

# Understanding Online Parental Help-Seeking and Help-Giving in Early Childhood: The Design Challenges of Supporting Complex Parenting Questions

SERAY IBRAHIM, King's College London, UK  
JAZZ RUI XIA ANG, University of Washington, USA  
MELINA PETSOLARI, King's College London, UK  
REBECCA MICHELSON, University of Washington, USA  
YUZHEN DONG, University of Oxford, UK  
NIKKI THEOFANOPOULOU, King's College London, UK  
MAX VAN KLEEK, University of Oxford, UK  
KATIE DAVIS, University of Washington, USA  
PETR SLOVÁK, King's College London, UK

Early parenting is one of the strongest predictors of child well-being. Online social communities have shown promise in supporting parents across a range of contexts. However, we only have a limited understanding of how posters and commenters interact within a forum, or how well commenter responses can support complex parenting questions, such as attempts to change a child's behaviour or to apply new parenting approaches. We start addressing this gap by combining an empirical analysis of 1 year of parent posts from an exemplar online forum (Mumsnet) with literature on parenting interventions from psychology. In particular, we examine the types of question parents of 2-5 year olds seek help for around their children's behaviour, and the challenges with the support that they do (or do not) receive from the Mumsnet community. Combining empirical and theory-driven insights, we outline an 'information-to-application' gap that conceptually underpins the difficulties observed, and suggest plausible research directions that could address such design problems.

CCS Concepts: • **Human-centered computing** → **Human computer interaction (HCI)**; User studies.

Additional Key Words and Phrases: Parenting, Online support systems, Parenting interventions, Socio-technical design

## ACM Reference Format:

Seray Ibrahim, Jazz Rui Xia Ang, Melina Petsolari, Rebecca Michelson, Yuzhen Dong, Nikki Theofanopoulou, Max Van Kleek, Katie Davis, and Petr Slovák. 2024. Understanding Online Parental Help-Seeking and Help-Giving in Early Childhood: The Design Challenges of Supporting Complex Parenting Questions. *Proc. ACM Hum.-Comput. Interact.* 8, CSCW1, Article 199 (April 2024), 36 pages. <https://doi.org/10.1145/3653690>

---

Authors' addresses: [Seray Ibrahim](#), [seray.ibrahim@kcl.ac.uk](mailto:seray.ibrahim@kcl.ac.uk), King's College London, London, UK; [Jazz Rui Xia Ang](#), [jazzang@uw.edu](mailto:jazzang@uw.edu), University of Washington, Seattle, USA; [Melina Petsolari](#), [melina.petsolari@kcl.ac.uk](mailto:melina.petsolari@kcl.ac.uk), King's College London, London, UK; [Rebecca Michelson](#), [rebecca.michelson@gmail.com](mailto:rebecca.michelson@gmail.com), University of Washington, Seattle, USA; [Yuzhen Dong](#), [yuzhen.dong@sjc.ox.ac.uk](mailto:yuzhen.dong@sjc.ox.ac.uk), University of Oxford, Oxford, UK; [Nikki Theofanopoulou](#), [nikki.theofanopoulou@kcl.ac.uk](mailto:nikki.theofanopoulou@kcl.ac.uk), King's College London, London, UK; [Max Van Kleek](#), [max@hip.cat](mailto:max@hip.cat), University of Oxford, Oxford, UK; [Katie Davis](#), [kdavis78@uw.edu](mailto:kdavis78@uw.edu), University of Washington, Seattle, USA; [Petr Slovák](#), [petr.slovak@kcl.ac.uk](mailto:petr.slovak@kcl.ac.uk), King's College London, London, UK.



This work is licensed under a [Creative Commons Attribution International 4.0 License](https://creativecommons.org/licenses/by/4.0/).

© 2024 Copyright held by the owner/author(s).  
ACM 2573-0142/2024/4-ART199  
<https://doi.org/10.1145/3653690>

## 1 INTRODUCTION

Parenting can be one of the most rewarding—but also most challenging—life experiences. As children grow, parents are faced with a dizzying array of changing responsibilities and decisions about what parenting practices they want to use (or to avoid) as well as how to use these in ways that feel right for them and their child [74, 77, 129]; all with the view of the longer term goals of supporting their child’s well-being [33, 78]. While parents have access to a wealth of parenting information advice online, e.g., through websites, podcasts, social media, or online fora [39, 49, 85], they still appear to face challenges in both (i) selecting relevant information for being able to apply to their specific contexts [34, 73]; and also (ii) when attempting to apply these tips in daily life [22, 73]. To further complicate matters, what works for one family might not work for another; and in fact the very same phrase that helps calm a child in one situation might lead to a tantrum another time [130].

Psychological literature around parenting interventions showcase this potential complexity of providing parental support and how this changes along the developmental trajectory of a child [61, 111, 141]. Decades of research highlight how much of the parenting difficulties are grounded in the dynamics of parent-child interactions [24, 57, 136], and thus must take into account both the specifics of the situation as well as the social practices that exist in the family [22, 98]. As such, the parenting interventions highlight the importance—and the difficulty of—supporting parents’ ability to apply the general approaches (e.g., ‘be empathic with your child’) to specific instances of parent-child behaviour, as well as attempt to scaffold reflection [32, 109, 122] and further situated support to enable skills acquisition and transfer [25, 26, 44, 133]. However, as is common for many public health interventions, only a small percentage of families has access to existing service provision (e.g., due to the traditional in-person delivery facing challenges of cost, reach, availability).

In HCI, much scholarship has focused on how parents are asking for (and receiving) support through online fora [6, 23, 92, 117] as one way of addressing similar issues of access and reach. Recently, the largest body of work has particularly focused on new parents [20, 53, 82, 87, 88], but has also examined how parents sought support during period of social distancing [65], investigated online practices of young parents [58, 120], privacy issues around sharing information and separately, disinhibition with anonymity [23, 115], and the communication practices that parents have through online posting [37]. In these cases, interactions have mostly identified information delivery, decision support, and emotional support as key practices. However, to the best of our knowledge, less is known about how parents seek support for child behaviour-related needs (as an example context of help-seeking for complex problems), and the specific forms of support that are feasible or hindered for complex parenting questions in forum-like interactions. In particular, there has been less focus on understanding original poster and commenter interactions, and how well commenter responses help to address the original poster’s needs.

In this work, we aim to contribute to addressing these issues by examining the online support received—and given—by parents, in the context of questions related to the parents’ perceptions of child disregulation, for children who are 2-5 years old. We selected this age range as an exemplar case given it being a period of rapid psychological and social change, when children are both socially and developmentally expected to become capable in regulating their emotions and behaviours [55, 112]. Such a profound transformation then leads to changes in parent-child interaction and re-establishes the social practice in the family [67]; as is also indicated by the culturally accepted notion of these years being particularly difficult for parents (with phrases like ‘terrible twos’ and ‘threenagers’ widespread). Finally, this developmental stage is associated with a long history of structured parenting programs—mostly non-technological at their core—that predominantly target this age

range, offer parents specific skills as applicable to their wider family context [38, 50, 70, 113, 123, 140], and can provide a body of evidence-based parenting practice to draw on in our analysis.

As such, our aims are two fold: First, to empirically investigate how parents of 2-5 yo reach out for—and receive—help around their child behavior and their own parenting practice through an exemplar open online forum, Mumsnet (as the largest parenting website in the UK). Second, to combine this empirical data with what is known about parenting interventions in psychology, to critically examine the current affordances of online fora, and, if needed, suggest an agenda for future work in this space.

From the empirical perspective, we collected all original posts (i.e., the thread-starting questions) pertaining to 2-5 year olds that were posted in 2019 to the ‘Parenting’ sub-forum of Mumsnet (N = 466). Through content analysis, we identified the posts seeking advice regarding the child’s behaviour (e.g., tantrums, lack of self/emotional regulation; n=186, i.e., 39% of all posts) and the associated emotional frustration faced by the parent. Finally, we randomly subsampled 40% of these threads—reflecting a purposeful sample of posts with varying response rates—to examine the types of support that parents received for child behaviour management from other posters through thematic analysis. The findings show that parents overwhelmingly receive what should be directly applicable advice for seemingly ‘solvable problems’, alongside emotional support. However, there are substantial difficulties in giving and receiving such instrumental support successfully, as these suggestions are often not directly actionable, but multifaceted and harder to communicate fully within the Mumsnet online forum affordances. This is evidenced by posters seeking clarification about original poster problem, offering additional contextual information, questioning prior poster comments, and reframing their posts; all highlighting the tensions between needs sought and support offered.

From a design-agenda setting perspective, we then combine the empirical data with what is known about parenting interventions in psychology, to critically examine the current affordances of online fora and their capability to provide the instrumental support as needed. We highlight the ‘*information-to-application*’ gap that underpins the observed difficulties, emphasising how information delivery alone is—according to psychological theory and our data—unlikely to be sufficient for addressing the parenting challenges that parents bring to the online settings. We then argue why current affordances of online fora might not be suitable to fully resolve the information-to-application gap, and that new interaction design capabilities would be needed if we want to address the needs of receiving the kind of situated, complex support that is required. Finally, to jump-start this research agenda, we outline how work in three related areas of HCI tackles similar challenges (personal informatics, technology-enabled interventions for the home, and traditional parenting courses) and could inspire such novel design solutions in this context too.

In sum, this work contributes to understanding of how interaction design could support complex parenting help-seeking on online fora, highlighting a number of conceptual challenges and opportunity for future designs. By combining both in-depth empirical analysis with a conceptual discussion drawing on psychological theory, we hope this work can offer a design research agenda for augmenting existing parenting fora affordance by exploring plausible solutions from other areas of HCI. At the same time, we discuss the need for cautiously approaching such research directions, that need to be informed by specialist input on best practice surrounding parenting and ethically grounded in the best interests of children and parents, before translating these ideas into workable, immediate design solutions.

## 2 RELATED WORK

### 2.1 Parenting support programmes in pre-school years

Theoretical and empirical parenting literature within psychology focuses specifically on addressing the development, implementation, and effectiveness of parenting programmes aimed at pre-school (i.e., those aged 2-5) as well as primary school aged children [38, 51, 63, 70, 71, 113, 140]. Such programmes have been rigorously tested (e.g., estimates of more than 200 independent Randomised Controlled Trials for ages 2-9 alone [50]), with substantial evidence-base for their effectiveness (see e.g., [51, 113, 119] for meta-analyses). While the full review of the decades or relevant literature are beyond the scope of this paper, outlining the key approaches and child-parent interaction targets can be a useful starting point in understanding the likely challenges that parents can face during their child's pre-school years (and thus also might be seeking support with online).

Across all of the above programmes, the key parenting principles include reducing coercive practices (e.g., shouting, hitting, or punishments) while enabling the parents and children to set clear limits, support appropriate child behaviour, and facilitate positive parent-child interactions (cf., program content of seminal programs such as Incredible Years [140], TripleP [113], Parent Management Training [70], or Tuning in to Kids [38, 63]). Note that most of these programmes start at 2 years of age, illustrating the transition of toddlerhood and pre-school age as a 'crucial developmental period where parents may first encounter the need to deal with a mobile, defiant child' [118], and the associated different parenting skills and interactions required (cf., [21]). Specifically, the programmes focus on helping parents positively manage child misbehaviours, facilitate child's self- and emotion-regulation skills, while promoting child's increased independence (cf., [50, 113] for detailed overviews of two major programmes). Majority of the training is aimed at scaffolding specific changes in parent's behaviour (e.g., increasing praise giving, positive attention, calm but firm rule settings, parent-child discussion), which are then assumed to help shift child's behaviours over time. Here, the delivery mechanisms for skill development are different to those seen in online support (see section 2.2), as there is more focus on gradual, reflective learning.

These programmes draw on the same parenting mechanisms to support a range of populations, from targeted clinical interventions (such as those for parents of children with early conduct disorders) to general population samples (as part of public health prevention programmes). The main difference across such widely different users is then in the intensity of support provided and course delivery length (e.g., from 12-14 weeks of 2h group-based sessions [51], to two-to-three 20 minutes long phone conversations). Regardless of the format, the programmes include a combination of information delivery and skills development (such as through role plays).

Scaffolding parenting skills development is seen as a complex endeavour, with a number of intervention mechanisms required to enable parents to try out and continue using new parenting strategies. For example, through scaffolded reflection, parents learn to become more aware of both parental and child mental states [109, 122], and to reflect on how their own actions impact on their ability to respond to their child [30, 32]. Similarly, the programs directly set up practice opportunities to allow parents to try out new skills outside of the teaching context [26, 43, 133], with in-the-moment support seen as important for reducing barriers of transfer and building natural learning opportunities that can fit into everyday routines [25, 127]. Finally, habit formation support is crucial for parents to establish routines that promote stability and child self-regulatory skills once these are developed [44].

Traditionally, parenting programmes are delivered through in-person mechanisms, whether these are 1-on-1 sessions (e.g., for clinical populations) or group-based interactions. The limitations of such in person models are well known in the literature, as the reach—and thus societal impact—of face-to-face parenting programmes is substantially impacted by challenges in recruiting, engaging,

and retaining parents due to multitudes of barriers to attendance (cf., e.g., [12, 96, 113, 125]). As a result, many of the established programmes have started developing online versions of the content. So far, however, such developments are utilising only a limited set of interaction design approaches (at least from the vantage point of the HCI community): mostly pre-recorded videos together with interactive web-based activities (cf., [12, 46]). A minority of programmes have also started to explore peer support capabilities within the closed, course-specific online platforms (e.g., [113]), with promising results.

## 2.2 Understanding of parenting support in online fora

An emerging area of scholarship focuses on in-depth, qualitative understanding of how expecting or new mothers seek and receive support during the transition and the first months/years of motherhood through online communities [53, 82, 87, 88, 91, 135, 138]. For example, Lupton [87] examined the use and value of digital media through focus group discussions with women who were pregnant or gave birth at most 36 months ago; Lebron et. al. [82] outlines how mothers seek information about breastfeeding by analysing 258 threads on a parenting forum; Madge [88] draws on interviews to understand how women with newborns or young children use parenting websites to elicit information / support about parenting matters; and Gibson [53] has employed ethnography and interviews to understand how technology affects new mums, with parenting fora such as Netmums ranking highly as a source of information and developing confidence in the transition to motherhood. Across these studies, the findings show that parents use digital media mostly for emotional support, as well as instrumental support in the form of psychoeducation, reassurance and normalisation of perceived difficulties, and associated decision making support.

Moving beyond the general online fora use, several HCI oriented studies examined the social support available online to parents of children with special needs [1, 2, 17], those facing mental health challenges [28], or those facing pregnancy loss [6]. Finally, other work—often coming from the sociological literature—provides a broader overview of the types of digital resources parents utilise, with parenting fora emerging as an established source of support (e.g., [31, 54, 65, 86, 105, 114, 137]).

Across these disparate literatures, the findings are however consistently showing how parents seek and receive both informational and emotional support through online community engagements [35, 87]. In particular, digital resources provide immediate and customised informational support, which can help parents gain information on normal child development and what to expect especially in pregnancy and early years of child development [53, 86–88], as well as health related information such as when their infant is unwell [36]. In addition, the online fora are seen as providing a safe space to expression and cope with negative emotions that would normally go beyond of the appropriate narratives of a ‘happy mum’ (cf., [35, 87]). In particular, parenting websites such as Mumsnet give parents the opportunity to normalise such feelings, giving space for understanding and support, which the users might not dare seek from friends, family, or professionals – a range of papers show how (mostly mums) sought reassurance about normality of feelings, and assistance in making those judgements (e.g., [35, 88, 101]).

To best of our knowledge, very little research has considered online parental support in the context of complex situations where parents are seeking help with managing their child’s challenging behaviours during a period of rapid developmental and social change. The closest work so far consists of reviews examining the use of digital technologies in parenting more broadly, including parents of older children (cf., [12, 15, 31, 35, 54, 84, 105, 137]). Overall, these findings showcase the importance of online support: for example, online websites were reported as the second most common source of parenting information used by 65% of parents, right after friends or other parents [12]. However, these review / survey studies are unclear about if/how support is received on these

sites, how the needs for support change as children develop over time, nor what are the interaction design implications for the underlying fora design.

### 2.3 Online support systems in other areas

A vast body of research has highlighted the importance of digital support groups in providing mutual aid and assistance in other stressful contexts, such as for individuals going through chronic or life-threatening illness [1, 40, 75], or those facing situations that can be perceived as socially or emotionally stigmatising in some parts of the society (e.g., mental health difficulties [79, 83], pregnancy loss [5], menopause [80], abuse [7], or sexual preferences [144]), where careful management of online identity is required (cf., [8, 13]).

