Managing common mental disorders and PTSD in the community

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Summary of thesis

This thesis initially focuses on primary mental health provision within the community across common mental health disorders. It analyses a dataset of Improved Access to Psychological Therapies (IAPT) service users from the North East Essex IAPT service Health in Mind. The analysis initially focuses on identifying predictors for referrals, non-attendance (did not attend/DNA) and levels of engagement. Following on from this examination of the data further analysis is undertaken on success assessment for the service users in the dataset. An alternative assessment criterion is proposed and explored. Next, in response to increased pressure on NHS resources and services and to explore why certain client groups have high levels of non-engagement, the thesis then explores the specific mental health disorder of Post-Traumatic Stress Disorder (PTSD) in a client group of British Military Veterans. A series of three pilot studies (angling, falconry/archery and equine intervention) are carried out to explore the validity of a proposed new intervention to reduce PTSD symptomology, Peer Outdoor Exposure Therapy (POET). To extrapolate the learning achieved through the pilot studies a Random Control Trial (RCT) was executed looking at the efficacy of POET when utilising the most effective of the pilot study formats, angling. To enhance the knowledge obtained through the RCT a thematic analysis of four in depth interviews with participants from the study, thirty three months after their attendance, was utilised to help formulate a psychological model of the effect of POET.

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ETHICS

Ethics for all the following research contained within this thesis was sought and gained through the University of Essex Psychology department.

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CHAPTER I

1.1 Common Mental Disorders In The Community – A thesis overview

This thesis concerns the management of common mental health disorders (CMHDs) and the provision of care within UK communities. CMHDs include depression, generalised anxiety disorder (GAD), panic disorder, obsessive-compulsive disorder (OCD), post-traumatic stress disorder (PTSD), and simple phobias as listed in the NICE guidelines on identification and pathways to care for CMHDs (National Collaborating Centre for Mental Health, 2011). In this thesis I will focus upon three distinctive issues regarding CMHDs. Firstly I will concentrate on the subject of the extent to which the need for support, for people suffering from CMHDs, is currently unmet and the extent to which current service provision within the UK reaches those that most require it. The second area I will focus on concerns the difficulties in evaluating the efficacy of service provision using psychometric scales. Finally I will look at one specific CMHD, and its presentation within a unique patient group, that of the military veteran. Four empirical chapters are reported that address these matters. Chapters two and three focus on service users engagement with mental health provision within the UK national health service (NHS), focusing primarily on the Improving Access to Psychological Therapies (IAPT) initiative (Department of Health, 2008b). Chapters four and five concentrate on Post-Traumatic Stress Disorder (PTSD), and concern alternative approaches to the management of the disorder in the community. A final sixth chapter will be a discussion chapter in which I will evaluate the results of the experiments and the limitations to the work and discuss lines of future investigation.

In this introductory chapter I will begin by reviewing evidence around the unmet need at primary care level for CMHDs within UK communities and contemplate the subsequent monetary and social costs of this unmet need. Furthermore I will examine how deficiencies in mental health support impacts on the well-being and social functioning of UK communities. Following on from this I will outline the origins of recent governmental policy shifts that identify the importance of addressing psychological as well as physiological requirements within the community. I will then review and evaluate the evidence to date with regards to primary care mental health provision and also service user engagement with these primary care services. From there I will move on to outlining the specific issues effecting the management of PTSD within both IAPT services as well as mental health service generally and subsequently examine alternative approaches that may benefit this patient group? To close I will summarise the research questions addressed by each of the following empirical chapters.

1.1.1 The Prevalence of Common Mental Health Disorders

Epidemiological studies on mental disorders have shown that in each year about one-third of the adult population suffers from a mental disorder (Fineberg et al., 2013). Wittchen et al. (2011) utilised a stepwise multi-method approach, consisting of systematic literature reviews, reanalyses of existing data sets, national surveys and expert consultations to look at the prevalence and disability burden estimates of a broad range of mental and neurological disorders in the European Union (EU). They found that in every year over a third of the total EU population suffers from mental disorders. No indications of increasing overall rates of mental disorders were found, nor of improved care and treatment since 2005; less than one third of all cases receive any treatment, suggesting a considerable level of unmet needs. Consistent with the findings from Fineberg et al. (2013) and Wittchen et al. (2011), Wang et al. (2007) also found that one third of the EU population suffers from mental illness in every year.

