I think you know, quite often things are designed without the person who might be using it in mind, and I think that feels to me very important that from the start that the people who will be using it to be involved.

WG Session 3

It wasn't a question I was going to say. I've been, like, scribbling on a piece of paper or doodling. You might call it while we've been talking. So I might share it with you, but it's.

WG Session2

I did actually try one, but I don't know if now is the right time to talk about that or not.

WG Session 1

Is there anything for each of you? Is there anybody who you're thinking of

WG Session 1

We'll hopefully improve the app that we're putting together.

WG Session 1

So, I did the first planning, but at the end of this session, we'll hopefully plan the next session together.

WG Session 1

So, the idea is to have you guys as active participants in the research process.

Slow (1)

WG Session 1

slow things down.

Culture (3)

WG Session 1

It's a reflexive process for myself and for Katerina.

WG Session 1

ulture of the NHS, the culture of EIP.

Maybe? (1)

WG Session 1

could maybe help;

Personality !!!(2)

WG Session 1

I don't have a set. No, that's a lie. I'm not gonna start with a lie.

WG Session 1

So, that's the... but it's a beautiful question, so.

Questioning (1)

WG Session 1

Sophie 17:06 So, is it something that patients would use, or is it something that just staff, like just CBT therapists, would use?

Potential of AI (16)

WG Session 4

different uses in the therapy room or in supervision or in just your own sort of reflective practice or - you know, sort of preparing for sessions and things. Just in multiple kind of uses of it, I think.

WG Session 3

I guess it's just a kind of creative way of summarising the data. So the therapist could make their own little avatar; the therapist's already there, or room, or whatever it is.

WG Session 3

Yeah, I think like there's so many different cultures, subcultures, religions, like small groups. So it can be really hard to get those consultations too. Well, particular like, I don't know, victims of abuse or something like that, like of a very specific kind of abuse or. The kind of—if it can help the therapist hold those themes in mind or adapt the work.

WG Session 3

we come across religion, spirituality so much in our work, and I found it really helpful just having that kind of additional consultation around, you know, how to think more about some of these things in therapy, but that's, yeah. So if something can incorporate within AI.

WG Session 3

I guess it's interesting to think almost about AI coming up with an idea. I think that was in response to maybe like a behavioural experiment idea, and there could be, I guess, pros and cons to that. A pro could be that, well, this is what the AI has come up with. What? What do you think about giving this a go? So then it's not kind of the therapist or the client coming up with this idea. It's like the AI, and that's almost part of the experiment in itself of like, well, you know - do you want to have a go at this idea? You know, so I guess it was almost like thinking about it as not a third person, but like a third kind of something else coming up with ideas in the room, which I just thought was an interesting idea almost.

WG Session 3

how useful it would be to have, like, after therapy ends, how to be able to almost have a little bit of a summary of each of your sessions. For some people, you know, being able to look back.

WG Session 3

And yeah, I was quite surprised how quickly it just wrote this, like full letter.

WG Session 3

But I guess there's so much out there that sometimes you need to sort of sift through videos or well, actually, it's all case studies to see how they might talk about their difficulties and whether that would be useful for your client to sort of hear and find sort of resonating themes.

WG Session 1

could maybe help;

WG Session 1

Using wearable devices like watches or smartphones, it can either support we're Telehealth or remote monitoring to track behavioural patterns which which gives real time feedback of what clients might be doing.

WG Session 1

Another area that it's used already, they use tools to analyse social media posts, to detect signs of mental distress or changes in mood. And again, to help early intervention.

Here's four more uses, so one is natural language processing; they're able to analyse the text from therapy sessions. We can actually have a look at this later on because I have an example of this we can analyse the text from the therapy session and then pull out key themes, key ideas that might be indicative of mental health conditions, and again will aid in diagnosis, and also it will do things like key actions or look at progress and stuff like that.

WG Session 1

Some of the other things you would have seen already is that there are kind of virtual therapist and chat bots, so they use AI to to support and guide individuals experiencing mental health issues and they can offer CBT.