Much of the work has focused on the impacts of (pseudo-)anonymity in online spaces which enables safe disclosure [3, 4, 7, 29, 95, 115], together with increased chances of receiving valuable social support (such as reciprocal disclosures which can normalise the posters' experience). For example, the degree of anonymity has been linked to the differential expectations on personal impression management, such as in the ratio of 'positive' (e.g., reporting on successes in face of challenges) vs 'negative' (e.g., requests for support) posts, with (pseudo-)anonymous communities more conducive to asking for—and receiving—help (cf., [1, 95]).

Across all these domains, a surprisingly consistent finding is the benefit of receiving of both emotional and instrumental support in such online settings, analogous to the parenting literature described above. Again, these cases have highlighted that support is often characterised by gaining factual knowledge, help with major decision making, and emotional support rather than providing guidance on applying and learning new practices which we outline is central within the parenting interventions literature. We will return to these commonalities and differences in more detail in Section 5.3.

### 2.4 Motivation and research questions

In summary, a growing body of prior work has highlighted the importance of parent programmes, and the increasing potential value of online communities to provide support to parents of pre-school children. Prior research has shown that online social forums are a key venue for expecting or new parents, parent of children with special needs, those facing mental health challenges, or pregnancy loss. However, to our knowledge, limited prior research has examined how parents seek support for child behaviour-related needs — as an example context that requires careful scaffolding to manage situated, complex problems. From an interaction design perspective, little is known about the one-on-one poster and commenter interaction, and how well the responses fit with and help to address the original poster's needs.

To this end, our research questions (RQs.) asked:

- RQ1. (a.) What percentage of posts on an online parenting forum focus on help-seeking concerns regarding the behaviour of children ages 2-5 years, and (b.) what do these child behaviour concerns entail?
- RQ2. (a.) What type of support is given to these concerns in the fora, and (b.) what are the challenges that arise in support-giving?
- RQ3. If we take a parenting interventions theory view, what are the opportunities for interaction design in potentially resolving any identified challenges?

### 3 METHODOLOGY

#### 3.1 Context overview – Mumsnet online forum

The primary online parenting fora dataset was collected from Mumsnet: Mumsnet is the largest British parenting website established in 2000, which hosts over 10 million monthly unique visitors to its discussion board.

Existing research suggests that typical audience and users of Mumsnet tend to be highly educated [102], and with majority being female in their self-identification [99]. However, there is a growing interest by posters identifying as male or fathers who seek support or information from the same body of online community as well.

Our decision to focus on Mumsnet was motivated by our desire to understand the extent to which complex child behaviour needs were prevalent in online parent help-seeking and the interactions that ensued between posters and responders. By focusing on Mumsnet—as a prototypical forum that has many of the key design affordances of online parent forums (e.g., topic based posts, discussion boards for questions and responses, an active community of contributors)—we were able to take a deep dive and focus in detail on how the design of the forum impacted on interactions relating to complex child behaviour needs. Owing to its prominence in UK parenting space and prior work looking at Mumsnet use for parents (e.g., [36, 100, 101]), we anticipated that Mumsnet would generate a detailed enough dataset over a one year period, owing to its high volume of users and traffic [97].

#### 3.2 Ethical considerations for researching public online data

The ethical practices of researching public online data remains highly debated with little consensus across university ethics boards on common recommendations [139]. In line with a growing body of work that critically considers the benefits and risks of using publicly available online data, we employed a series of measures to ensure the careful treatment of sensitive, personal data [19, 45, 52]. First, we ensured that all data was publicly available, rather than scraping data from a researcher-initiated membership account. Next, we employed a set of disguises for anonymising the data [19]. These comprised of removing all user IDs and rewording post quotations to mask personally identify details. Having made these edits, to ensure that we were capturing credible accounts of posts, as part of the analysis, the team regularly met to discuss the developing themes in the context of the original data. Lastly, no attempt was made to contact or solicit the posters for other details.

#### 3.3 Procedure

To investigate parent help-seeking and help-giving interactions, we first needed to identify the categories that parents raised concerns about, and the extent to which child behaviour concerns were a prevalent help-seeking category (RQ1). To achieve this, we first examined all original posts in the Parenting sub-forum for each day over the course of one year to group the posts into topic areas and identified those relating to parents questions about their child's behaviour. As a side effect, this step enabled us to identify the relative frequency of the overarching topic categories that parents sought help for. Methodologically, we used a content analysis approach [42, 48, 101], focused on the thread-starting *original posts only*. Next, to investigate help-giving practices (RQ2) we focused only on threads about child behaviour (and associated parenting emotions). We used an inductive thematic analysis of *the full threads* reacting to the selected initial questions (see figure 1). Throughout both steps, we triangulated the empirically grounded data (e.g., types of challenges parents face or types of support received) with the theory-driven work based on the body of parenting interventions within psychology (cf., Section 2.1).

##### 3.3.1 Content analysis of parental help-seeking concerns (RQ1).

466 total threads in Mumsnet 'Being A Parent' subforum, between 1 Jan – 31 Dec 2019										
<b>RQ. 1 →</b> Original posts Number of threads:	Other 52	Potty Training 16	Physical Development 23	School & Daycare 30	Diet & Food Habits 47	Sleep 62	Medical Conditions 68	Activity & Product 90	Parent's Emotion 164	Behaviour Discipline 186
<p><b>↓ RQ.2</b> 186 threads comprising 39.9% of total threads across the data</p> <p>Then extracted 75/186 threads (40%) as a purposeful subsample based on number of thread responses</p>										

Fig. 1. Dataset selection for Content Analysis and Thematic Analysis

*Dataset generation.* We downloaded all original posts (i.e., the title and thread-starting question) in the Being a Parent subforum for each day between 1 January 2019 to 31 December 2019, using a public search function that allows both members and non-members to search the Mumsnet's discussion forum archives using related keywords and/or posted date range.

To ensure that the posts in our dataset were related to parents concerns regarding 2 to 5 year old toddlers children, we utilised a running list of abbreviations and keywords frequently used by Mumsnet's posters, such as terrible twos, 3yo, DS4, DD (5 yrs), as identifiers to retrieve these archived threads for analysis. We iteratively fine tuned this list by full manual checks of selected days to ensure minimum relevant posts missed; and also identified and removed any false positives (i.e., posts for children below 2 years or over 5 years) during the content analysis step. Aside from filtering for age, all other parenting-related post content was included in the coding.

The dataset intentionally excluded posts after 31 December 2019 considering that the COVID-19 pandemic, that officially started in January 2020 in the UK, may impact on the nature of advice parents were seeking. This dataset used in our analysis consists of both the original poster's question title and post content.

*Coding process.* Following similar methodologies to those used by researchers analysing the content of Mumsnet [48, 101] as well as other related online work (e.g., fanfiction communities [42]), the research team first inductively developed an initial draft of codes independently by pulling a set of ten to fifteen original posts from the dataset randomly. Main code categories (e.g., sleep, physical development, potty training etc) were reviewed as a group, and each main code category was accompanied by sub-categories of codes (e.g., the sleep sub-categories included bedtime, irregularities with sleep and sleep dependencies), capturing rich contextual descriptors of each main code. After the group review, we generated a draft codebook and each member in the research team independently coded the same selected set of 15 posts. We documented areas of agreement and disagreement for each main and sub codes, discussed disagreements in weekly team meetings, and arrived at a group consensus for each review. This resulted in new codes being created and existing coding schemes continuously being refined to reflect the full range of concerns posted by parents in the year 2019. As many of the posts referred to multiple aspects of parenting, each post was coded with up to two main codes. The collaborative coding approach [128] allowed us to consistently apply the codes for each data. The final main category coding scheme encompassed 10 categories and the number and percentage of posts coded within each category (see Table 1 for summary).

### 3.3.2 Thematic analysis of support giving for child behaviour (RQ2).

*Dataset.* Utilising the results of the content analysis, we focused threads child behaviour-related threads as our dataset (see section 4 and figure 1). Whereas the content analysis focused solely on

original posts, here, we included the fuller threads of commenter and original poster responses to original posts.

*Coding process.* To address RQ2, we carried out an inductive thematic analysis. The goals of the analysis were to (a.) identify what kinds of support was given by commenters in response to behaviour and discipline questions in the fora, and (b.) explore how helpful these responses were for posters in addressing their concerns (in as much as that was possible to discern from the post content). Using the qualitative analysis tool Dedoose, we descriptively coded response posts to original posts for 75 individual threads. This represented approximately 40% of the original 186 threads relating to child behaviour, and was selected to reflect a purposeful subsample of posts based on the number of responses in the respective threads (with upper and lower quartile and around the median). Following an reflexive coding procedure [18, 134], we used an overarching question ('What kinds of support was given by commenters?') to drive the coding and organise the codes into themes. We generated 84 descriptive codes then iteratively clustered these codes into broader themes to capture the kinds of support that was offered in responder posts. The themes were reviewed and refined through ongoing discussion between three of the authors.

To analyse the helpfulness of and challenges with offering commenter advice, we focused on whether commenter advice aligned with widely accepted, evidence-informed parenting recommendations that are prevalent in behaviour and emotion focused parent programmes (cf. section 2.1). We also paid attention to the interactions between OPs and commenters by considering the ways the OPs acknowledged and reacted to the offered advice (if any), and to the different ways that commenters responded to requests for help. Our capacity to make judgements about the helpfulness of commenter advice was informed by the first and last authors familiarity with the parenting and child mental health context (with five+ years of active research in this area), as well as holding honorary researcher contracts over the past year within a UK National Health Service (NHS) Child and Adolescent Mental Health Service; engaging in regular discussion about the research with clinical psychology colleagues. The first author also held direct clinical experience having worked for 10+ years in the UK NHS in the area of communication and parent-child interaction. To ensure that we were generating credible interpretations of commenter posts, using a shared document, the research team met regularly to discuss the themes, codes and extracted examples to check that the themes reflected what was presented. This allowed for discarding themes with insufficient data or merging themes, where needed.

#### 4 UNDERSTANDING HELP-SEEKING - MUMSNET FORA PARENT CONCERNS (RQ1)

Our content analysis was focused on identifying what proportion of parent support-seeking on the forum was focused on child behaviour challenges (RQ1a) and what this support seeking entailed (RQ1b). The findings identified that behaviour and discipline were the most prevalent topic categories that parents sought help for (accounting for 39.9% of all threads), followed by parent's emotion (35.2%). From our perspective, this was interesting as the parenting literature has also largely focused on managing child behaviour and emotion related challenges through parenting programmes (e.g., [51, 62, 70, 112, 140]). As parent emotion is often closely associated with child behaviour, for example, parent guilt associated with their parent practices, we included this category in our focus on help-seeking. In this section, we only outline the analysis of these two categories: behaviour and discipline, and parent emotion; the full description of all 10 categories is available in Appendix A (see also Table 1 on page 10 for a summary).

Table 1. Summary of 10 categories, including description, number and percentage of coded posts (out of 466 total), average and median number of replies across threads in the category, and example post. Note that each post was coded with up to 2 different categories.

Category	Description	Freq	%	Avg/Med	Example of original post
Behaviour/ Discipline	Disruptive child behav./ discipline approaches	186	39.9	17.2 / 8.5	<b>2yo with tantrums:</b> “We try reason- ing with her; [...] gotten to the stage where we dread bedtime.”
Parent’s Emotion	Poster’s emotion & dealing with family.	164	35.2	20.9 / 8.0	<b>Failure as a mum:</b> “I don’t feel like I get enough time with her. I just don’t know how some mums do it?”
Activity & Product	Recommendations for activities or products.	90	19.3	13.1 / 9	<b>Recommendations:</b> “I have a kipling backpack but has turned into a bot- tomless pit of crap. Any suggestions?”
Medical Concerns	Diagnosis, treat- ments, and care.	68	14.6	13.9 / 6.0	<b>How long to wait for chickenpox?:</b> “Today she has a cold. How long do I wait before I can assume she hasn’t caught it?”
Sleep	Difficulty staying asleep/ refusal to stay in bed.	62	13.3	15.5 / 8.5	<b>4yo anxious to fall asleep:</b> “I am re- luctant to give him another comforter, and I’ve spoken with him during the day without any impact. Any advice?”
Diet/ Food	Weaning, breast- feeding and man- aging eating.	47	10.1	17.6 / 10.0	<b>Help!:</b> “Toddler has decided evening meals are no longer for her and won’t eat any later than 2pm. Has anyone got any suggestions as things to try to get her eating again?”
School/ Daycare	Behaviour in schools/nursery & childcare.	30	6.4	23.5 / 8.5	<b>Accident at nursery:</b> “My son had to be taken to hospital. I cant help but feel angry. [The nursery] have said it couldn’t of been prevented. How would everyone else handle this?”
Physical Develop- ment	Communication, physical & other milestones.	23	4.9	24.0 / 12.0	<b>Toddler behind on verbal skills:</b> “He used to try to repeat words when we asked, but doesn’t anymore. Do we need to worry and look for more help?”
Potty Training	Reluctance using potty and regres- sion in training.	16	3.4	28.7 / 9.0	<b>5yo still in nappies, Am I failing as a dad?:</b> “...Sitting him on the toilet but he will scream and get himself in a state and ends up making himself sick. Where do I go?”
Others	Wider help, such as legal guardian- ship/ death.	52	11.2	22.2 / 8.0	<b>Explaining death:</b> “How do I explain death to a 2 year old? Should she come to the vet or say goodbye at home?”

#### 4.1 Help-seeking for behaviour & discipline

In terms of behaviour and discipline, posters sought help with managing their child's behaviour and tantrums by tapping into the community's experiences for validating their concerns, determining whether their child's behaviour was 'appropriate' and importantly gathering helpful strategies for dealing with child misbehaviours. Posters used Mumsnet as an avenue to seek disciplinary strategies from other parents, often as a last resort when they had "*reached the end of (their) tether*". Posters also used Mumsnet as a form of expectation check to navigate the uncertainties of parenting, one poster lamented: "*AIBU (Am I being unreasonable) to expect my 4 year old to play by themselves for a short while without needing constant interaction?*" Connecting with a key underlying principle of parenting support programmes [38, 51, 63, 70, 71, 113, 140], our findings suggest that Mumsnet posters sought help with developing positive parenting skills (e.g., setting clear limits when dealing with tantrums) as a way of addressing child conduct concerns and improving parent-child interactions.

#### 4.2 Help-seeking for parental emotion

Help seeking posts relating to parental emotion often encompassed strong negative feelings of frustration and despair about themselves as a parent or their child, and in some cases, their partner, parent-in-laws or other family members. What was common across the threads was the search for empathy. The content suggested that posters desired a community that could listen and identify with their seemingly isolated struggles as a parent. We observed numerous discussions on the frustrations and mismatched expectations behind parenting with a significant other as well as dealing with the opinions of extended family members who did not empathise with their views on parenting. For instance, a poster explained how she wanted to dedicate individual attention and time for each child and felt upset when her husband "*thinks I'm taking favourites and makes me feel guilty for wanting to spend alone time with dd1 (dear daughter one)*". At the extreme end of these threads, posters could be struggling with depression as they expressed a sense of "*hanging on by a thread*", expressing feelings of inadequacies for not living up to their 'ideal standard' of being a parent or not 'doing enough'. In line with prior work, our findings showed that expressing and seeking emotional support in a secure space is an important component of online community support [1, 40, 75, 87, 88].

### 5 UNDERSTANDING SUPPORT GIVING - MUMSNET FORA RESPONSES (RQ2)

We scoped the dataset to only those threads that specifically focused on parenting questions relevant to behaviour concerns for parents with children aged 2-5 years. We examined the types of support that were offered by commenters within the online forum context. This was important for identifying any challenges that the online fora format posed for parent seeking help around such complex questions (cf., section 2.1). We present the findings by first focusing on the specific content and types of support offered for child behaviour-related concerns, then consider the challenges of providing helpful advice.

#### 5.1 Content and support (RQ2a)

A major portion of commenter responses was geared towards providing instructional support for addressing OP questions. This was in the form of strategies for tackling particular child behaviours and through comparisons with wider developmental and social norms, as well as sharing emotional experiences of parenthood. The content of commenter posts was largely connected with the personal experiences and beliefs of the commenter, their general views about established educational and therapeutic approaches, and developmental milestones. As such, content support reflected common

understandings for managing behaviour and emotion that was informed by positive parenting practices—that we interpreted as helpful on a generic level—yet linked with the commenter’s experience of enacting parenting.