The Adult Psychiatric Morbidity Survey (APMS) (National Centre for Social Research, 2014), also known as the Survey of Mental Health and Wellbeing, was collated in an attempt to increase our understanding of mental illness, substance dependence, suicidal behaviour and their causes and consequences. The APMS provides England's National Statistics for the monitoring of mental illness and treatment access in the household population. The datasets are the only national source of information on rates of treated and untreated mental illness. A large representative sample of the household population was interviewed, 7,500 people aged 16 or more, including those who do not access services. The most recent survey, carried out in 2014, found that one adult in six has a CMHD: about one woman in five and one man in eight. Since 2000, overall rates of CMHD in England have increased in women, and remained largely stable in men. The proportion of people with severe CMHD symptoms, scoring 18+ on the Clinical Interview Schedule-Revised (CIS-R) (Lewis, Pelosi, Araya, & Dunn, 1992), did not change significantly between 2007 and 2014. However, the longer term trend has been one of steady increase (6.9% of 16 to 64 year olds in 1993, 7.9% in 2000; 8.5% in 2007; 9.3% in 2014). Reported rates of self-harming increased in men and women and across age groups since 2007. Young women (16 to 24 years old) have emerged as a high-risk group, with high rates of CMHD, self-harm, and positive screens for post-traumatic stress disorder (PTSD) and bipolar disorder. The gap between young women and young men increased. The percentage of young women scoring 12+ on the CIS-R was 26% as opposed to 9.1% of men who scored 12+ on the CIS-R.

In addition to gender differences, one study (McManus, Bebbington, Jenkins, & Brugha, 2016) found that most mental disorders are more common in people living alone, in poor physical health, and not employed. Claimants of Employment and Support Allowance (ESA), a benefit provided to those unable to work due to poor health or disability, experienced particularly high rates of all the disorders assessed (McManus et al., 2016). One person in three with CMHD reported current use of mental health treatment in 2014, an increase from the one in four who reported this in 2000 and 2007. This was driven by steep increases in reported use of psychotropic medication (McManus et al., 2016). Increased use of psychological therapies was also evident among people with more severe CMHD symptoms (National Centre for Social Research, 2014). There were demographic inequalities in who received treatment. After controlling for level of need, people who were white British, female, or in mid-life (especially aged 35 to 54) were more likely to receive treatment. People in the black ethnic group had particularly low treatment rates. Socio-economic inequalities in treatment use were less evident, although people living in lower income households were more likely to have requested but not received a particular mental health treatment. For all adults surveyed who asked for a particular treatment but did not receive it homes where the annual income was equal or greater than £36,228 the rate recorded was 0.9%. However this rate rose as household income dropped, where annual income was equal or greater than £17,868 but less than £36,228 the rate was equal to 1.5% and for less than £17,868 rate equalled 2.5%.

Since 2007, people with CMHD have become more likely to use community services and more likely to discuss their mental health with a GP (McManus et al., 2016). A recent UK cross-sectional study of extracted data from a database of 1,751,841 people registered with 314 medical practices in Scotland (Barnett et al., 2012) found that men had approximately two thirds the likelihood of having a diagnosed mental health disorder compared to women (however the level of undiagnosed problems was not assessed), and those in the most deprived decile were more than twice as likely to have a recorded mental health disorder than were those in the most affluent decile. The presence of a mental health disorder was strongly associated with the number of physical health disorders that an individual had, for example people with five or more physical health disorders were almost seven times as likely to have a mental health condition. In summation, there is a prevalence of around 30% of the population being affected by a CMHD. Less than a third of those seeking assistance with their condition receive treatment, suggesting a high level of unmet need. The prevalence level in women is higher than the level for men, and is increasing year on year. CMHDs are more common amongst people that live alone, are unemployed or have poor physical health.