WG Session 1

Basically, it's able to do personalised treatment plans so they use AI system to help develop personalised plans again, by analysing people's data, medical history, lifestyle, and and genetic information.

WG Session 1

But they just to that automatically, so what you guys would do when you're doing your assessment sessions, it can do that automatically.

WG Session 1

So what AI is able to do is to house all of the different assessments and then to predict what can be expected.

WG Session 1

OK, so these are some of the ways that AI is being used in mental healthcare at the moment.

Detailing the why (7)

WG Session 1

And again, that's the issue. That's what we're trying to do the opposite of. Is that these apps come along, they're poorly thought out, they're poorly considered. They're a

solution looking for a problem, and then they get a lot of traction, and then actually they don't work when it comes time to doing them.

WG Session 1

Neither of those things were created by people who appear to know what it's like to use them; they're really hard to use.

WG Session 1

Is this also for the clients? We're gonna think about that, where is the easiest lever to pull? Where can we do the most good with, not least effort, but you know what I mean. Where are the easy levers to pull? And so, in order to do that, we need to think about our clients, and we're also gonna be getting feedback from clients on whatever it is that we create as well.

WG Session 1

Is that the people who would be using this decide what's best, what best way could support.

WG Session 1

The kind of the complex and individual nature of psychosis makes treatment really challenging, and I remember from when I was working with individuals that you are working with individuals.

WG Session 1

The other side of it is that the associated risk profiles are quite complex, often with suicide or suicidal ideation, and often with with violent behaviour.

WG Session 1

So, three in every hundred people will experience psychosis in their lifetime.

Methodological approach (14)

WG Session2

That that's the kind of contextual environment in involvement and there is these action reflection cycles so that we do some work.

WG Session 1

So what I was thinking was—what's the idea called, Katerina? Is it science fiction prototyping? I've just realised that now.

WG Session 1

So yeah, it's impossible to create a persona that encapsulates all group of people.

WG Session 1

I don't know if you can see my cursor, but this is the kind of action research cycle.

WG Session 1

It's a reflexive process for myself and for Katerina.

WG Session 1

And then between sessions, we'll do some acting, which will be you guys going away and having to think about your practice as you work and maybe like logging a few ideas and observing yourselves.

WG Session 1

The idea is for us to have four sessions, of which this is the first, but in each session, we're going to be looking at and developing this—guidelines and prototype application—but we've got a plan.

WG Session 1

But from session to session, we will have a reflect back and think about some of the key themes that might have come up in the previous session and analyze it in that way, but not any deep kind of homework analysis.

WG Session 1

So, yeah, the idea is you're supposed to collaborate in collecting and analyzing data.

WG Session 1

a bottom-up thing

WG Session 1

rich qualitative data from yo

WG Session 1

ology, and it's ethnographic action research.

WG Session 1

methodology—this kind of answer

WG Session 1

We'll take a look at current uses of AI in mental healthcare; then we'll look at the aims of this Research, the methodological approach, and some of the benefits of our participation.

We (3)

WG Session 1

We might decide, "Hey, let's never have another session again." We can do the rest of this through emails. I really hope we don't decide that, but we may decide that. I want us

to come together to decide what the best approach is. We might decide to split into groups or to work on our own. I don't know.

WG Session 1

We'll hopefully improve the app that we're putting together.

WG Session 1

Today's session, so first of all, we'll look at the purpose of the Research.

Empowering !!(10)

WG Session2

So glad somebody said that, I've wanted to say since this began. I just haven't wanted to say -

WG Session 1

Let's—why don't we just do it now? As an experiment.

WG Session 1

a fantasy of what this looks like, b

WG Session 1

We might decide, "Hey, let's never have another session again." We can do the rest of this through emails. I really hope we don't decide that, but we may decide that. I want us to come together to decide what the best approach is. We might decide to split into groups or to work on our own. I don't know.