*5.1.1 Instrumental support on child’s positive behaviour changes.* In line with prior research on support seeking through online fora, we observed that commenters frequently offered instrumental support [7, 8]. In this context, the instrumental support focused on offering practical and actionable advice associated with positive parenting principles: suggesting strategies, activities, products, and onward signposting to professional help. This instrumental advice seemed independent of the type of help requested by original posters, suggesting that commenters largely treated nearly *all* OP’s requests for help as *practically actionable* – in other words, seeing the parenting problems as *inherently ‘solvable’* and offering what they hoped was specific advice on how the OP could resolve the situation.

For example, in the case of one OP who sought help for difficulties with interacting with their child owing to limited shared interests, commenters responded with practical solutions for extending the range of experiences as a way of building opportunities for common interests involving parent and child: *“spend more time outdoors - woods, playgrounds, beaches, that sort of thing, where the focus is on fresh air, exercise and play rather than conversation. I always found pretend play games tedious so would much rather go out somewhere!”* Similarly, in another thread where the OP voiced concerns about their toddler’s delayed verbal language and interaction skills, commenters responded with specific parenting strategies, types of activities and services to liaise with for support: for example, *“don’t put pressure on him. He dislikes stories so don’t read to him. Just speak with him naturally whilst he’s playing with his trains and water. Try not to use too many words, he will tune out and this will become background noise”*.

The advice offered focused predominantly on how parents (and the OP in particular) could apply changes in how they interacted with their child to lead to positive change based on the poster’s personal experience of similar situations and their comparisons to developmental norms: *“At this age, non verbal communication is the most important thing. Play is also very important. Does he show you things that he’s interested in? Does he point to the things he wants? My son, who is autistic couldn’t play appropriately at all and used to spin around the outside of a room”*. Our findings suggest that by positioning OP concerns as practically actionable, commenters sought to offer support to OPs in ways that were achievable with the resources available through the online platform, and that these suggestions served to reassure the OP.

*5.1.2 Emotional support for validating and normalising parent concerns.* In addition to any actionable advice, commenters responses also expressed emotional support, for example in the form of inviting the OP to be compassionate (*“be kind to yourself!”*), or by communicating empathy (*“I am in a similar situation to you...I completely understand the worry”*) and encouragement (*“I promise you that it does get better!”*). Such emotional support was most commonly offered when directly solicited by OPs in the initial post (*“I just need to talk to someone”*) or in situations where OPs had commented on their personal feelings (*“I am eaten up with guilt”*).

In particular, commenters displayed empathy, validation, and encouragement particularly in situations where the OP expressed themselves as struggling with their child’s conduct. In such cases, emotional support acted as a way of normalising the OP’s concerns, either by positioning the OP’s concerns as commonly experienced by many in the community, or as problems that were typical of families with children of a similar age. One way we observed commenters normalising the OP’s feelings and associated actions was through self-disclosures of similarly challenging situations. For example, a commenter, who was responding to an OP who describes ‘lashing out at their child’, described their own experiences of losing their temper with their child whilst also

providing encouragement on the OP's parenting efforts: *I have also really lost it with my son before and I still feel really bad about it. [commenter explains event]...being a parent is SO hard...You sound very kind and very loving. Forgive yourself and move on! I will tell myself the same!*

In other cases, some commenters offered sympathy and reassurance to the OP's situation in less specific ways, *"I totally understand this feeling having been through it... Sorry if this isn't helpful - just wanted to reply with a message to say there is hope"*. Further, emotional support was often provided to individuals who were self-critical or felt inadequate about their parenting skills, *"Go easy on yourself - you're probably doing a great job"*.

In all of these situations, commenters supported the OP emotionally by showing how the OP was not alone in facing their situation, establishing a sense of belonging within the community, *"Your post sounds so similar to the situation we have at home with DS1 (dear son one)... I hope that it helps knowing you're not alone"*. We observed that establishing an online community provided a trusted environment for individuals to talk about frustrating experiences in an atmosphere of mutual support and acceptance. Evidencing collective support, some of the threads—especially those with large numbers of comments—began to evolve into support-group-like discussions among users who shared personal experiences and feelings, coping strategies, or firsthand information. However, in these cases, we rarely observed the OPs engage further and return with updates on whether progress has been made.

Overall, emotional support comments appeared to normalise and validate OPs feelings, without necessarily suggesting ways of resolving the situation. We note that these patterns appear analogous to other contexts where online support is sought [53, 82, 135]; and is also aligned with what the OPs have expressed as their emotion support needs, as identified in the content analysis (cf., Section 4.2), where the aim of 'feeling heard and understood' seemed to motivate many of the OP questions.

## 5.2 Challenges of providing helpful advice (RQ2b)

Whilst commenters largely attempted to respond with actionable solutions and/or emotional support, across the data set we observed that responding to OP concerns about child behaviour was a complicated and challenging process. This related to challenges for the commenter (in constructing helpful support based on limited context), and challenges for the OP (in receiving advice and appraising its helpfulness). This is different to what has been observed in prior studies on online parenting support, where informational and emotion support-giving can be more straightforward, for example, when advising on practical decisions for parents of younger children (e.g., what to consider when starting your child on solid foods).

*5.2.1 Clarification requests and misinterpretation signal limited contextual understanding.* We observed that commenters often asked for more information or clarification in order to be able to offer helpful advice. However, when examining the structure of follow-on interactions between OPs and commenters, follow-on information by the OP in the same thread was brief and arguably insufficient for equipping the commenter with the contextual information that they sought. As such, responses seemed to not fully capture a situated understanding of the OP's concerns, highlighting tensions between the OP's advice sought and commenter's supportive responses. Through their responses to OPs, commenters expressed difficulties in fully understanding both the situation that was being described and the type of help that was being requested by the OP. These clarification engagements were quite common, appearing in 39 of the 75 threads analysed, evidenced by commenters asking for more information about the particular situation and details about the existing supports put in place by the OP. For example, in response to an OP seeking help for their two young toddlers who were displaying oppositional behaviour throughout the day, commenters within the thread requested further contextual information to understand about the practices that the OP was already

putting in place. One commenter asked *"How would you typically set boundaries - would you try stopping them from doing something you don't want or would you get them to do something you need done? How are you with confrontation in general? I agree [example programme] is great for advice about setting boundaries firmly but kindly"*. The example showed that the commenter's advice was closely linked with their understanding about the specifics of the OP's existing strategies for managing child behaviour. However, these iterative cycles rarely continued beyond the commenter receiving enough context to offering their advice – we only observed 7 instances of the OP returning to the thread to report on if and how the suggested advice had worked and/or to request additional support.

Where commenters had limited information about contextual particulars, they also made inferences to help with filling in the gaps of their limited understanding and motivating their advice. Oftentimes, OP questions generated many varied and sometimes contradictory responses that were linked to the commenter's personal beliefs and experiences about how a situation should be managed, which did not always align with advice that would be found in formal parenting training resources. In one example, an OP had asked for 'words of encouragement' owing to their 5 year old child's early morning bedroom visit being startling. In the discussion that ensued, one poster interpreted that the OP did not want their child to visit their bedroom. Taking the OP's description of their child's behaviour as 'sneaky', the responder commented *"He wants to come and visit you but knows you don't want him to, that explains the "sneakiness". He needs a bit of a cuddle in the morning. He's only 5"*. Like in the prior example, the commenter's actionable advice was closely linked with their interpretation of the OP's attitude towards their child, which was however not aligned with OP's needs: *"The thing is we REALLY don't mind him visiting us in the mornings and have never told him not to come see us. We're very happy for him to climb in with us which he does. The problem is the sneaking and the scaring"*. This simple example demonstrates how even in a relatively tractable situation—child's very specific behaviour—the type of support that was requested and kinds of advice offered might not have always matched up straightaway; and the importance of the contextual understanding necessary for instrumental support to be helpful.

*5.2.2 Commenters provide brief responses by selectively deciding which parts of the post to focus on.* The most common approach seen across the threads was for commenters to respond to OP questions through short, succinct responses. Whilst this appeared to work for responding to OP requests for bounded, actionable strategies, responding was more of a challenge for complex OP questions that were multilayered and required different types of support. For instance, where the OP query was fairly brief (e.g., *"My 5 year old son is asking me to constantly repeat myself or if everything is ok...Has anyone else ever experienced this?"*) commenters offered resolvable advice by asking the OP reflective questions (*"If he's asking you to repeat yourself do you think he's a bit deaf?"* or *"have you been ill or has something been worrying you which he may be aware of?"*). In contrast, where OPs composed long posts and asked for reassurance and support with managing their child's restricted interests or oppositional behaviour, we observed a wide range of commenter responses that each focused on different parts of the original post. Whereas before, we observed commenters asking for additional information, here, commenters chose to focus on particular dimensions within the original post, so that they could offer succinct advice within the thread. For example, where one OP expressed worry over their child's school having concerns about their child's restricted interests, commenters offered a range of responses each focusing on different elements of the original post (e.g., *"you should keep an open mind about whether her passion for art is actually a restrictive behaviour"*, versus *"I'm sure she will be fine, please don't worry"*). This suggested that it was difficult to respond to the often multi-dimensional posts, and that different commenters prioritised different information. Consequently, the OP follow-up responses suggested

that whilst grateful for the comments, their help-seeking was not always resolved, evidenced by OPs attempting to clarify their original concerns ("*the thing is I've looked at behavioural problems online. She doesn't display any behaviour that is listed*"), or rejecting possible scenarios ("*thanks everyone. I also don't like the suggestions that she could have something wrong with her at this stage.*"). Another alternative may also have been that some parenting issues might have been resolved via direct messaging between community members and therefore not visible in the threads.

Finally, the loose structure of the forum thread meant that commenters responded with advice that had varying levels of detail and abstraction: from high level principles, "*There is no way that I'm letting my kids grow up thinking that [tantrums are] a useful tactic*" through to very situation-specific advice, "*Sit down with a book and ignore him*". In situations like these, the asynchronous online format seemed to make it difficult for the OP to action, reflect on, and learn from commenter advice in the context of their daily life.

### 5.3 Summary – similarities and differences to other online fora

Both our content analysis and thematic analysis showed that for children aged 2-5 years, Mumsnet parents and post responders were mostly concerned with receiving instrumental and emotional support for child's behaviour and discipline difficulties, as well as the resulting parental frustration. We note that these observations are in line with what would be expected based on child developmental stage and changes in social expectations [21, 59], as well as the parenting intervention literature in psychology (cf., [21, 60, 113]) that emphasises the focus on the parent's own behaviour and perceived 'parenting skills'.

Our data illustrates how the general patterns of the needs of parental help-seeking and support—i.e., parents' hopes of receiving both emotional ('how can I feel better about my situation') and instrumental ('how can I fix this?') support—are well-aligned with what is known about online support in other areas and contexts (cf., [3, 8, 80, 89, 107]). In particular, our findings illustrate the *similarities* in which Mumsnet parents in our dataset seemed to ask for *emotional support* alongside instrumental advice and receive such support by having their emotions validated, seeing they are not alone, and that others experienced similar difficulties – cf., Section 5.1.2. This is aligned with prior work showing parents of younger children seeking and receiving such support [35, 54, 83] within a safe community space [35, 88, 101].

However, our findings also highlighted the *differences* in what parents of 2-5 year olds seek help for as well as how *instrumental support* can be provided within this parent population, especially the context- and age-specific challenges of *transferring of parenting advice into practice*. In particular, many of the problems experienced by parents were framed by OPs and commenters as *inherently 'solvable'*, such as through changing of how, what, or when the parent communicates with the child. This is a key difference—and an opportunity—of this parenting context, especially when contrasted to other areas where online support has been studied previously in detail, such as chronic illness [121], serious mental health difficulties such as psychosis [83], or support for stigmatised populations [1, 7, 13], where the online support can help the OP identify additional resources to help cope with the challenges they face but is unlikely to help directly resolve the underlying 'problem'.

That said, although the issues were—in principle—seen as solvable<sup>1</sup>, providing the OP with practical solutions still appeared difficult within the current fora affordances that prioritised short

<sup>1</sup>We note that this suggestion, if taken to extreme, is of course problematic; cf., the sociological work discussing such emergent norms of 'good/bad mothering' as per [11, 87, 88, 101], as well as the associated critique of placing all of the responsibility on child development and behavioural on the parents/the mother. The psychology literature, however, does suggest that many of the more localised difficulties that seemed to underpin the struggles expressed by parents online—e.g., child not listening and running into the road—can be feasibly addressed by the changes in parent-child interaction over

and succinct thread responses (cf., Section 5.2). This was evidenced by clarification engagements by both OPs and commenters, varied and sometimes contradictory advice by commenters, and polite rejections of some advice by the OP. OPs often expressed multilayered and complex situations that were not fully understood by respondents, leading to difficulties in providing the OP with the actionable support required.

## 6 DISCUSSION

This paper is motivated by our lack of understanding of how complex parenting questions could be supported through online fora. To unpack these problems we have focused on the ways that parents of 2-5 yo seek and receive support in the context of child behaviour and the associated emotion concerns, where there are known challenges in navigating parenting practices as part of transitional developmental period, i.e., when children are socially and developmentally expected to undergo a fundamental shift in their social and emotional behaviours.

Through empirical work, we first investigated the ways that parents reached out for behaviour- and emotion-related concerns through a content analysis of all original post (i.e., the thread-starting questions) over a year period in the Parenting sub-forum in Mumsnet. In line with the focus of parent programmes, behaviour and discipline and parent emotion were the most prevalent help-seeking topics, which underscores the significance and scale of these challenge areas, and the need for new and accessible parenting practice supports.

Next, we examined the types of support received from people commenting on original posts for threads that focused on behaviour and discipline. The findings showed that within the forum structure, parents predominantly received instrumental and seemingly actionable advice as well as emotional support. However, based on the interactions between help-seekers (OPs) and commenters, we observed that the given advice was not always helpful in enabling OPs to try out new parenting practices as the responses conveyed limited understanding of the OP's situated challenges and priorities.

Given the challenges of providing actionable advice for complex child behaviour, we next focus on unpacking the context-specific difficulties with *instrumental support* for parenting in early childhood<sup>2</sup>. We do so by attempting to combine our empirical data, psychology literature, and own experiences as researchers within clinical parenting contexts. We then suggest possible extensions to the existing interaction design capabilities of online fora.

### 6.1 Challenges and opportunities of designing for parenting support – a proposed research agenda (RQ3)

Our main argument will be that the observed difficulties are likely an example of the '*information-to-application gap*', which is already well understood in the face-to-face parenting programmes literature [50, 60, 126, 140]. In other words, the notion of information-to-application gap emphasises that effective instrumental support in these contexts is rarely 'just' about addressing a *lack of knowledge* (which could be resolved by new information such as a carefully personalised advice from a peer online), but rather it requires empowering parents to *develop new approaches* of interacting with their children (which requires support akin to behavioural change techniques and iterative problem solving). For example, even relatively simple suggestions such as 'try using timeouts' consist of situating an intricate set of new family interactions into an existing social practice, potentially modifying or replacing long-established interaction patterns and habits in the

time (see Section 2.1); while others—e.g., extreme parental stress due to poverty—would not. It is supporting parents with the former, more localised difficulties that interest us in this paper.

<sup>2</sup>We focus on behaviour support rather than emotional support as the latter has already been well researched and appears aligned with other online-support contexts [3, 8, 35, 54, 80, 88, 89, 101, 107]

family if it is to be tested and applied by the OP (cf., [113, 124]). In the rest of this section we argue for the importance to having a clearer understanding of the processes that parents undertake in developing new approaches to interacting with their child, and the challenges they face during such process, so that we can better understand the design requirements and opportunities for redesigning the affordances of online fora.

*6.1.1 'Inherently solvable' but not simple – challenges of the 'information-to-application' gap.* As argued above, the *information-to-application gap* highlights the design challenges of attempting to deliver successful instrumental support around parenting practice *only* through *receiving advice or information* from peers in these contexts. This stands in contrast to other skill-based challenges, such as when a parent of a 6-month old might receive information on establishing sleep schedules, approaches to introducing their child to solid food, or when to be worried enough to call a doctor if a child is unwell.

It is for these reasons that the existing parenting interventions in psychology have long emphasised the *experiential and on-going process* of learning, whereby parents are guided to develop the skills and confidence to support their children in overcoming difficulties [27], requiring a combination of reflection and progressive dynamic changes in context [36], rather than 'simple' information delivery. In other words, the core of the information-to-application gap seems to be in the difficulty of *helping the parents apply* the relatively well-understood—but abstract—*psychological principles* from the established programs (e.g., increase in directed praise, following through with consequences, not giving in to tantrums, explaining decision calmly and empathetically) *in ways that fit* the specific situations that OP faces and the social practices that already exist in the family (cf., also [124]).