1.1.2 The Financial Implications of Common Mental Health Disorders

Costs of CMHDs are high, they are estimated to cause 1 in 5 days lost from work in Britain (Das-Munshi et al., 2008). A Centre for Mental Health policy paper estimated that the financial cost of depression in the UK was approximately 105 billion pounds in 2009/2010, of which 30 billion is thought to be work related (Sainsburys centre for Mental Health, 2010). Furthermore, it has been estimated that a cross subsidy of £7-10 billion on social security benefits payments are made to cover the unemployment costs of people with high prevalence mental health problems (Layard, 2006). Substantial potential economic costs arise for employers from productivity losses due to depression and anxiety in the workforce. The main costs occur due to staff absenteeism and presenteeism. Labour Force Survey data suggests that 11.4 million working days were lost in Britain in 2008/09 due to work-related stress, depression or anxiety (McCrone, Dhanasiri, Patel, Knapp, & Lawton-Smith, 2008). This equates to 27.3 days lost per affected worker. However when Davies (2014) looked at mental health as a whole, as opposed to stress and depression in isolation, within the UK, 70 million days are lost from work each year because of mental ill health, making it the leading cause of sickness absence (Davies, 2014). It is estimated that the average annual cost of lost employment in England attributable to an employee with depression is £7,230, and £6,850 for anxiety (2005/06 prices). There is thus a substantial loss of output. There is also a major cost to the exchequer since about one million people are on incapacity benefits due to depression or anxiety disorders and it costs the exchequer £750 for each month that someone is on these benefits rather than working (Laynard, Clark, Knapp, & Mayraz, 2007). Laynard et al. (2007) made the assumption that (in line with DWP practice) a previously disabled person who works earns on average an annual wage of £12,000 – or £1,000 a month. (This is a conservative assumption since the Labour Force Survey (Office for National Statistics, 2017) shows that employees who report 'depression, bad nerves or anxiety' earn on average £18,200 a year.) Thus the extra GDP produced by treating one person is £1,100, the extra earnings from 1.1 extra months of work. This compares with the treatment cost of £750. According to a 2006 UK government review (Cooksey, 2006) the impact of diseases on the population and economy should be used to help determine health research priorities. Compared to somatic diseases brain disorders involve disproportionally high indirect costs, for example lost production due to sick days taken or even illness induced early retirement, and relatively low direct health and social care costs (Collins et al., 2011; Murray, Lopez, & Organization, 1996; Prince et al., 2007; WHO, 2004; Wittchen et al., 2011). This means that the application of more effective treatment has the potential to considerably reduce the overall economic burden to society and improve patient quality of life, over and above any reductions in healthcare costs (Fineberg et al., 2013). Thus there is a clear argument for further research that leads to a better understanding of how to cost and effectively treat CMHDs.

1.1.3 Common Mental Health Disorders In This Thesis

In this thesis I will focus on anxiety, depression, post-traumatic stress disorder and approaches to tackling them in the community. In the UK National Health Service (NHS) the country is split up into geographical areas for clinical provision. For each of these areas the financial responsibility for commissioning of services is held by a Clinical Commissioning Group (CCG). CCGs were created following the Health and Social Care Act (Department of Health, 2012), and replaced Primary Care Trusts on 1 April 2013. They are clinically-led statutory NHS bodies responsible for the planning and commissioning of health care services for their local area. There are now 207 CCGs in England. Within this thesis we will be exploring the local services commissioned by the CCG of North East Essex. North East Essex CCG organisation employs around 130 whole time equivalent staff and they are required to work within its budget of £436.937m. They are a clinically led organisation which comprises of forty GP practices across the districts of Colchester and Tending. The national estimated prevalence of common mental health disorders, according to Public Health England figures for England (as a % of the population aged between 16-74 years of age) equates to 15.6%. The corresponding percentage figure for North East Essex is exactly the same, 15.6% (Public Health England, 2016). The national estimate for the prevalence of recorded cases of depression (as a percentage of practice registers at 18 years plus) is 8.3% however in North East Essex the level is slightly lower at 8.1%. Conversely the depression and anxiety prevalence, taken from Public Health England's GP survey (Public Health England, 2015), as a percentage of practice register at 18 years plus is 12.7% at national level but the prevalence in North East Essex CCG level was recorded at the higher figure of 13.9% (Public Health England, 2016). The final CMHD I will be focusing on in this thesis is the CMHD of PTSD. Within the APMS there is no recorded prevalence level for PTSD from the North East Essex CCG. However data from the APMS demonstrated that the rate of adults screening positive for probable PTSD (defined by the participant scoring 50 or more on the PTSD checklist (PCL) and meeting the DSM-IV criteria) was 4.4%. There was variation between gender groups with men reporting a rate of 3.7% where in contrast women reported the higher rate of 5.1%.