WG Session 1

We really value your guys' knowledge as the people who are doing this every day.

WG Session 1

I don't have a set. No, that's a lie. I'm not gonna start with a lie.

WG Session 1

Hayden, Ismael 17:16 Sophie, that is gonna be in your hands to decide.

WG Session 1

The approach also has within it that the plan can change depending on the participants.

WG Session 1

I have an idea of how the sessions might go

WG Session 1

What my idea is that as a group of people with experience together, we can come up with something that could be useful to people like yourselves.

Honesty and transparency (8)

WG Session 4

I'm gonna hide myself here so I don't put myself off.

WG Session 3

So I have your permission to put this third iteration of this transcript through like Gemini and ChatGPT to ask it to kind of focus in on this app even more?

WG Session 1

I do have fantasies of what this might look like, but I don't have a set idea of what this should look like

WG Session 1

Hayden, Ismael 17:16 Sophie, that is gonna be in your hands to decide.

WG Session 1

Ohh, and also my brother had psychosis when I was a kid, and I had psychosis when I was older as well, when I was 18, so there's a little bit of that here for me.

WG Session 1

benefits of our participation.

WG Session 1

, and in order to get, so this Research has to get ethical approval from the NHS, which is pretty difficult to get but in order to get it, you have to have a plan.

WG Session 1

I have an idea of how the sessions might go

Complexity of CBTp (3)

WG Session 1

The other side of it is that the associated risk profiles are quite complex, often with suicide or suicidal ideation, and often with with violent behaviour.

WG Session 1

But then the other side of it is the complexity.

WG Session 1

s such a complex task;

genesis (5)

WG Session 4

So I've had an intuition perhaps of how to work with you of how to do this, but other people won't.

WG Session 1

a fantasy of what this looks like, b

WG Session 1

Ohh, and also my brother had psychosis when I was a kid, and I had psychosis when I was older as well, when I was 18, so there's a little bit of that here for me.

WG Session 1

Today's session, so first of all, we'll look at the purpose of the Research.

WG Session 1

I think that was the inspiration for this

Self effacing (2)

WG Session 1

I don't have a set. No, that's a lie. I'm not gonna start with a lie.

WG Session 1

don't get ahead of yourself; you weren't actually doing that."

Humour (5)

WG Session 4

I'm gonna hide myself here so I don't put myself off.

WG Session 1

If it bottles this, that's the end of the experiment.

WG Session 1

I'm not going to be asking you guys to transcribe.

WG Session 1

I don't have a set. No, that's a lie. I'm not gonna start with a lie.

WG Session 1

don't get ahead of yourself; you weren't actually doing that."

! (16)

WG Session2

I suppose it gives him an extra opportunity for rather than - so sometimes you might say, just store some notes in your phone - but if you've got very specific things on an app that someone might go away and make use of.

WG Session2

So I'm not particularly confident that I know that.

WG Session 1

we've all worked together.

WG Session 1

I'm happy to plan to do these things; whether they actually happen might be a little bit, you know, different.

WG Session 1

I was thinking that it'll be good to try some of them out.

WG Session 1

very thought-provoking.

WG Session 1

But I was gonna say, but this at the same time, like it's. It's fascinating, really. In terms of like how some of these things can work and do work and could be so helpful in so many ways.

WG Session 1

So it's almost slightly overwhelming thinking, gosh, where to even start.

WG Session 1

I know there was a lot, so probably overwhelmed, is the thought.

WG Session 1

I was thinking, oh, this is really good. And then they said that and I was like, that's a bit weird.

WG Session 1

OK, it's one of those things that I can see, like immediately thought of people who would absolutely love it and equally people who would be like, that is not for me, yes.

WG Session 1

I did try, and I haven't actually looked at it for ages, but I thought there was a CBTp app.

WG Session 1

I think that's really helpful, and I think it's, you k

WG Session 1

Sophie 17:06 So, is it something that patients would use, or is it something that just staff, like just CBT therapists, would use?