Whereas in structured parenting programmes (cf. section 2.1) the *information-to-application gap* would typically be supported through a range of mechanisms that can include reflection, in-the-moment support, and habit formation [25, 44, 109, 122, 127], in our findings, we observed limited opportunities for enacting these mechanisms within the design of the forum. For example, whilst we observed some instances of commenters encouraging OP reflection (*has something been worrying you which he may be aware of?*), mechanisms such as self-reflection and in-the-moment support were more difficult to enact. Our findings suggest that the design of the fora prioritised information delivery as a dominant mechanism of parenting supporting. Namely, through OPs and commenters gradually contributing responses within a thread in the spirit of collective problem solving.

However, when trying to problem solve, commenters held limited understanding about the specific situation the OP faced or how the child might respond. Sections 5.2.1 and 5.2.2 point to the specific behaviours showing the commenters and OPs implicitly reacting to these difficulties by, for example, requiring contextualisation questions ('what has the OP tried before? how common/stable was the child behaviour they are describing?'); attempting to describe both the general structure of the problem ('my child never ever listens to me') and a specific example of such behaviour (for example, 'she rampaged through a shopping centre like a she-hulk'); or combining the description of general principles ('try to actively listen to what your child feels') with specific examples ('some of the questions that work for me are X, Y, Z').

To summarise, there are two main takeaways from the combination of the theoretical and empirical arguments above, which we can take forward to guide our thinking about design considerations in upcoming sections:

- #1 Many—although not all!—of the parenting difficulties related to challenging child behaviour could be *inherently 'solvable'* if parents and children can be empowered to shift existing parent-child dynamics with sufficient support; and the parenting intervention literature can

provide suggestions for specific evidence-based approaches that parents and children find helpful.

- #2 Such challenges in parenting are however *not* only based on lack of information, and *require targeted support mechanisms to enable parents in developing, testing, and incorporating new approaches* into their daily lives (seen as ‘parenting skills’ in the psychology literature).

*6.1.2 Current online fora affordances are unlikely to be sufficient.* If we accept the articulation of the *information-to-application gap* as a crucial challenge facing parents *instrumental* help-seeking in these contexts, what are the potential design avenues we—as the HCI community—could explore?

To the best of our knowledge, no work in HCI has so far aimed to address these design challenges in the context of parenting help-seeking online; and the forum threads data alone does not provide us enough information to propose design directions that would be sufficiently grounded in user-centred design processes (e.g., we lack information to understand if/how/which of the thread exchanges actually led to meaningful changes to the OPs life). We also note that many of the well-utilised approaches that have been successful to promote online support elsewhere are unlikely to address the fundamental design challenges of the information-to-application gap: for example, machine learning systems drawing on big-data to curate related information and/or answers for the question at hand [49, 142] remain, so far, in the knowledge support domain rather than focusing on skills development; systems to help identify localised services and/or information [20, 72, 143] are important but mostly re-direct the instrumental support needs elsewhere; and approaches to strengthen the emotional support provided by the platform such as metrics on how others within a community engaged with or experienced similar situations [16, 145] again would not directly help shift the parenting practices in question.

In lieu of existing data or close related work, the next section turns to other areas of HCI for inspiration and aims to identify several ‘best-bet’ design directions that could start addressing the challenge of information-to-application gap.

*6.1.3 Design inspiration from other literatures to augment instrumental parenting support online.* We propose that there are several existing research areas that have addressed challenges *similar* in terms of the interaction design mechanisms required (e.g., remote skills development support) and can thus provide some guidance on plausible design directions; even if the specific systems are *dissimilar* in the technologies available or the context of the problems solved.

In the rest of this subsection, we will outline three of such domains to provide inspiration on how others have designed for supporting active problem solving and skills development support across a range of contexts, where similar information-to-application gaps exist: personal informatics systems; technology-enabled interventions in families, and non-technological, social support structures in parenting courses. In each of the subsections, we also combine these observations together with the findings from our work to suggest a number of potential design research directions that we believe could lead to meaningful systems addressing the challenges of instrumental parenting support.

*Personal informatics in healthcare.* The first area to inspire novel parenting support online is the work around personal informatics, especially in the context of healthcare (see e.g., [41] for a review). Connecting with our findings on the challenges of presenting enough contextual information, we argue that much of this work shares the users’ need and focus on ‘active problem solving’ in terms of the participants’ everyday behaviours (e.g., learning to establish new eating—and self-tracking—habits when diagnosed with diabetes [90]). The technologies designed for these contexts are often based on enabling participants to track the outcomes of their choices over time, and thus to iteratively test and fine-tune ‘what works’ for them and their body, in their specific situation – see e.g., [69, 116] for specific examples. In other words, such personal informatics systems are

in-situ and based on helping the participant go through the process of (i) selecting what to try; (ii) how it can be tried in their contexts; (iii) tracking what the impact was; (iv) deciding whether to tweak the technique or give-up and try something else [94]. In particular, these systems showcase how digital technologies can introduce new possibilities to understand the impact of factors that would be otherwise challenging to unpack for the participant (cf., also [76] for the new intervention evaluation methods these approaches enable).

In the contexts of parental help-seeking online, we could for example ask questions such as: *How would the principles of personal informatics / self-experimentation apply to the online parenting context? Which aspects can be tracked and how might this become embedded into, e.g., existing fora, or remote module-based programs? How might such PI techniques scaffold further iterative problem solving support online, perhaps similarly to what is seen on fitness fora?* For example, early work from Huber [66] shows that parental-child statements could be classified automatically, suggesting the opportunity to offer highly situated, practical feedback to parents which was so far impossible to deliver at scale. Similarly, early work on ‘family informatics’ [104] highlight the opportunity to including the child as a more active participant in the program (e.g., for older children), as well as a potential avenue to increase communication and empathy for the parent-child dyad (which is core for all parenting programs).

*Non-technological support structures in parenting programs.* Second, traditional parenting programs are known to benefit participants—at least those who can attend and do not drop out—in a range of ways (cf., [50, 113, 119]). We propose that from the known *active components*, aspects that could be particularly relevant to the online contexts discussed here are the reliance on *group-based support*, which follows a *shared structure and set of informational resources* including role-play or other practice scenarios, which *everyone in the group aims to apply at home* over a shared time period, and then have the opportunity to *share their—and listen to the others’—experience* afterwards with some *expert support* to troubleshoot any difficulties with application.

In effect, the traditional parenting groups enable a group of parents, where everyone is facing similar challenges and have a shared set of ‘things-to-try’, resulting in what could be crowd-based exploration of possible applications. The parents often value the ‘experiential knowledge’ (cf., [86, 105]) of other parents at least as much as that of the experts, and the structure of the groups is often conducive to what can be seen as shared problems solving - see e.g., [88]. While this ensemble of aspects is not commonly found in the Mumsnet dataset we examined—and to our understanding neither in any other online parenting fora—it does bring a set of plausible, socio-technical design ideas that could be explored in future work, described in the final subsection below.

For example, we could ask design questions such as: *How might it be possible to introduce key aspects of the shared group support available in traditional parenting programs (i.e., ‘crowd-sourced’ problem-solving with everyone trying the same parenting technique) into online fora? How might online spaces be able to extend the reach of such support, e.g., could the groups be asynchronous or blended (e.g., progressing through posts of others who were at the same point in the programs you are now?). How might the opportunity of at-scale support group (potentially thousands rather than a dozen parents) help parents connect with those in similar circumstances, or holding similar parenting beliefs (e.g., [56, 60])?*

*Technology-enabled interventions in families.* Finally, connecting with our findings on a need for parenting skill development support, a range of exciting work in HCI look at designing—often behavioural change—technologies that provide tools for families to change established practice or introduce new ones. For example, prior work has focused on helping parents and children structure bedtime routines through a combination of ‘token economies’ and in-the-moment scaffolding of the individual steps [131]; or supporting physical activity in families through interactive narrative

for parents and children, involving real-world goal setting and reflection [110]. Other relevant work aimed to provide at-home reminders for parenting techniques taught in an ADHD therapy setting [103], as well as structured reading sessions for younger children [108], or support child's self-management of digital media consumption [64]. These systems showcase the opportunity for user-centred design to successfully design and introduce socio-technical tools that specifically target aspects of family life, empowering the adults and children alike to change towards practices that they prefer. Importantly, most of this work emphasised the agency of even young children, seeing them as active social actors in the family space; while fitting in with the psychological approach of supporting a change in the parent and/or the family environment, rather than directly 'training' the child.

For example, we could ask questions such as: *What are the design mechanisms that would help parents change specific aspects of their parenting behaviours in-situ, while relying on online peer support? Examples such as Mobero [131] illustrate a way of introducing behaviour economies for a highly specific and habit-based context (bedtime routines) in ways that both limit the parental load as well as ease transparency and consistent application. How might this be extended to other, more complex parent-child interactions that are either taught in traditional programs or suggested as resources online? To what extent would the well-known behaviour change techniques (cf., [93]) work well in these in-situ contexts, and when might they fail; and could such interactions ever become embedded into online support settings? In which way could such systems ethically take advantage of the emerging pervasiveness of IoT devices within family homes, which are often positioned exactly in the places where 'parenting happens' (cf., [14, 106]), and connect to the emotional and instrumental support online?*

## 6.2 Ethical and practical considerations for technology-enabled parenting solutions

At the same time as suggesting opportunities for the design of parenting support, we are aware of the need to carefully consider the ethical implications and potential unintended effects of any such system that, by definition, attempts to impact some of the most personal and private relationships in the parents' lives. Considerate ethical design—such as that following responsible innovation practices [68, 132]—drawing on user-centred design work with all the stakeholders including the children will be crucial (cf., also [9, 10, 47]).

We would also like to highlight that while many of the child-behaviour driven challenges are amenable to changes in parenting approaches (and thus could be seen as 'inherently solvable'), many are not and the emerging critiques around the combination of reduced local community support combined with the push of placing most, if not all, responsibility on families (rather than society) are another important design consideration (see [11, 87, 88, 101] for detailed arguments); with a range of potential foci, from the aims to directly support parents where they are at, to broader activism through design (cf., [81]).

We note that none of the suggestions in section 6.1.3 is a clear 'solution' to the problems we outline – much further empirical and design work is needed to understand how instrumental support could be offered in the context of online fora for such parenting needs. We propose that the identified research directions offer three possible and plausible agendas for future parenting fora design research that is informed by parenting programme best practice, and involves parents, children and psychology experts in envisaging their application. Moreover, while each of the directions sketched above could be explored individually, the underlying intervention mechanisms could also be used in combination: for example, one could imagine a widely accessible parenting programme, enabling crowd-sourced peer support through online fora whilst also offering in-the-moment parenting support through IoT-driven systems.

More broadly, there is so far very little work that would connect the deep knowledge base from parenting intervention psychology with the design thinking and innovation in HCI. The field appears ripe for such innovation: many of the developers of traditional parenting programs are slowly transitioning their programs to online spaces albeit staying so far very close to the tried-and-tested intervention models (e.g., video based modules, traditional online peer support fora) – providing both excellent baseline systems to innovate on, as well as initial evidence of where/how traditional models might fall short. As researchers, intervention developers, and designers we are excited by these possibilities, which could help envision entirely new models for supporting parents in developing what most strive for: close, emotionally-strong relationships with their children that also empower their children to grow into happy and well-adjusted adults.

## 7 CONCLUSION

This paper presents an empirical and a design contribution to the existing body of HCI work investigating how parents seek and receive help online. By focusing on parent concerns for complex child behaviour in 2-5 yo and associated emotion, we highlight an important but to date under-researched parenting support area; one that—as our data suggests—faces a bespoke set of challenges for receiving online support. We combine (i) the qualitative analysis of 1 year of fora posts from a well established UK parenting site to understand and identify existing needs and challenges (i.e., active problem solving and the associated information-to-application gap); with (ii) the extensive literature on traditional parenting interventions and HCI work in other domains to suggest a series of design directions that could start addressing these difficulties through user-centred design work.

## ACKNOWLEDGEMENTS

This work was supported in part by a UKRI Future Leaders Fellowship, grant no. MR/T041897/1.

## REFERENCES

- [1] Tawfiq Ammari, Meredith Ringel Morris, and Sarita Yardi Schoenebeck. 2014. Accessing Social Support and Overcoming Judgment on Social Media among Parents of Children with Special Needs. In *Eights International AAAI Conference on Weblogs and Social Media*. 22–31.
- [2] Tawfiq Ammari and Sarita Schoenebeck. 2015. Networked empowerment on facebook among parents of children with special needs. *Conference on Human Factors in Computing Systems - Proceedings 2015-April* (2015), 2805–2814. <https://doi.org/10.1145/2702123.2702324>
- [3] Tawfiq Ammari and Sarita Schoenebeck. 2015. Understanding and supporting fathers and fatherhood on social media sites. *Conference on Human Factors in Computing Systems - Proceedings 2015-April* (2015), 1905–1914. <https://doi.org/10.1145/2702123.2702205>
- [4] Tawfiq Ammari, Sarita Schoenebeck, and Daniel M. Romero. 2018. Pseudonymous Parents. (2018), 1–13. <https://doi.org/10.1145/3173574.3174063>
- [5] Nazanin Andalibi and Andrea Forte. 2018. Announcing Pregnancy Loss on Facebook. In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems*. ACM, New York, NY, USA, 1–14. <https://doi.org/10.1145/3173574.3173732>
- [6] Nazanin Andalibi and Patricia Garcia. 2021. Sensemaking and Coping After Pregnancy Loss: The Seeking and Disruption of Emotional Validation Online. *Proceedings of the ACM on Human-Computer Interaction* 5, CSCW1 (April 2021), 127:1–127:32. <https://doi.org/10.1145/3449201>
- [7] Nazanin Andalibi, Oliver L. Haimson, Munmun De Choudhury, and Andrea Forte. 2018. Social support, reciprocity, and anonymity in responses to sexual abuse disclosures on social media. *ACM Transactions on Computer-Human Interaction* 25, 5 (2018). <https://doi.org/10.1145/3234942>
- [8] Nazanin Andalibi, Pinar Ozturk, and Andrea Forte. 2017. Sensitive self-disclosures, responses, and social support on instagram: The case of #depression. *Proceedings of the ACM Conference on Computer Supported Cooperative Work, CSCW* (2017), 1485–1500. <https://doi.org/10.1145/2998181.2998243>
- [9] Alissa N. Antle, Christopher Frauenberger, Monica Landoni, Jerry Alan Fails, Marina Jirotko, Helena Webb, and Nalin Tutiyaiphungprasert. 2020. Emergent, situated and prospective ethics for child-computer interaction research. In