In other exploration the main findings from epidemiological research studies on PTSD are as follows: the majority of people will experience at least one traumatic event in their lifetime (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995), intentional acts of interpersonal violence, in particular sexual assault, and combat are more likely to lead to PTSD than accidents or disasters (Creamer, O’Donnell, & Pattison, 2004; Kessler et al., 1995; Stein, Walker, Hazen, & Forde, 1997), men tend to experience more traumatic events than women, but women experience higher impact events (i.e., those that are more likely to lead to PTSD) (Kessler et al., 1995; Stein et al., 1997) and women are more likely to develop PTSD in response to a traumatic event than men however this enhanced risk is not explained by differences in the type of traumatic event (Kessler et al., 1995). Examples of people at risk of PTSD in the UK include people who have been exposed to or have witnessed an extreme traumatic stressor, such as deliberate acts of violence, physical and sexual abuse, accidents, disaster or military action. This includes both direct personal experience of the trauma and the threat to physical integrity of the individual involved. People who have experienced threat to their own life or the life of others while in medical care, such as during anaesthesia, complications during childbirth or as a result of medical negligence, are also at risk. Special populations such as people in military service, emergency workers and the police are likely to have an increased risk of exposure to trauma, and are thus at risk of PTSD. Many refugees have experienced a range of traumatic events and may therefore, among other problems, suffer from PTSD (National Institute for Clinical Excellence, 2005).

In summary CMHDs are growing in prevalence year on year. The numbers of people struggling with CMHDs who ask for specific therapeutic help but do not receive it is also on the increase (McManus et al., 2016). These facts, coupled with the financial burden on the tax payer created by people suffering with CMHDs, suggests a need to look for cost effective alternative treatments as either an adjunct to existing services or as an alternative to them.

1.1.4 Policy Initiatives to Address the Psychological, Social and Economic Cost of CMHD Prevalence

1.1.4.1 Mental Health problems. Mental health problems are responsible for the largest burden of 'disease' in the UK with 28% of the total burden, compared to 16% for cancer and 16% for heart disease (Department of Health, 2014). Mental health problems constitute the largest category of NHS 'disease' expenditure in the UK (London School of Economics, 2012). Despite this only 13% of the NHS healthcare budget is spent on mental health according to the Chief Medical Officer (Davies, 2014). Premature mortality is a well-known phenomenon among people with severe mental health problems, with an average reduction in life expectancy of 10-25 years (15 years for women, 20 years for men) compared to the general population (Thornicroft, 2013). Despite NICE guideline recommended and evidence-based psychological therapy being available, there were not enough therapists to deliver the intervention nationally (Layard, 2006). This lack of trained therapists meant that waiting lists were either in excess of nine months or non-existent as there was no provision available at all in some areas. This left many general practitioners (GP) with no alternative other than psychotropic-medication (Layard, 2006).