WG Session 1

psychologist

Vulnerability (3)

WG Session 1

I don't have a set. No, that's a lie. I'm not gonna start with a lie.

WG Session 1

I'm a little bit nervous.

Create (1)

WG Session 1

create

Idea (1)

WG Session 1

idea is to create

Initial Codes and Occurrences from First and Second Passes

Reflexive! (1)

Adding but checking reflection with group!!! (1)

This is what I set out to do (1)

Reflection on output (2)

Co-production (1)

Widening representation (1)

Call for service users to be involved in some way (2)

Sophie noticing her criticism is a bias, are clinical psychologists biased by nature -
reflect back on worry about it replacing us 14:02 (0) Biasing

On their inner process!!! (6)

Changing views: holding the client in mind (1)

Generative (1)

Feedback on process (8)

Learning by doing (1)

Group process! (4)

Vulnerability in the group process (6)

On barriers to using a new app (2)

Other's values and needs (1)

Thinking about the group's thinking (1)

Does the prototype meet the needs of CBTp practitioners (2)

In response to me mentioning amazon platform (1)

Platform! (2)

On the group (2)

!!! Personas (7)

One why stakeholders are crucial! (3)

Caution (2)

Lived experience (1)

One why stakeholders are crucial! (1)

Reflection of my approach (2)

Benefits of participation (3)

Progression (4)

The value of knowing nothing (3)

What she got from the experiences (3)

Alice's doodle! (2)

Reflecting on the image exercise (1)

On Alice's doodle – it's messy because it's messy (1)

Unique position of Principal Clinical Psychologist (1)

Why domain expertise is so important (1)

Feedback on process (3)

Differentiation from current use cases (1)

The benefit of this application (2)

Key features!!! (4)

Balance and solution - find a reference for this approach (4)

Balance (1)

Unconscious process of art (1)

We don't know what we don't know! (1)

Being generative (1)

What does this mean? (1)

Personas - downside (4)

Didn't flow (1)

Clunky (1)

Needs work (1)

Key moments (1)

Horizontalization - did I model this (1)

Vulnerability!!! and the next part (11)

Capacity building (1)

Shared learning, shared emotions (1)

Personal benefit (6)

Plurality (1)

Benefit of the group (4)

Contextualising AI (1)

Changing view (1)

Socialisation! (2)

Ah ha! (1)

Seeing it in action (1)

Where it could work (1)

I should just do it myself (1)

Trialling (1)

Opening up the way I work, ethics (1)

Streamlining (1)

Practice (1)

Use cases (3)

Changing practice as a result (1)

Scared of AI (1)

Cautionary tales (2)

Expectations (1)

Ethics (4)

Immersion (1)

Work to be done! (1)

Developing knowledge (1)

No expectations (1)

Value of domain expertise (1)

Value of immersion (1)

The natural inclination of participants (1)

Reflexive practice (1)

Expectation of research (1)

Approach (1)

Systemic approach (1)

Looking at systems - ANT (1)

Moving beyond the particular intervention (1)

Growing expectations. moving beyond expectations (2)

Expectations setting (2)

Benefits of multiple sessions (1)

Time to think - ah ha moments (1)

Action learning or action research? (1)

Openness (1)

Why I got involved (1)

Values of modalities (1)

Benefits of working together (1)

Value of novelty and learning. something new (1)

Unsure of engagement due to lack of knowledge (1)

Knowledge base (1)

Recapping (1)

Doing as trying and proving (1)

Vaule of working examples (1)

Trying things on the go (1)

Doing in the moment (1)

Bringing in AI (1)

Providing avenues for feedback (1)

contextual understanding (1)

Being able to be open based on shared experiences (1)

familiarity in the group is a good thing (1)

Power difference in the group (2)

Connect this to my being open from the very beginning saying I'm not gonna start with a lie (1)

Safety in the group (3)

domain understanding (1)

Guidelines (38)

power over and or support (1)