- Proceedings of the 2020 ACM Interaction Design and Children Conference: Extended Abstracts*. ACM, New York, NY, USA, 54–61. <https://doi.org/10.1145/3397617.3398058>
- [10] Alissa N. Antle and Juan Pablo Hourcade. 2021. Research in Child–Computer Interaction: Provocations and envisioning future directions. *International Journal of Child–Computer Interaction* (8 2021), 100374. <https://doi.org/10.1016/j.ijcci.2021.100374>
- [11] Terry Arendell. 2000. Conceiving and investigating motherhood: The decade’s scholarship. *Journal of Marriage and Family* 62, 4 (2000), 1192–1207. <https://doi.org/10.1111/j.1741-3737.2000.01192.x>
- [12] Sabine Baker, Matthew R. Sanders, and Alina Morawska. 2017. Who Uses Online Parenting Support? A Cross-Sectional Survey Exploring Australian Parents’ Internet Use for Parenting. *Journal of Child and Family Studies* 26, 3 (2017), 916–927. <https://doi.org/10.1007/s10826-016-0608-1>
- [13] Monica J. Barratt. 2011. Discussing illicit drugs in public internet forums. In *Proceedings of the 5th International Conference on Communities and Technologies - C&T ’11*. ACM Press, New York, New York, USA, 159. <https://doi.org/10.1145/2103354.2103376>
- [14] Erin Beneteau, Ashley Boone, Yuxing Wu, Julie A. Kientz, Jason Yip, and Alexis Hiniker. 2020. Parenting with Alexa: Exploring the Introduction of Smart Speakers on Family Dynamics. *Conference on Human Factors in Computing Systems - Proceedings* (2020), 1–13. <https://doi.org/10.1145/3313831.3376344>
- [15] Jay M. Bernhardt and Elizabeth M. Felner. 2004. Online pediatric information seeking among mothers of young children: Results from a qualitative study using focus groups. *Journal of Medical Internet Research* 6, 1 (2004), 83–98. <https://doi.org/10.2196/jmir.6.1.e7>
- [16] Göran Bolin and Julia Velkova. 2020. Audience-metric continuity? Approaching the meaning of measurement in the digital everyday. *Media, Culture & Society* 42, 7-8 (Oct. 2020), 1193–1209. <https://doi.org/10.1177/0163443720907017> Publisher: SAGE Publications Ltd.
- [17] Katya Borgos-Rodriguez, Kathryn E. Ringland, and Anne Marie Piper. 2019. Myautsomefamilylife: Analyzing parents of children with developmental disabilities on YouTube. *Proceedings of the ACM on Human–Computer Interaction* 3, CSCW (2019). <https://doi.org/10.1145/3359196>
- [18] Virginia Braun and Victoria Clarke. 2006. Using thematic analysis in psychology. *Qualitative research in psychology* 3, 2 (2006), 77–101. <http://www.tandfonline.com/doi/abs/10.1191/1478088706qp0630a>
- [19] Amy Bruckman. 2002. Studying the amateur artist: A perspective on disguising data collected in human subjects research on the Internet. *Ethics and Information Technology* 4, 3 (Sept. 2002), 217–231. <https://doi.org/10.1023/A:1021316409277>
- [20] Grace Burlinson, Mustafa Naseem, and Kentaro Toyama. 2020. An Exploration of African-American Pregnant Women’s Information-Seeking Behavior in Detroit. In *Proceedings of the 2020 International Conference on Information and Communication Technologies and Development (ICTD2020)*. Association for Computing Machinery, New York, NY, USA, 1–12. <https://doi.org/10.1145/3392561.3394647>
- [21] Susan B Campbell. 2016. Developmental Psychopathology Perspective. January 2008 (2016).
- [22] Anil Chacko, Scott A. Jensen, Lynda S. Lowry, Melinda Cornwell, Alyssa Chimklis, Elizabeth Chan, Daniel Lee, and Brenda Pulgarin. 2016. Engagement in Behavioral Parent Training: Review of the Literature and Implications for Practice. *Clinical Child and Family Psychology Review* 19, 3 (Sept. 2016), 204–215. <https://doi.org/10.1007/s10567-016-0205-2>
- [23] Charlotte Chalklen and Heather Anderson. 2017. Mothering on Facebook: Exploring the Privacy/Openness Paradox. *Social Media + Society* 3, 2 (April 2017), 2056305117707187. <https://doi.org/10.1177/2056305117707187> Publisher: SAGE Publications Ltd.
- [24] Mary A. Chiariello and Helen Orvaschel. 1995. Patterns of parent-child communication: Relationship to depression. *Clinical Psychology Review* 15, 5 (Jan. 1995), 395–407. [https://doi.org/10.1016/0272-7358\(95\)00022-H](https://doi.org/10.1016/0272-7358(95)00022-H)
- [25] Dana C. Childress. 2004. Special Instruction and Natural Environments: Best Practices in Early Intervention. *Infants & Young Children* 17, 2 (June 2004), 162. [https://journals.lww.com/iyjournal/abstract/2004/04000/special\\_instruction\\_and\\_natural\\_environments\\_\\_best.7.aspx](https://journals.lww.com/iyjournal/abstract/2004/04000/special_instruction_and_natural_environments__best.7.aspx)
- [26] Linda K. Cordisco, Phillip S. Strain, and Nancy Depew. 1988. Assessment for Generalization of Parenting Skills in Home Settings. *Journal of the Association for Persons with Severe Handicaps* 13, 3 (Sept. 1988), 202–210. <https://doi.org/10.1177/154079698801300311> Publisher: SAGE Publications.
- [27] Kathrin M Cresswell, Ann Blandford, and Aziz Sheikh. 2017. Drawing on human factors engineering to evaluate the effectiveness of health information technology. *Journal of the Royal Society of Medicine* 110, 8 (2017), 309–315. <https://doi.org/10.1177/0141076817712252>
- [28] Lauren Croucher, Elif Mertan, Roz Shafran, and Sophie D Bennett. 2020. The Use of Mumsnet by Parents of Young People With Mental Health Needs: Qualitative Investigation. *JMIR Mental Health* 7, 9 (9 2020), e18271. <https://doi.org/10.2196/18271>

- [29] Munmun De Choudhury and Sushovan De. 2014. Mental health discourse on reddit: Self-disclosure, social support, and anonymity. In *Eighth international AAAI conference on weblogs and social media*.
- [30] Kirby Deater-Deckard, Zhe Wang, Nan Chen, and Martha Ann Bell. 2012. Maternal executive function, harsh parenting, and child conduct problems. *Journal of Child Psychology and Psychiatry* 53, 10 (2012), 1084–1091. <https://doi.org/10.1111/j.1469-7610.2012.02582.x> \_eprint: <https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1469-7610.2012.02582.x>.
- [31] Betsy Disalvo. 2016. Participatory Design through a Learning Science Lens. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (2016), 4459–4463. <https://doi.org/10.1145/2858036.2858405>
- [32] Theodore Dix. 1991. The affective organization of parenting: Adaptive and maladaptive processes. *Psychological Bulletin* 110, 1 (1991), 3–25. <https://doi.org/10.1037/0033-2909.110.1.3> Place: US Publisher: American Psychological Association.
- [33] Snezhana Djambazova-Popordanoska. 2016. Implications of emotion regulation on young children’s emotional wellbeing and educational achievement. *Educational Review* 68, 4 (Oct. 2016), 497–515. <https://doi.org/10.1080/00131911.2016.1144559> Publisher: Routledge \_eprint: <https://doi.org/10.1080/00131911.2016.1144559>.
- [34] Jennifer L. Doty and Jodi Dworkin. 2014. Online Social Support for Parents: A Critical Review. *Marriage & Family Review* 50, 2 (March 2014), 174–198. <https://doi.org/10.1080/01494929.2013.834027> Publisher: Routledge \_eprint: <https://doi.org/10.1080/01494929.2013.834027>.
- [35] Jennifer L. Doty and Jodi Dworkin. 2014. Online Social Support for Parents: A Critical Review. *Marriage and Family Review* 50, 2 (2014), 174–198. <https://doi.org/10.1080/01494929.2013.834027>
- [36] Emma Doyle. 2013. Seeking advice about children’s health in an online parenting forum. *Medical Sociology online* 7, 3 (2013), 17–27. [http://myaccess.library.utoronto.ca/login?url=https://search.proquest.com/docview/1684425707?accountid=14771%0Ahttp://bf4dv7zn3u.search.serialssolutions.com?ctx\\_ver=Z39.88-2004&ctx\\_enc=info:ofi/enc:UTF-8&rft\\_id=info:sid/ProQ%3A Socabs&rft\\_val\\_fmt=info:ofi/](http://myaccess.library.utoronto.ca/login?url=https://search.proquest.com/docview/1684425707?accountid=14771%0Ahttp://bf4dv7zn3u.search.serialssolutions.com?ctx_ver=Z39.88-2004&ctx_enc=info:ofi/enc:UTF-8&rft_id=info:sid/ProQ%3A Socabs&rft_val_fmt=info:ofi/)
- [37] Duggan, Maeve, Amanda Lenhart, Lampe, Cliff, and Ellison, Nicole. 2015. Parents and Social Media. <https://www.pewresearch.org/internet/2015/07/16/parents-and-social-media/>
- [38] Melissa E. Duncombe, Sophie S. Havighurst, Christiane E. Kehoe, Kerry A. Holland, Emma J. Frankling, and Robyn Stargatt. 2016. Comparing an Emotion- and a Behavior-Focused Parenting Program as Part of a Multisystemic Intervention for Child Conduct Problems. *Journal of Clinical Child & Adolescent Psychology* 45, 3 (5 2016), 320–334. <https://doi.org/10.1080/15374416.2014.963855>
- [39] Jodi Dworkin, Jessica Connell, and Jennifer Doty. 2013. A literature review of parents’ online behavior. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace* 7, 2 (July 2013). <https://doi.org/10.5817/CP2013-2-2>
- [40] Laura Elwell, Sarah Grogan, and Neil Coulson. 2011. Adolescents living with cancer: The role of computer-mediated support groups. *Journal of Health Psychology* 16, 2 (2011), 236–248. <https://doi.org/10.1177/1359105310371398>
- [41] Daniel A. Epstein, Clara Caldeira, Mayara Costa Figueiredo, Xi Lu, Lucas M. Silva, Lucretia Williams, Jong Ho Lee, Qingyang Li, Simran Ahuja, Qiuer Chen, Payam Dowlatyari, Craig Hilby, Sazedra Sultana, Elizabeth V. Eikey, and Yunan Chen. 2020. Mapping and Taking Stock of the Personal Informatics Literature. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies* 4, 4 (2020). <https://doi.org/10.1145/3432231>
- [42] Sarah Evans, Katie Davis, Abigail Evans, Julie Ann Campbell, David P. Randall, Kodlee Yin, and Cecilia Aragon. 2017. More Than Peer Production. In *Proceedings of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing*. ACM, New York, NY, USA, 259–272. <https://doi.org/10.1145/2998181.2998342>
- [43] Sheila M. Eyberg and Elizabeth A. Robinson. 1982. Parent-child interaction training: Effects on family functioning. *Journal of Clinical Child Psychology* 11, 2 (June 1982), 130–137. <https://doi.org/10.1080/15374418209533076> Publisher: Routledge \_eprint: <https://doi.org/10.1080/15374418209533076>.
- [44] Barbara H. Fiese and Ross D. Parke (Eds.). 2002. Introduction to the special section on family routines and rituals. *Journal of Family Psychology* 16, 4 (2002), 379–380. <https://doi.org/10.1037/0893-3200.16.4.379> Place: US Publisher: American Psychological Association.
- [45] Casey Fiesler and Nicholas Proferes. 2018. “Participant” Perceptions of Twitter Research Ethics. *Social Media + Society* 4, 1 (Jan. 2018), 2056305118763366. <https://doi.org/10.1177/2056305118763366> Publisher: SAGE Publications Ltd.
- [46] Juan M. Flujas-Contreras, Azucena García-Palacios, and Inmaculada Gómez. 2019. Technology-based parenting interventions for children’s physical and psychological health: a systematic review and meta-analysis. *Psychological Medicine* 49, 11 (8 2019), 1787–1798. <https://doi.org/10.1017/S0033291719000692>
- [47] Christopher Frauenberger, Monica Landoni, Jerry Alan Fails, Janet C. Read, Alissa N. Antle, and Pauline Gourlet. 2019. Broadening the Discussion of Ethics in the Interaction Design and Children Community. In *Proceedings of the 18th ACM International Conference on Interaction Design and Children*. ACM, New York, NY, USA, 3–7. <https://doi.org/10.1145/3311927.3331886>
- [48] Richenda Gambles. 2010. Going public? Articulations of the personal and political on Mumsnet. com. In *Rethinking the public: Innovations in research, theory and politics*. Policy Press Bristol, 29–42.

- [49] Yujia Gao, Jinu Jang, and Diyi Yang. 2021. Understanding the Usage of Online Media for Parenting from Infancy to Preschool At Scale. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (CHI '21)*. Association for Computing Machinery, New York, NY, USA, 1–12. <https://doi.org/10.1145/3411764.3445203>
- [50] Frances Gardner and Patty Leijten. 2017. Incredible Years parenting interventions: current effectiveness research and future directions. *Current Opinion in Psychology* 15, 16 (2017), 99–104. <https://doi.org/10.1016/j.copsyc.2017.02.023>
- [51] Frances Gardner, Patty Leijten, G. J. Melendez-Torres, Sabine Landau, Victoria Harris, Joanna Mann, Jennifer Beecham, Judy Hutchings, and Stephen Scott. 2019. The Earlier the Better? Individual Participant Data and Traditional Meta-analysis of Age Effects of Parenting Interventions. *Child Development* 90, 1 (2019), 7–19. <https://doi.org/10.1111/cdev.13138>
- [52] Radhika Garg, Yash Kapadia, and Subhasree Sengupta. 2021. Using the Lenses of Emotion and Support to Understand Unemployment Discourse on Reddit. *Proceedings of the ACM on Human-Computer Interaction* 5, CSCW1 (April 2021), 14:1–14:24. <https://doi.org/10.1145/3449088>
- [53] Lorna Gibson and Vicki L. Hanson. 2013. Digital motherhood: how does technology help new mothers?. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. ACM, New York, NY, USA, 313–322. <https://doi.org/10.1145/2470654.2470700>
- [54] Danielle M. Gleeson, Alison Craswell, and Christian M. Jones. 2019. Women’s use of social networking sites related to childbearing: An integrative review. *Women and Birth* 32, 4 (2019), 294–302. <https://doi.org/10.1016/j.wombi.2018.10.010>
- [55] Alison Gopnik. 2016. *The gardener and the carpenter: What the new science of child development tells us about the relationship between parents and children*. Macmillan.
- [56] John M Gottman, Lynn Fainsilber Katz, and Carole Hooven. 1996. Parental meta-emotion philosophy and the emotional life of families: Theoretical models and preliminary data. *Journal of Family Psychology* 10, 3 (1996), 243.
- [57] John Mordechai Gottman, Lynn Fainsilber Katz, and Carole Hooven. 2013. *Meta-emotion: how families communicate emotionally*. Routledge Taylor & Francis Group, London New York.
- [58] Devon Greyson, Cathy Chabot, Caroline Mniszak, and Jean A Shoveller. 2023. Social media and online safety practices of young parents. *Journal of Information Science* 49, 5 (Oct. 2023), 1344–1357. <https://doi.org/10.1177/0165515211053808> Publisher: SAGE Publications Ltd.
- [59] Joan E. Grusec. 2011. Socialization Processes in the Family: Social and Emotional Development. *Annual Review of Psychology* 62, 1 (1 2011), 243–269. <https://doi.org/10.1146/annurev.psych.121208.131650>
- [60] Sophie S. Havighurst, Melissa Duncombe, Emma Frankling, Kerry Holland, Christiane Kehoe, and Robyn Stargatt. 2015. An Emotion-Focused Early Intervention for Children with Emerging Conduct Problems. *Journal of Abnormal Child Psychology* 43, 4 (2015), 749–760. <https://doi.org/10.1007/s10802-014-9944-z>
- [61] Sophie S. Havighurst, Alessandra Radovini, Brandon Hao, and Christiane E. Kehoe. 2020. Emotion-focused parenting interventions for prevention and treatment of child and adolescent mental health problems: a review of recent literature. *Current Opinion in Psychiatry* 33, 6 (Nov. 2020), 586–601. <https://doi.org/10.1097/YCO.0000000000000647>
- [62] Sophie S. Havighurst, Katherine R. Wilson, Ann E. Harley, and Margot R. Prior. 2009. Tuning in to kids: an emotion-focused parenting program—initial findings from a community trial. *Journal of Community Psychology* 37, 8 (2009), 1008–1023. <https://doi.org/10.1002/jcop.20345> \_eprint: <https://onlinelibrary.wiley.com/doi/pdf/10.1002/jcop.20345>.
- [63] Sophie S Havighurst, Katherine R Wilson, Ann E Harley, Margot R Prior, and others. 2009. Tuning in to kids: An emotion-focused parenting program—initial findings from a community trial. *Journal of Community Psychology* 37, 8 (2009), 1008–1023.
- [64] Alexis Hiniker, Sharon S. Heung, Sungsoo (Ray) Hong, and Julie A. Kientz. 2018. Coco’s Videos. In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems*. ACM, New York, NY, USA, 1–13. <https://doi.org/10.1145/3173574.3173828>
- [65] Alison Hooper, Claire Schweiker, and Cailin Kerch. 2023. Social support in a parenting Facebook group during the COVID-19 pandemic. *Family Relations* 72, 2 (2023), 530–546. <https://doi.org/10.1111/fare.12804> \_eprint: <https://onlinelibrary.wiley.com/doi/pdf/10.1111/fare.12804>.
- [66] Bernd Huber, Richard F. Davis, Allison Cotter, Emily Junkin, Mindy Yard, Stuart Shieber, Elizabeth Brestan-Knight, and Krzysztof Z. Gajos. 2019. SpecialTime: Automatically Detecting Dialogue Acts from Speech to Support Parent-Child Interaction Therapy. In *Proceedings of the 13th EAI International Conference on Pervasive Computing Technologies for Healthcare*. ACM, New York, NY, USA, 139–148. <https://doi.org/10.1145/3329189.3329203>
- [67] Claire Hughes, Rory T. Devine, Judi Mesman, and Clancy Blair. 2020. Understanding the terrible twos: A longitudinal investigation of the impact of early executive function and parent–child interactions. *Developmental Science* 23, 6 (2020), e12979. <https://doi.org/10.1111/desc.12979> \_eprint: <https://onlinelibrary.wiley.com/doi/pdf/10.1111/desc.12979>.
- [68] Marina Jirotko, Barbara Grimpe, Bernd Stahl, Grace Eden, and Mark Hartswood. 2017. Responsible research and innovation in the digital age. *Commun. ACM* 60, 5 (2017), 62–68.