1.1.4.2 Development of Improve Access to Psychological Therapies (I.A.P.T). On World Mental health Day the 10th October 2007, the then UK Labour secretary of state for health Alan Johnson announced new funding to Improve Access to Psychological Therapies (I.A.P.T). This announcement was a realisation of New Labour's 2005 manifesto pledges to incorporate psychological therapies into the NHS services and also an acknowledgement that these therapies have benefits beyond the realm of the mental health needs of the individual. These manifesto promises had risen from the publication of a report by Lord Richard Layard, Professor of Economics at the London School of Economics (Layard, 2006). This report was originally written to be used by the Prime Minister in a presentation at a strategy unit but in the end was behind the inclusion of the following entry into the Labour Party Manifesto: “Almost a third of people attending GP surgeries have mental health problems and mental health occupies approximately one third of GP’s time. So we will continue to invest in and improve our services for people with mental health problems at primary and secondary levels, including behavioural as well as drug therapies.” (Labour Party, 2006). This part of Labour’s manifesto linked to their expression of a desire to empower people back into work. Layard’s report had highlighted that the total loss of output due to depression and chronic anxiety was approximately equal to £12 billion a year. Of this the cost to the tax payer is £7 billion a year. These billions of pounds lost through inactivity were a huge cost when compared with the £0.6 billion a year which a proper therapy service would cost. The cost of CMHDs to the UK economy = 4% GDP.

1.1.4.3 National Institute for Health and Clinical Excellence (NICE). Ninety percent of people drawing incapacity benefit do not receive any specialist mental health care in the form of known effective treatments recommended by the UK National Institute for Health and Clinical Excellence (NICE) (Hague, 2008). Within the UK’s National Health Service (NHS) NICE provides national guidance and advice to improve health and social care through evidence based guidance. NICE was originally set up in 1999 as the National Institute for Clinical Excellence, a special health authority, to reduce variation in the availability and quality of NHS treatments and care. In 2005, after merging with the Health Development Agency, it began developing public health guidance to help prevent ill health and promote healthier lifestyles. Its name changed to the National Institute for Health and Clinical Excellence. In April 2013 they were established in primary legislation, becoming a Non Departmental Public Body (NDPB) and placed on a solid statutory footing as set out in the Health and Social Care Act 2012. At this time NICE took on responsibility for developing guidance and quality standards in social care, and their name changed once more (National Institute for Health and Care Excellence) to reflect these new responsibilities. NICE's role is to improve outcomes for people using the NHS and other public health and social care services. They do this by producing evidence based guidance and advice for health, public health and social care practitioners. They also develop quality standards and performance metrics for those providing and commissioning health, public health and social care services. Finally they provide a range of informational services for commissioners, practitioners and managers across the spectrum of health and social care. Since 1999, they have provided the NHS, and those who rely on it for their care, with an increasing range of advice on effective, good value healthcare, and have gained a reputation for rigour, independence and objectivity. In April 2013 NICE gained new responsibilities for providing guidance for those working in social care. The judgements behind the creation of I.A.P.T service, as part of the NHS, were in fact not only made from the mind set of it being beneficial to health but also from economic considerations too. The development of effective therapeutic alternatives to psychotropic medication, in the form of Cognitive Behavioural Therapy (CBT) (Paykel et al., 1999), that was deliverable in short cost effective treatments meant an alternative to previous mental health paths was proposed. The IAPT programme was created to offer patients a realistic and routine first line treatment, combined where appropriate with medication which traditionally had been the only treatment before.