The positive side of knowing each other (1)

Not knowing where it's going (1)

Worth our while (1)

Thinking about something new but useful (2)

Helpful to see extreme view sci-fi (1)

Not wanting to be influenced (1)

Learning by doing (2)

Mapping the landscape (1)

Learning what AI can do (1)

Balancing the form of the group (1)

Giving them the space to decide (1)

The challenge throughout (1)

Sci-fi prototyping (1)

Being real about my hopes (1)

Balancing bias (1)

The learning journey (7)

Freedom (1)

Research follows the participants not the participants following the research (1)

Group cohesion (1)

Learning together (1)

They did feel free to think and explore (1)

Considering the group (1)

Different learning needs (1)

Responsive space (2)

Structured but not structured\ (1)

Reflecting on the process (1)

Big moment!!! (1)

Ethics and benefits of participation (1)

Deciding to flesh out the app (1)

Thinking aloud (1)

Good piece of dialogue (1)

Ownership (2)

Checking in (1)

Using their words and concerns (1)

Sense checking (2)

Scale of the job (1)

Pride in the work together (1)

Power of examples and demonstration (1)

Making it real (1)

Putting knowledge into practice (2)

Learning as we go (2)

Creative options (1)

It's all so new (1)

The novelty of AI (1)

The sheer scale of AI (3)

What was I thinking? (1)

Something unique (1)

Thinking aloud (1)

Explaining my reasoning (1)

owning the process (3)

iteration (1)

Coming up with ideas on the fly (1)

Novelty (1)

learning from eachother (2)

idea sharing (1)

Changing views in conversation (1)

supervision (3)

reflective space (3)

Mood tracking (1)

Confidentiality (1)

Activity adaptations (1)

Giving form to the voices (2)

Bringing life to text and ideas (1)

Virtual therapeutic space (3)

Prompts and reminders (2)

Streamlining and cost effectiveness (1)

Enhance clinician skills (1)

A bag of tools. (1)

AID psychoeducation (3)

Qualities of App (6)

! (1)

Sounds good, I like creative things. (1)

Using visualisation as a creative tool. (1)

AI is a teacher. (1)

Session recorder (1)

Fidelity to the model. (1)

Building CBT competencies (1)

Quality control (1)

Use cases for (2)

Doing their own research. (1)

Potential of AI (2)

Virtual realities (2)

Creating simulations with the AI (1)

AI is a research assistant and assistant psychologist. (1)

Unintended consequences (1)

Unintended benefits (1)

App functions. (22)

Calling back. (2)

Summarising the group. (1)

Data Protection (1)

Ethical problems. (1)

App functions (4)

Bridges within the app. (1)

Imagining possibilities. (3)

Blue-sky thinking. (1)

Creating links (1)

AI potential (1)

Learning from the AI. (2)

Phobia works. (1)

Behavioural experiments. (3)

Creating safe spaces for clients. (1)

Interactivity (1)

New modalities (1)

Opening new spaces (1)

personalisation and contextualisation (1)

Complement current paradigm not contradict it (1)

WEIRD (1)

Applicable beyond CBTp (1)

Transparency with clients (2)

AI and data protection (1)

Good and bad (1)

Blessing and curse (1)

The AI remains invisible to the client (1)

Benefits of neutrality (1)

Benefits of handing responsibility over (1)

Time saving (1)

Summarisation (8)

Food for thought (1)

Co-creation (1)

AI can be an aid, but not a replacement. (2)

Augmentation (1)

Centaur (1)

the uncanny valley (2)

Find a useage balance (5)

Keeping an eye on the robot (1)

Ethical balance (5)

It doesn't need much (1)

Suprised by AI's potential (1)

managing risk (1)

Building on their ideas - I thought I was shaping but I was supporting, but then which ideas did I build on (1)

Adaptations (5)

Leading (1)

Risk and safety (3)

Formulations (1)

What's possible (1)

It grows on you (1)

Time between sessions (1)