- [69] Ravi Karkar, Jasmine Zia, Jessica Schroeder, Daniel A. Epstein, Laura R. Pina, Jeffrey Scofield, James Fogarty, Julie A. Kientz, Sean A. Munson, and Roger Vilardaga. 2017. TummyTrials: A Feasibility Study of Using Self-Experimentation to Detect Individualized Food Triggers. *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems - CHI '17* (2017), 6850–6863. <https://doi.org/10.1145/3025453.3025480>
- [70] Alan E Kazdin. 2008. *Parent management training: Treatment for oppositional, aggressive, and antisocial behavior in children and adolescents*. Oxford University Press.
- [71] Alan E Kazdin. 2018. Developing Treatments for Antisocial Behavior Among Children : Controlled Trials and Uncontrolled Tribulations. *Perspectives on Psychological Science* 13, 5 (2018), 634–650. <https://doi.org/10.1177/1745691618767880>
- [72] Katherine Jennifer Kelly, Shelley Doucet, Alison Luke, Rima Azar, and William Montelpare. 2022. Experiences, Motivations, and Perceived Impact of Participation in a Facebook-Based Support Group for Caregivers of Children and Youth With Complex Care Needs: Qualitative Descriptive Study. *JMIR Pediatrics and Parenting* 5, 3 (July 2022), e33172. <https://doi.org/10.2196/33172> Company: JMIR Pediatrics and Parenting Distributor: JMIR Pediatrics and Parenting Institution: JMIR Pediatrics and Parenting Label: JMIR Pediatrics and Parenting Publisher: JMIR Publications Inc., Toronto, Canada.
- [73] Joanna J. Kim, Nancy A. Gonzales, Hardian Thamrin, Anne Mauricio, Mary Kuckertz, and Daisy Camacho-Thompson. 2021. What got in the way? Caregiver-reported challenges to home practice of assigned intervention skills. *Implementation Research and Practice* 2 (Jan. 2021), 26334895211055994. <https://doi.org/10.1177/26334895211055994> Publisher: SAGE Publications.
- [74] M.K. Kim, S. Druga, S. Esmaeili, J. Woodward, A. Shaw, A. Jain, J. Langham, K. Hollingshead, S.B. Lovato, E. Beneteau, J. Ruiz, L. Anthony, and A. Hiniker. 2022. Examining voice assistants in the context of children’s speech. *International Journal of Child-Computer Interaction* 34 (2022). <https://doi.org/10.1016/j.ijcci.2022.100540>
- [75] Susan Kirk and Linda Milnes. 2016. An exploration of how young people and parents use online support in the context of living with cystic fibrosis. *Health Expectations* 19, 2 (4 2016), 309–321. <https://doi.org/10.1111/hex.12352>
- [76] Predrag Klasnja, Eric B. Hekler, Elizabeth V. Korinek, John Harlow, and Sonali R. Mishra. 2017. Toward Usable Evidence. (2017), 3071–3082. <https://doi.org/10.1145/3025453.3026013>
- [77] Kyong-Ah Kwon, Suejung Han, Hyun-Joo Jeon, and Gary E. Bingham. 2013. Mothers’ and fathers’ parenting challenges, strategies, and resources in toddlerhood. *Early Child Development and Care* 183, 3-4 (April 2013), 415–429. <https://doi.org/10.1080/03004430.2012.711591> Publisher: Routledge \_eprint: <https://doi.org/10.1080/03004430.2012.711591>.
- [78] Susan H. Landry, Cynthia L. Miller-Loncar, Karen E. Smith, and Paul R. Swank. 2002. The Role of Early Parenting in Children’s Development of Executive Processes. *Developmental Neuropsychology* 21, 1 (Feb. 2002), 15–41. [https://doi.org/10.1207/S15326942DN2101\\_2](https://doi.org/10.1207/S15326942DN2101_2) Publisher: Routledge \_eprint: [https://doi.org/10.1207/S15326942DN2101\\_2](https://doi.org/10.1207/S15326942DN2101_2).
- [79] Aideen Lawlor and Jurek Kirakowski. 2014. Online support groups for mental health: A space for challenging self-stigma or a means of social avoidance? *Computers in Human Behavior* 32 (3 2014), 152–161. <https://doi.org/10.1016/j.chb.2013.11.015>
- [80] Amanda Lazar, Norman Makoto Su, Jeffrey Bardzell, and Shaowen Bardzell. 2019. Parting the Red Sea: Sociotechnical systems and lived experiences of menopause. *Conference on Human Factors in Computing Systems - Proceedings* (2019), 1–16. <https://doi.org/10.1145/3290605.3300710>
- [81] Debora de Castro Leal, Angelika Strohmayer, and Max Krüger. 2021. On activism and academia: Reflecting together and sharing experiences among critical friends. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*. 1–18.
- [82] Cynthia N. Lebron, Sara M. St. George, Daphne G. Eckembrecher, and Lucia M. Alvarez. 2019. “Am I doing this wrong?” Breastfeeding mothers’ use of an online forum. *Maternal and Child Nutrition* August 2019 (2019), 1–10. <https://doi.org/10.1111/mcn.12890>
- [83] R Lederman, G Wadley, J Gleeson, Bendall Sarah, and Mario Alvarez-Jimenez. 2014. Moderated online social therapy: Designing and evaluating technology for mental health. *ACM Transactions on ...* 21, 1 (2014), 1–26. <http://dl.acm.org/citation?id=2513179>
- [84] Sonia Livingstone and Alicia Blum-Ross. 2017. Researching children and childhood in the digital age. In *Research with Children: Perspectives and Practices: Third Edition*, P. Christensen and A James (Eds.). 1–231. <https://doi.org/10.4324/9781315657349>
- [85] Sonia Livingstone and Jasmina Byrne. 2018. Parenting in the digital age : The challenges of parental responsibility in comparative perspective. Nordicom, University of Gothenburg, 19–30. <https://urn.kb.se/resolve?urn=urn:nbn:se:norden:org:diva-12015>
- [86] Deborah Lupton. 2016. The use and value of digital media for information about pregnancy and early motherhood: A focus group study. *BMC Pregnancy and Childbirth* 16, 1 (2016), 1–10. <https://doi.org/10.1186/s12884-016-0971-3>
- [87] Deborah Lupton, Sarah Pedersen, and Gareth M. Thomas. 2016. Parenting and Digital Media: From the Early Web to Contemporary Digital Society. *Sociology Compass* 10, 8 (2016), 730–743. <https://doi.org/10.1111/soc4.12398>

- [88] Clare Madge and Henrietta O'Connor. 2006. Parenting gone wired: Empowerment of new mothers on the internet? *Social and Cultural Geography* 7, 2 (2006), 199–220. <https://doi.org/10.1080/14649360600600528>
- [89] Diane Maloney-Krichmar and Jenny Preece. 2005. A multilevel analysis of sociability, usability, and community dynamics in an online health community. *ACM Transactions on Computer-Human Interaction* 12, 2 (2005), 201–232. <https://doi.org/10.1145/1067860.1067864>
- [90] Lena Mamykina, Elizabeth Mynatt, Patricia Davidson, and Daniel Greenblatt. 2008. MAHI: investigation of social scaffolding for reflective thinking in diabetes management. In *CHI '08*. ACM Press, New York, New York, USA, 477. <https://doi.org/10.1145/1357054.1357131>
- [91] Brandon T. McDaniel, Sarah M. Coyne, and Erin K. Holmes. 2012. New mothers and media use: Associations between blogging, social networking, and maternal well-being. *Maternal and Child Health Journal* 16, 7 (2012), 1509–1517. <https://doi.org/10.1007/s10995-011-0918-2>
- [92] Brandon A. McLeod PhD, MSW. 2020. "Hello group, I need advice": A Textual Analysis of Black Fathers' Help-Seeking Posts on Facebook. *Family Relations* 69, 5 (2020), 944–955. <https://doi.org/10.1111/fare.12500> \_eprint: <https://onlinelibrary.wiley.com/doi/pdf/10.1111/fare.12500>
- [93] Susan Michie, Lucy Yardley, Robert West, Kevin Patrick, and Felix Greaves. 2017. Developing and Evaluating Digital Interventions to Promote Behavior Change in Health and Health Care: Recommendations Resulting From an International Workshop. *Journal of medical Internet research* 19, 6 (2017), e232. <https://doi.org/10.2196/jmir.7126>
- [94] Sean A Munson, Jessica Schroeder, Ravi Karkar, Julie A Kientz, and Chia-fang Chung. 2020. The Importance of Starting With Goals in N-of-1 Studies. 2, May (2020), 1–7. <https://doi.org/10.3389/fdgth.2020.00003>
- [95] Mark W. Newman, Debra Lauterbach, Sean A. Munson, Paul Resnick, and Margaret E. Morris. 2011. It's not that i don't have problems, i'm just not putting them on facebook: challenges and opportunities in using online social networks for health. In *CSCW '11*. ACM Press, New York, New York, USA, 341. <https://doi.org/10.1145/1958824.1958876>
- [96] Christa C. Nieuwboer, Ruben G. Fukkink, and Jo M.A. Hermans. 2013. Online programs as tools to improve parenting: A meta-analytic review. *Children and Youth Services Review* 35, 11 (2013), 1823–1829. <https://doi.org/10.1016/j.childyouth.2013.08.008>
- [97] UK Parliament. 2021. Draft Online Safety Bill (Joint Committee) - Summary - Committees - UK Parliament. <https://committees.parliament.uk/writtenevidence/39118/pdf/>
- [98] J. Patterson, C. Mockford, and S. Stewart-Brown. 2005. Parents' perceptions of the value of the Webster-Stratton Parenting Programme: a qualitative study of a general practice based initiative. *Child: Care, Health and Development* 31, 1 (2005), 53–64. <https://doi.org/10.1111/j.1365-2214.2005.00479.x> \_eprint: <https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1365-2214.2005.00479.x>
- [99] Sarah Pedersen. 2015. 'It Took a Lot to Admit I Am Male on Here'. Going Where Few Men Dare to Tread: Men on Mumsnet. In *Media, Margins and Popular Culture*. Springer, 249–261.
- [100] Sarah Pedersen. 2020. *The Politicization of Mumsnet*. Emerald Group Publishing.
- [101] Sarah Pedersen and Deborah Lupton. 2018. 'What are you feeling right now?' communities of maternal feeling on Mumsnet. *Emotion, Space and Society* 26 (2018), 57–63. <https://doi.org/10.1016/j.emospa.2016.05.001>
- [102] Sarah Pedersen and Janet Smithson. 2013. Mothers with attitude — How the Mumsnet parenting forum offers space for new forms of femininity to emerge online. *Women's Studies International Forum* 38 (5 2013), 97–106. <https://doi.org/10.1016/j.wsif.2013.03.004>
- [103] Laura Pina, Kael Rowan, Asta Roseway, Paul Johns, Gillian R Hayes, and Mary Czerwinski. 2014. In Situ Cues for ADHD Parenting Strategies Using Mobile Technology. In *8th International Conference on Pervasive Computing Technologies for Healthcare*. 17–24.
- [104] Laura R. Pina, Sang-Wha Sien, Teresa Ward, Jason C. Yip, Sean A. Munson, James Fogarty, and Julie A. Kientz. 2017. From Personal Informatics to Family Informatics. In *Proceedings of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing*. ACM, New York, NY, USA, 2300–2315. <https://doi.org/10.1145/2998181.2998362>
- [105] Lars Plantin and Kristian Daneback. 2009. Parenthood, information and support on the internet. A literature review of research on parents and professionals online. *BMC Family Practice* 10 (2009), 1–12. <https://doi.org/10.1186/1471-2296-10-34>
- [106] Martin Porcheron, Joel E Fischer, Stuart Reeves, and Sarah Sharples. 2018. Voice Interfaces in Everyday Life. *Proceedings of the 2018 ACM Conference on Human Factors in Computing Systems* (2018). <https://doi.org/doi.org/10.1145/3173574.3174214>
- [107] Julie Prescott, Terry Hanley, and Katalin Ujhelyi. 2017. Peer communication in online mental health forums for young people: Directional and nondirectional support. *JMIR Mental Health* 4, 3 (2017). <https://doi.org/10.2196/mental.6921>
- [108] Hayes Raffle, Mirjana Spasojevic, Rafael Ballagas, Glenda Revelle, Hiroshi Horii, Sean Follmer, Janet Go, Emily Reardon, Koichi Mori, and Joseph Kaye. 2010. Family story play: reading with young children (and elmo) over a distance. In *CHI '10*. ACM Press, 1583. <https://doi.org/10.1145/1753326.1753563>

- [109] Alistair Cooper Redfern, Sheila. 2015. *Reflective Parenting: A Guide to Understanding What's Going on in Your Child's Mind*. Routledge, London. <https://doi.org/10.4324/9781315764108>
- [110] Herman Saksono, Carmen Castaneda-Sceppa, Jessica Hoffman, Vivien Morris, Magy Seif El-Nasr, and Andrea G. Parker. 2020. Storywell: Designing for Family Fitness App Motivation by Using Social Rewards and Reflection. *Conference on Human Factors in Computing Systems - Proceedings* (2020). <https://doi.org/10.1145/3313831.3376686>
- [111] Matthew R. Sanders. 2008. Triple P-Positive Parenting Program as a public health approach to strengthening parenting. *Journal of Family Psychology* 22, 4 (2008), 506–517. <https://doi.org/10.1037/0893-3200.22.3.506> Place: US Publisher: American Psychological Association.
- [112] Matthew R. Sanders. 2012. Development, Evaluation, and Multinational Dissemination of the Triple P-Positive Parenting Program. *Annual Review of Clinical Psychology* 8, 1 (2012), 345–379. <https://doi.org/10.1146/annurev-clinpsy-032511-143104> \_eprint: <https://doi.org/10.1146/annurev-clinpsy-032511-143104>
- [113] Matthew R. Sanders. 2012. Development, Evaluation, and Multinational Dissemination of the Triple P-Positive Parenting Program. *Annual Review of Clinical Psychology* 8, 1 (2012), 345–379. <https://doi.org/10.1146/annurev-clinpsy-032511-143104>
- [114] Anna Sarkadi and S. Bremberg. 2005. Socially unbiased parenting support on the internet: A cross-sectional study of users of a large Swedish parenting website. *Child: Care, Health and Development* 31, 1 (2005), 43–52. <https://doi.org/10.1111/j.1365-2214.2005.00475.x>
- [115] Sarita Schoenebeck. 2013. The Secret Life of Online Moms: Anonymity and Disinhibition on YouBeMom.com. *Proceedings of the International AAAI Conference on Web and Social Media* 7, 1 (2013), 555–562. <https://doi.org/10.1609/icwsm.v7i1.14379> Number: 1.
- [116] Jessica Schroeder, Ravi Karkar, Natalia Murinova, James Fogarty, and Sean A. Munson. 2019. Examining opportunities for goal-directed self-tracking to support chronic condition management. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies* 3, 4 (2019). <https://doi.org/10.1145/3369809>
- [117] Melody Sepahpour-Fard and Michael Quayle. 2022. How Do Mothers and Fathers Talk About Parenting to Different Audiences? Stereotypes and Audience Effects: An Analysis of r/Daddit, r/Mommit, and r/Parenting Using Topic Modelling. In *Proceedings of the ACM Web Conference 2022 (WWW '22)*. Association for Computing Machinery, New York, NY, USA, 2696–2706. <https://doi.org/10.1145/3485447.3512138>
- [118] Daniel S. Shaw, Richard Q. Bell, and Miles Gilliom. 2000. A truly early starter model of antisocial behavior revisited. *Clinical child and family psychology review* 3, 3 (2000), 155–172. <https://doi.org/10.1023/A:1009599208790>
- [119] Elizabeth C. Shelleby and Daniel S. Shaw. 2014. Outcomes of Parenting Interventions for Child Conduct Problems: A Review of Differential Effectiveness. *Child Psychiatry & Human Development* 45, 5 (10 2014), 628–645. <https://doi.org/10.1007/s10578-013-0431-5>
- [120] Magdalena Sjöberg and Simon Lindgren. 2017. Challenging the Roles of “Skilled” Professionals and “Risky” Young Mothers: Peer Support, Expertise, and Relational Patterns in Facebook Groups. *Journal of Technology in Human Services* 35, 3 (July 2017), 247–270. <https://doi.org/10.1080/15228835.2017.1367350> Publisher: Routledge \_eprint: <https://doi.org/10.1080/15228835.2017.1367350>
- [121] Meredith M Skeels, Kenton T Unruh, Christopher Powell, and Wanda Pratt. 2010. Catalyzing Social Support for Breast Cancer Patients.. In *CHI'10*. ACM, 173–182. <https://doi.org/10.1145/1753326.1753353>
- [122] Arietta Slade. 2005. Parental reflective functioning: An introduction. *Attachment & Human Development* 7, 3 (Sept. 2005), 269–281. <https://doi.org/10.1080/14616730500245906> Publisher: Routledge \_eprint: <https://doi.org/10.1080/14616730500245906>
- [123] Petr Slovak and Geraldine Fitzpatrick. 2015. Teaching and developing social and emotional skills with technology. *ACM Transactions on Computer-Human Interaction (TOCHI)* 22, 4 (2015), 19.
- [124] Petr Slovak, Christopher Frauenberger, and Geraldine Fitzpatrick. 2017. Reflective Practicum. In *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems - CHI '17*, Vol. 2018-April. ACM Press, New York, New York, USA, 2696–2707. <https://doi.org/10.1145/3025453.3025516>
- [125] Petr Slovák, Ran Gilad-Bachrach, and Geraldine Fitzpatrick. 2015. Designing Social and Emotional Skills Training. In *CHI '15*. ACM, 2797–2800. <https://doi.org/10.1145/2702123.2702385>
- [126] Petr Slovak, Anja Thieme, Paul Tennent, Patrick Olivier, and Geraldine Fitzpatrick. 2015. On Becoming a Counsellor: Challenges and Opportunities To Support Interpersonal Skills Training. In *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work and Social Computing*. 1336–1347.
- [127] Petr Slovák, Nikki Theofanopoulou, Alessia Cecchet, Peter Cottrell, Ferran Altarriba Bertran, Ella Dagan, Julian Childs, and Katherine Isbister. 2018. “I just let him cry...” Designing Socio-Technical Interventions in Families to Prevent Mental Health Disorders. *Proceedings of the ACM on Human-Computer Interaction* 2, CSCW (Nov. 2018), 160:1–160:34. <https://doi.org/10.1145/3274429>
- [128] Peter Smagorinsky. 2008. The Method Section as Conceptual Epicenter in Constructing Social Science Research Reports. *Written Communication* 25, 3 (7 2008), 389–411. <https://doi.org/10.1177/0741088308317815>