1.1.4.4 Pilot and pathfinder IAPT sites. IAPT originally was “rolled out” in two trial areas, Newham and Doncaster. Each site utilised different approaches to delivering the service but both shared important principles. First of the shared principles was that they both looked to implement N.I.C.E guidelines regarding mental health disorders (stepped care approach to management of anxiety and depression). Secondly they both evaluated the care that individuals received to demonstrate that the care patients received was of high quality and that outcomes were evaluated. The two sites' interpretation of the stepped care pathway resulted in two entirely different approaches. Doncaster delivered the majority of its services at step 1 and step 2 (see figures 1.1 and 1.2), investing in a large number of new therapists who could deliver low intensity interventions such as cognitive behavioural therapy (CBT). Newham, in contrast, provided more treatment at step 3, employing high intensity face to face interventions. Low intensity interventions require typically six or less patient contacts where as in contrast high intensity requires usually 12 or more. With regards to evaluation, the IAPT Expert Reference Group developed minimum data sets (Appendix 1.1) to evaluate patient improvement across four areas; Wellbeing – Mental and Physical health, Social Inclusion – including employment status, Choice – of interventions and services and Access – Improvements in access and waiting times. In the spring of 2007 plans were devised to expand the IAPT services from the original two service points. It was proposed to commission a small number of IAPT services to pilot roll out the programme. This was termed the Pathfinder stage. Seventy percent of the Primary Care Trusts (PCT's) expressed an interest in wanting to join the Pathfinder stage with a final figure of 50% submitting final bids. Funding was limited and 11 were chosen to take part and they began to see patients in 2007 (table 1.1). They used service redesign techniques to develop a defined care pathway for the patients from referral through to treatment. They also adapted the service specification as to what patient base the service provided treatment options for whilst also creating a service framework within which they could provide these services. Finally they ensured routine outcome monitoring of the service through the scales given to the patients. Each Pathfinder site also identified an interest in addressing the specific barriers and providing positive benefits for improving access to psychological therapies for particular sections of their local population. Experts, identified by the Department of Health, were invited to support these

PCTs through special interest groups offering advice and support focused on the needs of the specific sections of local communities (Department of Health, 2008a).

Table 1.1 - The PCTs and the special interests were

Derby PCT	Black and Minority Ethnic Communities
Ealing PCT	Black and Minority Ethnic Communities
East Riding of Yorkshire PCT	Older People, Long Term Conditions
Hertfordshire PCT	Older People; Perinatal - New Mothers and Fathers; Long Term Conditions
Buckinghamshire PCT	Older People
Stoke PCT	Older People, Medically Unexplained Symptoms
Salford PCT	Perinatal - New Mothers and Fathers; Medically Unexplained Symptoms
Dorset PCT	Offenders; Long Term Conditions
Brighton PCT	Young People, LGBT
Bury PCT	Children and Young People
North Tees PCT	Long Term Conditions

From 2011, IAPT’s focus has broadened, following publication of Talking Therapies: a four-year plan of action, one of a suite of documents supporting “No health without mental health” (Department of Health, 2011B) the cross-Government mental health strategy for people of all ages working to the National Institute for Health and Clinical excellence (NICE) guidelines. These IAPT services were to be delivered on a stepped care delivery basis as seen in the figures 1.1 and 1.2;

Step 3: High Intensity interventions	Depression moderate to severe	Cognitive Behavioural Therapy CBT or interpersonal therapy IPT each with medication
	Depression mild to moderate for individuals with inadequate response to step 2	CBT or IPT - Behavioural Activation BA or variant of CBT – Behavioural couple's therapy – Counselling or short term psychotherapy
	Panic Disorder	CBT
	Post-Traumatic Stress Disorder PTSD	Eye Movement Desensitisation reprocessing EMDR or CBT
	Generalised Anxiety Disorder GAD	CBT
	Obsessive Compulsive Disorder OCD	CBT
	Social Phobia	CBT
Step 2: Low Intensity interventions	Depression	Guided self-help based on CBT – Computerised CBT – Behavioural Activation – Structured physical activity
	Panic disorder	Self-help based on CBT – Computerised CBT
	Post-Traumatic Stress Disorder PTSD	None
	Generalised Anxiety Disorder GAD	Self-help based on CBT – Psychoeducation groups - Computerised CBT
	Obsessive Compulsive Disorder OCD	Guided self-help based on CBT
	Social Phobia	None
Step 1: Primary care IAPT service	Recognition of problem	Assessment referral/Active monitoring – Includes careful monitoring of symptoms, psychoeducation about the disorder and sleep hygiene advice.
	Moderate to severe depression with a chronic physical health problem	Collaborative care (consider in light of specialist assessment if depression has not responded to initial course of high intensity intervention or medication).