Importance of plurality (1)

Each to their own (1)

Strengths and limitations (1)

The more you know the more you need to know (1)

possibilities (2)

Growing in confidence as researchers (1)

Generating the culture and environment (2)

Creating a flywheel (3)

Setting boundaries (1)

Shaping the research for the team (2)

Triangulations (2)

Explaining the story (4)

Capturing reflections (1)

Android more likely in this pop (1)

Poor people are crazy (1)

Practicalities (1)

Who pays? (1)

The benefit of group think (2)

Lead research openness (1)

LLM is all about relationships (1)

AI neural networks (1)

it can be anything (1)

other settings (1)

This speaks to my approach but is it as clean as I think? (1)

Standing back (1)

Influencing without influencing (1)

Care planning (1)

other stakeholders (5)

deciding for people (1)

giving people power (1)

Creating community (1)

Balancing risk (2)

How to stay safe (1)

Balancing (1)

A community within the app (3)

Holding the group (1)

Story (2)

What's too much (1)

Scale (1)

app (1)

Finding the form (3)

The indefinable qualities (1)

What makes a good app (1)

ethic (2)

Other people's needs. (2)

Idea form (1)

The value of personas (6)

Strengths (24)

Expanding the research (1)

Potential users (2)

Ethics. (6)

Use cases (3)

Others examples (1)

Can we build trust (1)

Limitations (9)

Taking the initiative (3)

Understanding different perspectives (8)

The story of the research (5)

Ethical dilemmas (7)

stigma (2)

What to be cautious about (1)

Creating connections between their ideas and the landscape - I was trying to be a bridge (1)

One size does not fit all (3)

Positivity (1)

Barrier to entry. (0)

Paraphrasing (2)

It didn't flow very well!! (2)

Research Support (1)

Could this make things worse?! (1)

What does it even mean? (1)

Adding to rather than taking from (1)

Pitt falls (2)

Service user needs (1)

Bespoke adaptations (3)

App functions (69)

Administration (4)

Becoming action researchers (1)

Buiding from co-researcher's points and experiences (1)

Learning journey (2)

What is it we're doing again? (1)

Opening up to new worlds (1)

Incorporating into practice (4)

Becoming researchers (1)

Moments of reflection (1)

Power (4)

Seeing them (1)

Framing the research (1)

Holding the research journey (1)

learning from the research process (1)

Using the space for own learning journey (2)

Exploring through doing (3)

Honesty (1)

Differentiation (1)

I don't want to jump the gun (1)

Drawing on experience (1)

What would I want? (1)

What are we thinking? (1)

Showing they are impacting the research through reflecting back their words (2)

!!! (32)

Trying something new (5)

Holding both positions (1)

Overwhelmed by options (5)

Helping find the word (1)

Being real (2)

Imagination brings up real emotions (8)

Enlivening the imagination (6)

Defining the boundaries of the app!!! (1)

Envisioning through demonstration (2)

Drawing on similar contexts (1)

Learning from others (2)

Examples (1)

Starting to build shared repository of understanding (3)

Getting involved (2)

Starting to take control (3)

drawing on their expertise (2)

Ensuring representation (4)

What's impossible/ limitations of approach (5)

invitations to participation (3)

Inner musings become shared musing (3)

Fantasy (4)

Values (1)

Agreeing on our culture. (6)

Vulnerability. (4)

Setting the rules of the space (2)

Setting safety within the space (2)

Carrying our cases with us. (1)

Bringing in difference (1)

Imagining different users. Imagining a different world. (3)

Personas (1)

setting the scene (2)

Being part of a wider agenda (1)

The first step (1)

It's not the finished article (1)

Inviting them in (5)

Sharing responsibility (3)

Informal but central - bringing in their voice (1)

Potential to change the research approach (1)

Deciding together (1)

Building towards (2)

Iterative approach (2)

the plan for the day (1)

Research journey (2)

Action Research Cycle (1)

opportunities from engagement (1)