- [129] Judith G Smetana. 2017. Current research on parenting styles, dimensions, and beliefs. *Current Opinion in Psychology* 15 (June 2017), 19–25. <https://doi.org/10.1016/j.copsyc.2017.02.012>
- [130] May-Britt Solem. 2013. Understanding Parenting as Situated in the Larger Sociocultural Context in Clinical Social Work. *Child and Adolescent Social Work Journal* 30, 1 (Feb. 2013), 61–78. <https://doi.org/10.1007/s10560-012-0278-9>
- [131] Tobias Sonne, Jörg Müller, Paul Marshall, Carsten Obel, and Kaj Grønbaek. 2016. Changing Family Practices with Assistive Technology: MOBERO Improves Morning and Bedtime Routines for Children with ADHD. In *CHI'16*. ACM Press.
- [132] Bernd Carsten Stahl, Grace Eden, and Marina Jirotko. 2013. Responsible research and innovation in information and communication technology: Identifying and engaging with the ethical implications of ICTs. *Responsible innovation* (2013), 199–218.
- [133] Trevor F. Stokes and Donald M. Baer. 1977. An Implicit Technology of Generalization1. *Journal of Applied Behavior Analysis* 10, 2 (1977), 349–367. <https://doi.org/10.1901/jaba.1977.10-349> \_eprint: <https://onlinelibrary.wiley.com/doi/pdf/10.1901/jaba.1977.10-349>
- [134] Gareth Terry, Nikki Hayfield, Victoria Clarke, and Virginia Braun. 2017. Thematic analysis. *The SAGE handbook of qualitative research in psychology 2* (2017), 17–37.
- [135] Lisa Thomas, Elizabeth Sillence, Vicki Elsey, Emma Simpson, and Louise Moody. 2019. Technology to mediate role conflict in motherhood. *Conference on Human Factors in Computing Systems - Proceedings* (2019), 1–8. <https://doi.org/10.1145/3290607.3299024>
- [136] Rae Thomas and Melanie J. Zimmer-Gembeck. 2007. Behavioral Outcomes of Parent-Child Interaction Therapy and Triple P—Positive Parenting Program: A Review and Meta-Analysis. *Journal of Abnormal Child Psychology* 35, 3 (June 2007), 475–495. <https://doi.org/10.1007/s10802-007-9104-9>
- [137] Karin Thorslund, Jan Johansson Hanse, and Ulf Axberg. 2014. Universal parental support—How to reach out: A cross-sectional random sample of Swedish parents. *BMC Public Health* 14, 1 (2014), 1–8. <https://doi.org/10.1186/1471-2458-14-1064>
- [138] Austin L. Toombs, Kellie Morrissey, Emma Simpson, Colin M. Gray, John Vines, and Madeline Balaam. 2018. Supporting the complex social lives of new parents. *Conference on Human Factors in Computing Systems - Proceedings 2018-April* (2018), 1–13. <https://doi.org/10.1145/3173574.3173994>
- [139] Jessica Vitak, Nicholas Proferes, Katie Shilton, and Zahra Ashktorab. 2017. Ethics Regulation in Social Computing Research: Examining the Role of Institutional Review Boards. *Journal of Empirical Research on Human Research Ethics* 12, 5 (Dec. 2017), 372–382. <https://doi.org/10.1177/1556264617725200> Publisher: SAGE Publications Inc.
- [140] C Webster-Stratton and M Hammond. 1997. Treating children with early-onset conduct problems: a comparison of child and parent training interventions. *Journal of consulting and clinical psychology* 65, 1 (1997), 93–109. <https://doi.org/10.1037/0022-006X.65.1.93>
- [141] Karen A. Whittaker and Sarah Cowley. 2012. An effective programme is not enough: a review of factors associated with poor attendance and engagement with parenting support programmes. *Children & Society* 26, 2 (2012), 138–149. <https://doi.org/10.1111/j.1099-0860.2010.00333.x> \_eprint: <https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1099-0860.2010.00333.x>
- [142] Alfian Farizki Wicaksono and Sung-Hyon Myaeng. 2013. Automatic extraction of advice-revealing sentences for advice mining from online forums. In *Proceedings of the seventh international conference on Knowledge capture (K-CAP '13)*. Association for Computing Machinery, New York, NY, USA, 97–104. <https://doi.org/10.1145/2479832.2479857>
- [143] Juan Xie, Zhe He, Gary Burnett, and Ying Cheng. 2021. How do mothers exchange parenting-related information in online communities? A meta-synthesis. *Computers in Human Behavior* 115 (Feb. 2021), 106631. <https://doi.org/10.1016/j.chb.2020.106631>
- [144] Michele L. Ybarra, Kimberly J. Mitchell, Neal A. Palmer, and Sari L. Reisner. 2015. Online social support as a buffer against online and offline peer and sexual victimization among U.S. LGBT and non-LGBT youth. *Child Abuse & Neglect* 39 (1 2015), 123–136. <https://doi.org/10.1016/j.chiabu.2014.08.006>
- [145] Rodrigo Zamith, Valerie Belair-Gagnon, and Seth C Lewis. 2020. Constructing audience quantification: Social influences and the development of norms about audience analytics and metrics. *New Media & Society* 22, 10 (Oct. 2020), 1763–1784. <https://doi.org/10.1177/1461444819881735> Publisher: SAGE Publications.

## A DETAILED DESCRIPTIONS OF EACH TOPIC CATEGORY BASED ON CONTENT ANALYSIS

### A.1 Behaviour & Discipline

The most common category that resonated across the dataset is parent’s help-seeking on their child’s behaviour or disciplinary issues. These posts suggest that parents view Mumsnet as a safe

space to openly share and seek the community's advice on personal parenting experience on their child's disruptive or unanticipated behaviour. We found a wide discussion of experiences that captured the nuances of children's behaviour and consequently, parents' concerns. This ranges from aggressive tantrums such as *"throwing and hitting episodes"*, *"uncontrollable rages in class"* to posts that suggested their children's inappropriate behaviours. For example, a poster sought advice to deal with her awkward evening dinners: *"my 4 year old son keeps wanting to kiss me, my partner hates it and repeatedly tells him to stop"*. We observed that some posters also explained how these inappropriate behaviours are often 'validated' or observed by their immediate family or ecosystem and that provided an impetus to seek help from the community. One poster described how her son's elaborate lies first brought to her attention when he lied to his grandmother that *"he'd rolled into the road after falling out of the pram"* but they did not use a pram, and several other elaborate stories surfaced from other family members and the nursery.

Many posters clearly value this intimate outlet to tap into other parents' similar experience for assurance, often for determining if the child's behaviour is 'appropriate' or 'normal'. A parent, who initially felt her son is undergoing a phase, sought advice from the community after being told by her mom constantly to assess her child: *"my 5 year old son is asking me to constantly repeat myself or if everything is ok...has anyone else ever experienced this?"*. Posters also use Mumsnet as a form of expectation check to navigate the uncertainties of parenting, one poster lamented: *"AIBU (Am I being unreasonable) to expect my 4 year old to play by themselves for a short while without needing constant interaction?"*

After sharing their parenting struggles, the common discourse sought by posters is in getting advice to help manage their child's behaviour appropriately: *"How can I stop this?"*, *"Please help!"*, *"Any tips please, I'd be grateful!"*. Posters use Mumsnet as an avenue to seek disciplinary strategies from other parents to grapple with their child's behavioural episodes and often, as a last resort when they have *"reached the end of (their) tether"*. After being told not to eat the crisps, a poster commented that her daughter began a chain of uncontrollable tantrums in public and after numerous attempts to discipline and stop the behaviour: *"All I could do was stand in the alley way and cry. Through absolute anger and embarrassment, I literally cried my eyes out... I'm not sure if I handled the situation well enough and I am so upset. I'm wondering how others have/would handle this situation?"* Another poster struggles to find a right disciplinary approach for her headstrong 5 year old and commented: *"Is using time out appropriate for a 5 year old? We tried them a couple of years ago and frankly she wasn't that bothered and ended up taking herself to the step after doing naughty things. Might it be time to revisit them? Star charts have no effect after a day or two."*

It was evident that many posters sought to the community to express deep emotional and brutally honest struggles in parenting as a form of coping mechanism when their children's behaviour feels out of control. One poster feeling overwhelmed as a single dad parenting three children shared his struggles managing his son's behavioural issues such as crying every night, refusing to eat and *"if you tell him off he just laughs in your face"* expressed: *"I hate myself for saying it but I really don't like my children. I dread school pick up, waking up in the morning. I feel like I'm failing as a parent."*

## A.2 Parent's Emotion

In the threads we examined, posters used the forum to express strong negative emotions on various aspects of parenting, as a result of their parenting decisions, child's behaviour or family members. These negative emotions are often about themselves as a parent, their child, partner, parent-in-laws or other family members. Many posters shared the disappointment they have for themselves after acting on regretful parenting choices. Often, posters acknowledged but found it hard to accept that their actions were due to a momentary lapse in judgement. One poster confessed:

*“Something just snapped and I lifted her up by her coat and quite forcefully shoved her into the pram. I then took her soft toy and shoved it in her face, it left a faint bruise as my hand caught her head. This has never happened before and my dh (dear husband) says I should forgive myself and move on. That I didn’t intend to hurt her. But on some level I did want to hurt - not her specifically. It was not her fault but I lost control and lashed out. Now I feel like a monster and I am eaten up with guilt.”*

Across the forum, other posters resonated similar sentiments for different instances: *“I will be feeding the baby and my son will ask for a cuddle but I can’t, he will go off and be naughty as I’m feeding and I’ll lose my temper... I’m not fun for him at all anymore, I feel like I just push him away. Honestly I’m really struggling, I’m a terrible mother.”* We also observed that the extreme end of these threads suggest that the posters could be struggling with depression as they seek the help or support they need to hang on by the thread. It is apparent that many of these posters expressed these feelings of inadequacies for not living up to their ‘ideal standard’ of being a parent or not ‘doing enough’. One poster shared, *“I’m snapping constantly and I’m so tired all of the time. I just don’t know how some mums do it. All I want to do is sleep. I know it’ll all work out and that it’s all just temporary but I’m so close to throwing in the towel and quitting my job to stay at home”*. Another poster shared her struggles with personality disorder and how she found it hard to maintain her relationship with her children, and called out, *“I need serious help. I’m such a shit mother and I want to be back home. I need to prove to myself I can do it but currently going down the same road as my childhood which has got me no where positive for my life please help I’m a parent close to giving up.”*

We also observed numerous discussions on the frustrations and mismatched expectations behind parenting with a significant other. For instance, a poster explained how she wanted to dedicate individual attention and time for each child and felt upset when her husband *“thinks I’m taking favourites and makes me feel guilty for wanting to spend alone time with dd1 (dear daughter one)”*. She commented that *“tbh (to be honest) the weekends are the only time I ever have my husband around to help out so aibu (am I being unreasonable)?”*

Posters have also shared how their relationships with or actions of their family members have weighed heavily on their mental health. Raising a child in a family, immediate or extended, might mean some sharing of caretaking responsibilities and parenting strategies. A poster explained how she overheard her mother-in-law’s conversations about her lack in parenting and it made her feel *“sad that it has been confirmed to me that they think I’m not parenting how I should and it angers me that they are judging me in my own home.”*

What is common across the threads is the search for empathy. Posters relied on this outlet to vent their emotions but more importantly, their posts suggest their desire for a community that listens and empathises with their seemingly isolated struggles as a parent. A poster said, *“I just needed to talk to someone, anyone. No one around me will ever admit to losing it. I don’t know, if people are angry at me, I deserve it. I just hoped that there isn’t something seriously wrong with me and I’m not the only one.”*

### A.3 Activity & Product

The community in Mumsnet often use this platform for the sharing and exchanging of information on parenting-related products (such as games, books, gifts, strollers etc.) and things to do (leisure activities, holidays). These include gathering advice, recommendations or suggestions for the poster’s child, themselves or their home. The affordances that the forum has allowed posters to specify their exact needs. Hence, posters receive more targeted recommendations or suggestions according to their unique needs. For instance, a poster detailed down the types of toys (e.g. *“Jigsaws, Vehicles”*) that do not interest her bored 2-year-old and ask, *“I’d like to look into a few new toys to help stimulate/engage him. He seems to prefer wooden toys, especially if it’s to do with problem-solving or working things out. Any suggestions?”* Other posters also attempt to get specific recommendations

such as “cars that will fit 3 (child) seats along the back in a 5 seater”, “new ideas for meals” and “sparkly prince costumes”.

Of those threads that focused on the use of products or activities, many posters openly shared their personal parenting situations or struggles for advice, such as keeping an energetic toddler entertained and managing appropriate screen time. One poster shared: “I’m wondering how much TV time to allow for my 3 year old. It’s just TV and no other sort of screen time. He doesn’t nap anymore, so it’s much easier for him to watch TV while I get jobs done. Do others have a daily limit? Or a limit per each time of watching TV? Do you have any tips for getting house work done without using TV?”

Other posters reinforced similar struggles in finding appropriate activities or strategies, especially in entertaining multiple children at the same time. One poster who also felt overwhelmed sought to Mumsnet to look for healthy activities to occupy her 3 children, commented: “I’ve been worried about how much screen time they have been having and thought to turn off the TV completely today but OMG - It was difficuuuuuult and so challenging...I’m not used to having all 3 of the kids there at once which is stressful. Anyone else struggling over the holidays?.” At the same time, some threads also sought product recommendations for the parents themselves, for example, a first-time parent “not always sure how to respond when she (the child) pushes the boundaries. There are so many parenting books it’s difficult to know which ones are effective. Any recommendations, please?”

When the products or things that their child uses are in question, posters are eager to get second opinions to validate their decisions with the trusted community. One poster asked: “Would you use a second-hand toddler sized mattress? (for a 3 year old) It’s from a family friend, looks very clean, ... I’m not sure about it but can’t decide whether I’m being unnecessarily cautious.”