Figure – 1.1 - Stepped Care Mental Health – (adapted from Department of Health 2011)

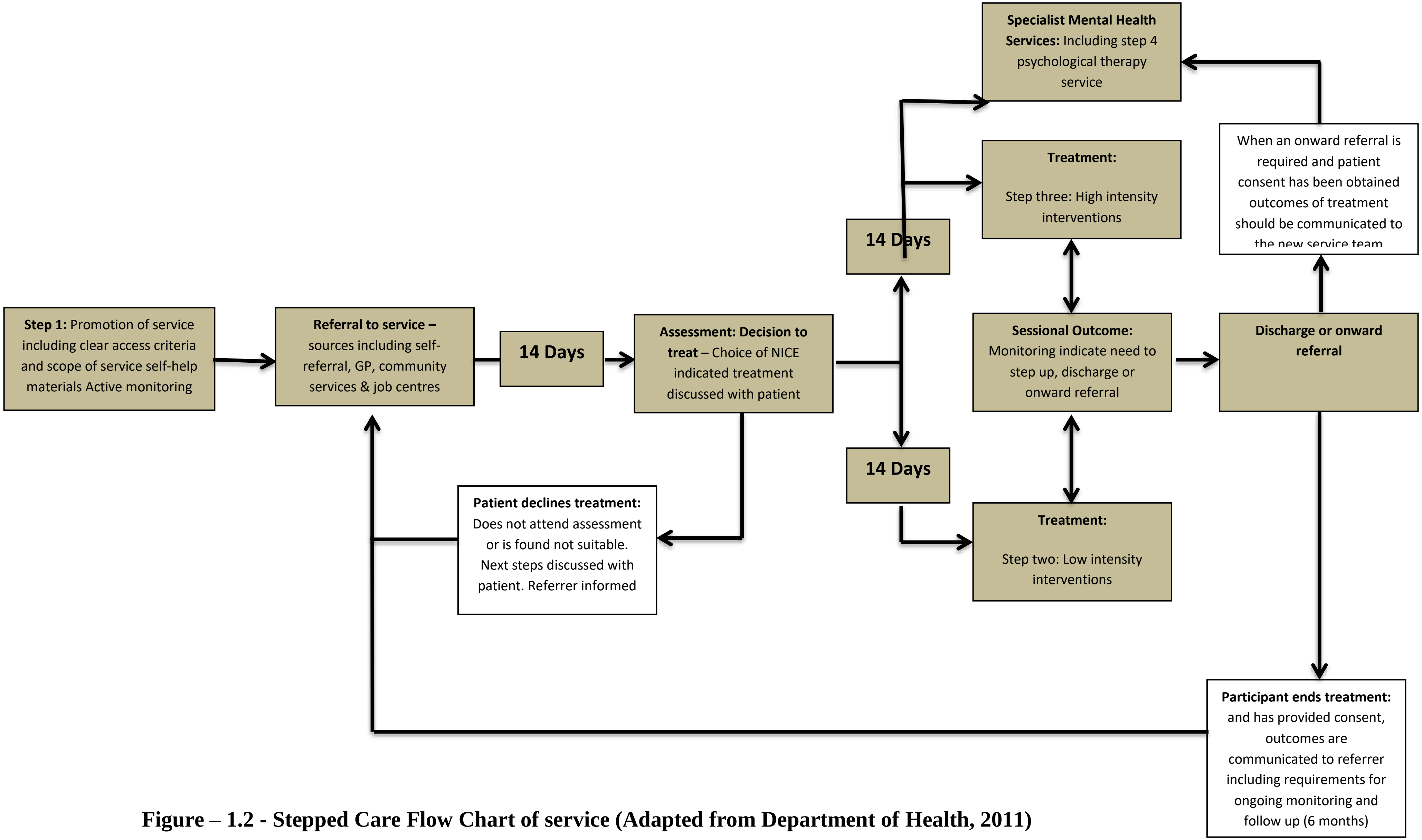

Figure – 1.2 - Stepped Care Flow Chart of service (Adapted from Department of Health, 2011)