Detailing the what? (1)

Focus? (1)

Who is it for? (1)

Shaping the research (4)

Bringing them in (1)

Under the hood/how the sausage is made (3)

Meta research (1)

Improving by doing (1)

Practice development (1)

Transparent (1)

Sharing thinking (2)

Up-skilling (4)

Benefit (5)

Research Culture (12)

Reflexive (2)

At the coal face (1)

Experience (1)

Tacit knowledge (2)

Value (2)

Developing a shared language (4)

Using the terms (1)

Setting the tone (1)

Action (2)

team (1)

together (1)

What to expect (2)

Principles (1)

Turning it on it's head (1)

Teamwork (10)

Sharing the work (1)

Co-design (1)

Action Research (4)

Justice (1)

Bottom-up-thing (1)

Values drive needs (1)

Collaborative (8)

Authentic (2)

Participatory (7)

Slow (1)

Culture (3)

Maybe? (1)

Personality!! (2)

Questioning (1)

Potential of AI (16)

Detailing the why (7)

Methodological approach (14)

We (3)

Empowering!! (10)

Honesty and transparency (8)

Complexity of CBTp (3)

genesis (5)

Self effacing (2)

Humour (5)

! (16)

Vulnerability! (3)

Create (1)

Idea (1)

Themes

Theme: The Learner's Journey

Subtheme: Socialisation to the model

- Reflexive! (1)
- Adding but checking reflection with group!!! (1)
- This is what I set out to do (1)
- Feedback on process (8)
- Group process! (4)
- Reflection of my approach (2)
- Progression (4)
- The value of knowing nothing (3)
- Shared learning (1)
- Contextualising AI (1)
- Changing view (1)
- Socialisation! (2)
- Seeing it in action (1)
- Opening up the way I work, ethics (1)
- Growing expectations. moving beyond expectations (2)
- Why I got involved (1)
- The learning journey (7)
- Generating the culture and environment (2)
- Shaping the research for the team (2)
- Becoming researchers (1)
- Using the space for own learning journey (2)
- drawing on their expertise (2)
- Fantasy (4)
- Agreeing on our culture. (6)
- Vulnerability. (4)
- Setting the rules of the space (2)
- Setting safety within the space (2)
- Inviting them in (5)
- Sharing responsibility (3)
- Informal but central - bringing in their voice (1)
- Potential to change the research approach (1)
- Deciding together (1)
- Iterative approach (2)
- the plan for the day (1)
- Research journey (2)
- Action Research Cycle (1)
- Shaping the research (4)
- Bringing them in (1)
- Under the hood/how the sausage is made (3)
- Transparent (1)
- Sharing thinking (2)
- Up-skilling (4)

- Benefit (5)
- Research Culture (12)
- Developing a shared language (4)
- What to expect (2)
- Action Research (4)
- Justice (1)
- Bottom-up-thing (1)
- Values drive needs (1)
- Collaborative (8)
- Authentic (2)
- Participatory (7)
- Questioning (1)
- Potential of AI (16)
- Detailing the why (7)
- Methodological approach (14)
- We (3)
- Empowering !!(10)
- Honesty and transparency (8)
- Self effacing (2)
- Humour (5)
- Vulnerability! (3)
- Personality !!(2)

Subtheme: Learning through action

- On their inner process!!! (6)
- Changing views: holding the client in mind (1)
- Group process! (4)
- Learning by doing (1)
- What she got from the experiences (3)
- Feedback on process (3)
- Contextualising AI (1)
- Where it could work (1)
- Trailing (1)
- Opening up the way I work, ethics (1)
- Streamlining (1)
- Practice (1)
- Use cases (3)
- Changing practice as a result (1)
- learning from eachother (2)
- The learning journey (7)
- Creating a flywheel (3)
- The benefit of group think (2)
- The story of the research (5)
- Becoming researchers (1)
- Exploring through doing (3)

- Trying something new (5)
- Imagination brings up real emotions (8)
- Enlivening the imagination (6)
- Starting to take control (3)