#### A.4 Medical Concerns

The code ‘medical concerns’ was applied in 41 excerpts which covered topics of diagnoses, analysing medical conditions or symptoms, parent-related medical issues, and planning for after care.

**Diagnoses and coping with sickness** - Parents wrote posts trying to identify things like mysterious rashes, chicken pox, and blood in stool. They asked questions like, “is this threadworms or thrush?” while wondering what medical issues other symptoms indicated such as seizures, being cross-eyed or vomiting accompanied by lethargy. Parents asked practical advice on topics of dental hygiene - such as how to regularly brush bleeding gums. Further, parents expressed concerns about seemingly strange behaviours such as refusing liquids, throwing up from being upset, and episodes of children attacking others. Often parents would wonder if medical issues were related to other big changes - like new siblings joining the family. Even when children were clearly sick with things like colds, the flu, or hospital accidents, parents asked for advice on what activities to stay busy with and how to cope with lingering sicknesses. More serious issues (such as “sensory meltdowns” were shared about kids with rare blood disorders, mood and personality disorders (like ADHD and bipolar), Autism, and special needs. One parent asked, “What’s the difference between poor parenting and SN? The preschool teacher said she knows that we love bomb and that we try to be positive with him but we need to be firmer. Maybe we are too caring. Maybe we are shit parents. Our 2 year old has had none of these issues, even accounting for the age difference.”

**Aftermath of sickness and parents’ issues** - Parents asked about how to hold accountability after dealing with choking hazards, proper etiquette with re-joining birthday parties after being sick, and how to properly support surgery recovery. They also wondered about longer-term consequences such as from vaccine side effects. These types of concerns held larger emotional charges with more chronic issues. One parent described feeling PTSD from multiple hospital visits with their kid. Meanwhile, parents’ own mental health issues - such as phobias, PPD, and personality disorders also gave rise for concern. One parent shared, “I’m not sure if it’s sleep deprivation and adjusting to a new life or something else. I feel like I don’t have the time or energy to seek help. I need serious help.”

*I'm currently living away from home and my marriage and relationship with my children is critical. I'm such a bad mother and I want to be at home. I don't know what else to do. The only reason I'm living is my children! I need to prove to myself I can do it but currently going down the same road as my childhood which has got me nowhere positive for my life please help I'm a parent close to giving up."*

Lastly, when parents themselves experienced needing prolonged medical attention, they sought advice for things like hospital visits.

*"And to add to it all my dear daughter is having some separation anxiety with me now after I was recently admitted to hospital and she could only visit for a limited time which she found quite tough. With the added bonus of a new baby we're worried she won't cope at all. We're not sure what to do. I'm so sorry if this doesn't make any sense"*

## A.5 Sleep

34 of our posts were coded for concerns related to children's' sleep patterns and the effects on the whole family. As with other topics, parents often wondered what are "normal" standards and expectations for naps and sleeping during the night (i.e.- "*who else is experiencing the '2 year old sleep regression?'*"). Parents' main preoccupations related to understanding the optimal conditions for falling asleep, staying asleep, and integrating sleep with healthy, daily life habits.

**Sleep Accessories** - In material considerations, parents asked for recommendations for sleep monitors, black-out curtains, beds and white noise machines. One parent shared an attempt at a DIY sleep aid solution, "*I purchased a teddy which my friend kindly wrote a letter for saying, 'I'm here to help you sleep and be a big girl. It hasn't worked and the lack of sleep is affecting her behaviour in the day.'*" Parents were also preoccupied with switching beds and how to best arrange rooms for multiple children, especially to avoid fussy sleepers from waking up their siblings. For example, parents wondered when it is appropriate to switch from a toddler bed to a single bed or how to optimize for sharing bunk beds.

**Falling and Staying Asleep** - Many parents shared existing bedtime routines and asked for support in improving them. For example, parents wondered if the order of kids (based on ages) positively or negatively influences sleep hygiene. Similarly, they shared concerns about relying on watching media at night or relying on bottles as well as breastfeeding to fall and stay asleep. Parents wondered about strategies for weaning off bottles or breastfeeding, including questions about introducing formula as part of the routine. One single mother shared the challenges of her toddlers' demand for breastfeeding saying,

*"At home he only wants to breastfeed and cuddle. All weekend, all nights. If I get up and try and do anything else he cries. He doesn't eat properly because he's feeding. But he just gets really upset if he doesn't feed. Apart from that he's an easy, lovely little boy! I don't know how this situation can continue, but also I don't know how I will be able to wean him with everything else I have to do! Will it be easier or harder later?"*

In addition, parents' asked for guidance with disturbances in the middle of the night. These included sleepwalking, bed-wetting, or waking parents up due to scary dreams or medical concerns. Besides feeding, parents shared coping mechanisms such as swaddling, cuddling, rocking, and laying in bed with parents. Several parents were not keen on the idea of sharing their beds with their children. As one parent shared, "*Co-sleeping isn't an option. She also really hates the pram and car seat, and has done since birth. Any tips for one very drained mumma!! I'm loving the cuddles but miss being able to even go to the toilet without her getting upset."*

**Behavioural and Daytime Consequences** - Sleep-related concerns proved to not only affect the night time but they often were connected to issues throughout the day. Parents shared that fussy eaters may awake in the middle of the night asking for food or drinks and they also wondered

how to align napping schedules and needs with optimizing for children sleeping through the night. As one parent shared,

*“Is 2 and a half too young to give up on naps? My son is just a nightmare to get down. When he does sleep he normally sleeps over an hour. In the last week it’s been much shorter or no naps at all. Is this just a phase or is it the end of naps?”*

When children did not get their sleep needs met, parents commented on many unsettling behaviours. They reflected on frustrating episodes of separation anxiety, tantrums and behavioural issues at day-care or an inability to focus in school. Parents feared that their children’s sleep issues could interfere with going to parties or sleepovers (especially when issues like bed-wetting are involved).

**Parent exhaustion from dealing and troubleshooting** - Many parents expressed deep exasperation and going to great lengths to support healthy sleeping. From begrudgingly co-sleeping with parents to feeling mummy guilt with giving a child melatonin to, *“we’ve even worked with a private sleep consultant”*. Parents commonly felt exhaustion, depression, anxiety, and loneliness:

*“I love him so much but I’m absolutely shattered, I’ve not had a proper sleep since before he was born. The longest sleep I’ve had was about 4 hours and that was a month ago. I’m also feeling really lonely and sad and I have bad anxiety, I’m constantly worried how each night will be with him.”*

*“But I still can’t switch off, basically it’s 12:30am and I’m crying and grieving when it was just me and my two year old, I think I’m feeling hormonal which isn’t helping. I just want a break after a horrific pregnancy which drained me.”*

## A.6 Diet & Food Habits

40 of our posts touched on topics of families preparing, eating, and digesting food while sharing emotionally fraught conundrums and experiences.

**6.1 Food Preparation** - In matters of food planning, parents asked for recommendations of multivitamins and recipes. They expressed concerns for wanting variety in their meal offerings as well as convenience needs (in order to have meals available “on-the-go”). Parents also wondered about how to accommodate phases children were going through, such as kids deciding to become vegetarians. Throughout the posts, guilt and conflict continued to be a common category as parents struggled to balance the input of in-laws, the other parents or caregivers, and perceptions of providing the right amounts and types of food. For example, one parent shared:

*“I have a beautiful 2 year old and have always loved cooking but at the moment I have awful morning sickness and the smell of broccoli, cheese, mushrooms, eggs, and curry makes me sick. Unfortunately my daughter loves all of those. Can anyone recommend some relatively simple toddler meals that I can do? I really don’t want to feed her ready meals but caved in yesterday and gave her one. I feel really guilty about what to make at the moment and she’s having too much pasta. I could use those ingredients if there is a recipe that doesn’t smell too strongly while cooking. Any wise mumsnetters have any ideas? Thanks.”*

**6.2 Eating Food** - The most common sub-category within diet & food habits was advice seeking for dealing with food or drink fussiness. Parents shared tactics of trying bribes, preparing primarily bland foods, disguising healthy food into more appealing food, distracting children, and explaining the benefits of healthy eating. The top behavioural issues with fussiness included: picky appetites, only liking junk food, eating too little, only eating while distracted on screens, and spitting out food. Parents also wondered how to successfully get their children to take medicine and drink more water. While there can be individual issues with children’s eating habits, one parent reflected on the chaos of eating together as a family, sharing:

*“Eating as a family, with three of them, I’ve taken the path of least resistance and offered them different meals. We also don’t always eat together - to be honest it’s an awful experience. Every mealtime*

*is a battle. Sometimes I just want to be able to enjoy my own dinner before it goes cold without losing my temper with a child who is spitting chewed up chicken out or having a massive tantrum over having to eat a piece of carrot. Also, I work some evenings so we're not always together as a family anyway."*

**6.3 Digesting Food** - Many parents inquired about the effects of eating throughout the day on staying fed and asleep throughout the night. This was often intertwined with concerns of weaning toddlers off of breastfeeding and bottle feeding. Tired and exasperated parents complained about children waking up in the middle of the night, asking for milk. Lastly, parents wondered what amounts and types of food were normal - especially if they noticed their children being particularly energetic or starting to gain weight.

### A.7 School & Day-care

24 Mumsnet posts that we coded reflected on issues that happened during school or day-care. On a broader level, parents wondered how many days per week at pre-school were appropriate and how to balance weekly schedules out accordingly. One parent exclaimed how her life felt structured around school needs in a suffocating and overwhelming way. She shared,

*"The school day has taken over my life" - I have two kids now who are nearly 2 and 4. The 4 year old started school in September. Her school is a mile walk and I don't drive. The walks are not an issue and I am happy enough with the school but I feel like the week is just repetitive and boring and the weekends are for ironing uniforms and packing bags and preparing for Monday."*

Parents posted on Mumsnet asking about practicalities such as childcare vouchers as well as how to support their children with social dynamics, such as teaching kids to stand up for themselves, trouble-shooting conflicts with friends, and building resilient attitudes as well as positive self-talk.

In dealing with workers at school and day-care, parents felt concerned about what was reported back to them. For example, school or nursery caregivers would share about children reflecting on painful things at home or throw uncontrollable tantrums before lunchtime. Parents would ask for advice about how to talk to their children appropriately about these issues or deal with their eating needs. Another parent asked for support in the aftermath of a child's finger getting amputated during a nursery school accident. She shared,

*"...Now, I don't know what to do with the nursery. They have been in touch and said it's just an accident that couldn't have been prevented. But I can't help but feel angry that they say it couldn't of been prevented. If his finger goes back to normal I am happy to leave it at just a complaint but if there is more long term damage then I'm thinking of taking legal action. Am I being unreasonable?... How would everyone else handle this situation?"*

### A.8 Physical Development

The threads we examined reinforces how parents of children in these age range often lookout for pivotal developmental milestones to assess their children's growth. Posters use Mumsnet to navigate uncertainties about their children's development across wide-ranging topics, from the use of their dummies (pacifiers) to speech and communication skills. For instance, a poster started a thread about her dummy conundrum where she finds it hard that her child can only be soothed by breastfeeding but was unsure about the effects of using a dummy: *"Is it easy to misinterpret feeding cues? I worry they affect teeth, speech, cause them to wake when the dummy falls out."*

For the threads we analysed, we observed that posters often look to relate others sharing similar experiences: *"I was hoping other parents that have children that have gone through this could tell me what to expect please?"* One poster explained her sudden realization that her daughter is noticeably overweight despite having an active routine and home-cooked meals, and she asks: *"Only thing I can think of is that she's still breastfeeding and drinks A LOT of milk. She feeds throughout the night..."*

*Has anyone else been through this? What did you do?*" In particular, we observed that posters also tend to discuss developmental milestones by benchmarking "is this normal for anyone else?" with other children. For example, a poster surveyed the community about her child's height: *"People keep saying he's short. haha. Myself and his dad aren't tall but not tiny either. Does anyone else want to share their children's height at this age?"*

### A.9 Potty Training

The beginning and end of potty training typically happens around the age of 2 to 5 years old. The threads we examined related to this milestone with discussions about children's reluctance with using the potty and regression in potty training. This ranges from situational 'weeing' issues such as sleep 'weeing' in areas around the house (*"She has no memory of them in the morning and all of these events have happened whilst she's been asleep and . She's used to getting up and going to loo so this is new."*) to uncertainties around the right time to potty train.

Being potty trained is often considered a significant milestone for toddlers. One poster, who feels worried about her daughters' potty training progress related to her peers, shared: *"I've just had to shower her down yet again as she's walked in covered in poo from the waist down! I know it's all small steps but just wondered how long from people's experience it takes a toddler to realise when they need the toilet? My friend's daughter apparently learnt in 3 days which for me is a bit disheartening."*

Posters often discussed issues around potty training in parallel with their training or disciplinary attempts. One poster started to notice that her once potty trained daughter started to have accidents frequently despite her attempts to bring her to the toilet herself, and complained:

*"We've tried taking her to the naughty corner and telling her off for each accident, and on the flip side lots of praise and making it clear she would get chocolate buttons for using the toilet, but we are getting nowhere... It's so frustrating when we know full well she knows how to use the toilet. Do we just give it a break for a few weeks? Do we try to keep forcing the issue?"*

Another poster also shared a similar experience in another thread about her son who was already potty trained for 6 months started to act out and regress: *"started being a bit "naughty" in other ways, lots of NO! shouting at me and wagging his finger, "it's not fair!" and foot stamping. all completely out of character."* Despite disciplining him in different ways such as *"praising loads when using the potty, being "disappointed" with him when he's had an accident (never ever told him off) and asking him why, he just says sorry."*, the poster found little success and turned to seek advice from the community.

Our analysis further highlighted 7 remaining categories that posters commonly sought support for: Physical Development (e.g., concerns about "regressed" developmental milestones such as speech), Activity & Product (e.g., getting recommendations of products like *"cars which will fit 3 [children] seats"* and *"sparkly prince costumes"*), Sleep (e.g., issues with sleep schedules when the child is *"just a nightmare to get down"*), Diet & Food Habits (e.g., dealing with picky eaters that throws *"a massive tantrum over eating one piece of carrot"*), Medical Concerns (e.g., identifying unknown symptoms), School & Day-care (e.g., dealing with school teachers) and Other (e.g., advice on family-friendly holidays).

### A.10 Other

30 of our coded posts had the ambiguous category of 'other' associated with them. These included miscellaneous questions on: travel, car safety, react to negative comments about one's child, reassuring a child after moving a lot, pet advice, how to be eco-friendly in parenting, etc. Some of the continued rants also included exasperation about getting anything useful done while looking after the kids or, *"how on earth do you cope if you are both working the next day and with all the sleepless nights that are a regular occurrence?! I mean, several nights back-to-back, and around 2 to 3 hours of broken sleep."*

Several sub-categories that emerged under 'other' included coordinating with other parents in the family unit and taking care of foster children or stepchildren. For example, parents asked for advice about how to deal with partners who struggle to help out or are alcoholic or abusive. Often parents shared frustrations about custody issues, negotiating care, or how marital issues and divorces were affecting the children. Similarly, questions arose about integrating divorcee's new partners or dealing with overbearing in-laws. For example, one mother shared:

*"I've explained this to my husband and he says you have to take the good with the bad and if she's offering to help, just grin and bear it. It's unfair, this is my home and a mostly, I kind of just sit up stairs waiting for the time to pass for when she eventually leaves. It sounds horrible but it's just so overwhelming and annoying."*

Posts about child planning included weighing the pros and cons for more children, discerning issues with large age gaps between children, and managing adding more children into an already stressful life. In regards to deciding, one mother shared,

*"I feel a bit environmentally irresponsible having yet another baby (please don't take offence if you have many dear children - I would never think this of anyone else). Oh gosh, I just don't know - although I do notice that I have put a caveat after almost every con..."*

In considering another child, this mother reflected on concerns about losing sleep:

*"My son is 2 years old but I honestly can't imagine another baby right now - going back to sleepless nights fills me with dread. Especially with not having the same luxuries as when my son was a baby - 'sleeping when they sleep' for example when there's another child to look after too. How did others decide on the right time for no2 and are the early years as hard as I'm imagining? Outside of my concerns of managing 2 younger kids, I know I'd regret not having another when my son gets older."*

Finally, there were only four excerpts coded under travel-related topics. These included inquiries about travel-friendly products like portable car seats and a travel cot and a vent about being on holidays with no childcare.

Received January 2023; revised October 2023; accepted January 2024