Theme: The Research Culture

Subtheme: Balancing immersion

- Group process! (4)
- Learning by doing (1)
- Vulnerability!!! and the next part (11)
- Capacity building (1)
- Shared learning (1)
- Benefit of the group (4)
- Inner musings become shared musing (3)
- Power difference in the group (2)
- Becoming researchers (1)
- Showing they are impacting the research through reflecting back their words (2)
- Trying something new (5)
- Imagination brings up real emotions (8)
- Enlivening the imagination (6)
- Envisioning through demonstration (2)
- Starting to take control (3)

Subtheme: Vulnerability in the group process

- On their inner process!!! (6)
- Group process! (4)
- Vulnerability in the group process (6)
- Vulnerability!!! and the next part (11)
- Shared learning, shared emotions (1)
- Inner musings become shared musing (3)
- Power difference in the group (2)
- Safety in the group (3)
- Showing they are impacting the research through reflecting back their words (2)
- Starting to build shared repository of understanding (3)
- Vulnerability. (4)
- Setting the rules of the space (2)
- Setting safety within the space (2)
- Vulnerability! (3)
- Detailing the why (7)
- Connect this to my being open from the very beginning saying I'm not gonna start with a lie (1)
- Personality!! (2)

- Empowering !!(10)

Theme: Power and Participation

Subtheme: Power as a potentially stifling force

- Co-production (1)
- On the group (2)
- Personas - downside (4)
- Shared learning, shared emotions (1)
- Personal benefit (6)
- One why stakeholders are crucial! (3)
- Power difference in the group (2)
- Safety in the group (3)
- The positive side of knowing each other (1)
- other stakeholders (5)

Broadening participation

- Call for service users to be involved in some way (2)
- Widening representation (1)
- !!! Personas (7)
- One why stakeholders are crucial! (3)
- Caution (2)
- Lived experience (1)
- One why stakeholders are crucial! (1)
- Benefits of participation (3)
- Personas - downside (4)
- Ensuring representation (4)
- Imagining different users. Imagining a different world. (3)

Theme: Ethical Dilemmas

Subtheme: The uncanny valley

- Opening up the way I work, ethics (1)
- Ethics (4)
- Expectations (1)
- Limitations (9)
- Ethical dilemmas (7)
- !! (2)

Subtheme: Extending Trust

- Other's values and needs (1)
- Caution (2)
- Opening up the way I work, ethics (1)
- Cautionary tales (2)
- Ethics (4)
- One why stakeholders are crucial! (1)
- Expectations (1)
- Risk and safety (3)
- Ethics. (6)
- Limitations (9)
- Understanding different perspectives (8)
- Ethical dilemmas (7)
- Could this make things worse?! (1)

Subtheme: Aiding but not replacing

- AI can be an aid, but not a replacement. (2)
- Unique position of Principal Clinical Psychologist (1)
- Opening up the way I work, ethics (1)
- Find a useage balance (5)
- Ethical balance (5)
- Ethics. (6)
- Limitations (9)
- Ethical dilemmas (7)
- One size does not fit all (3)

Theme: Safety and Scale***Subtheme: What's in the safe?***

- Alice's doodle! (2)
- Reflecting on the image exercise (1)
- On Alice's doodle – it's messy because it's messy (1)
- Unconscious process of art (1)

Subtheme: It's something a bit more joined up

- Reflection on output (2)
- Defining the boundaries of the app!!! (1)
- App functions
- On barriers to using a new app (2)
- Does the prototype meet the needs of CBTp practitioners (2)
- In response to me mentioning amazon platform (1)

- Platform! (2)
- Differentiation from current use cases (1)
- The benefit of this application (2)
- Key features!!! (4)
- Balance and solution - find a reference for this approach (4)
- The sheer scale of AI (3)
- Qualities of App (6)
- Adaptations (5)
- The value of personas (6)
- Overwhelmed by options (5)