Figures published in the government policy document Improving Access to Psychological Therapies, Key Performance Indicators (IAPT KPIs) demonstrate this approach can potentially save the NHS up to £272million and the wider public sector will benefit by more than £700 million (Improving Access to Psychological Therapies, 2013). By 31 March 2011, 142 of the 151 Primary Care Trusts in England had a service from this program in at least part of their area and just over 50 per cent of the adult population had access, 3,660 new cognitive behavioural therapy workers had been trained, and over 600,000 people started treatment, over 350,000 completed it, over 120,000 moved to recovery and over 23,000 came off sick pay or benefits between October 2008 and 31 March 2011 (Improving Access to Psychological Therapies, 2013). Despite beginning to diversify into other therapy areas e.g., Eye Movement Desensitisation and Reprocessing (EMDR) for trauma patients, Couples Integrative therapy for couples where one or both of the partnership are suffering from depression, Counselling for depression for individuals and so forth the main therapy utilised within the IAPT services remains CBT.

1.1.5 Therapeutic model proposed by IAPT program: Cognitive therapy’s origins can be traced back for over five decades. First came the ego analytics theorists who focused on beliefs and attitudes (Bibring, 1953). Later in the same decade Festinger et al. (1954) embraced the new cognitive and social psychology ideals of information processing systems and evidence testing. It was Aaron Temkin Beck (1967, 1979) that posited that therapy was less about the influence of the unconscious but patients moods and emotions were more related to current ongoing automatic thoughts and subsequent interpretation of events. Beck hypothesised that attending to these areas of a client’s presentation could produce significant change. So therefore Beck along with other ego analysts such as Kelly (2003) and Ellis (1962) made the shift from the psychoanalytical stand point of the therapeutic process being an understanding of unconscious material to one of education with the use of evidence testing, guided discovery and Socratic questioning. The influence of the person centred therapy movement through the 1960s, increasing the awareness of the value of a therapeutic alliance and it's highlighting of the core conditions required to achieve such a union, permeated all styles of therapy including the Cognitive approach (Kirschenbaum & Jourdan, 2005). It became assumed that people wishing to train in and adopt a cognitive approach to therapy would already hold an awareness of Rogers's core conditions and have an awareness of how to implement them. The focus of the cognitive therapy would be using the skills to develop collaboration and facilitate guided discovery, a cognitive formulation and an invitation to explore alternative thoughts and ideas (Gilbert & Leahy, 2007). With regards to the development of the behavioural school of therapy its roots stretched back even further in time to the works of Pavlov(1941), Thorndike (1913) and Watson(1920). Timberlake (1994) described behavioural therapy as "The science of the behaviour and learning of living systems" paying attention to such areas as the inputs and outputs of systems like physiological, emotions or motor systems. It was assumed that because of the efficacy of these treatment protocols that the therapeutic relationship was less important. Eysenck (1952) postulated that relationships were not essential for cure. As behavioural therapy began to embrace the social learning perspective of the intervention the relationship adopted a more prominent role (Bandura, 1969; Staats, 1975). Through its development and history behavioural therapy, perhaps more than any other therapy, has at times had a poor reputation with regards to therapist patient interaction. However the research into therapeutic relationships across varying different therapy modalities does not support this hypothesis and in fact behavioural therapists are often rated the warmest of all the therapeutic schools (Schaap, Bennun, Schindler, & Hoogduin, 1993). Since the union of cognitive and behavioural therapies in the 1970s Cognitive Behavioural Therapy (CBT) has been at the forefront of endeavours to demonstrate effective treatments. In its current format, CBT is a way of talking about how individual patients think about themselves, the world and other people. It also explores how what you do affects your thoughts and feelings. Features of CBT as described by Kinsella and Garland (2008) include it being time limited, active, directive, focused and structured. It comes from a problem-solving stance, is goal directed, educational, collaborative, action orientated and finally it focuses the patient to work in the here and now as opposed to retrospectively. It is felt that the therapy (CBT) can help you change how you think ("Cognitive") and this then in turn alters what you do ("Behaviour"), using these techniques can help patients make sense of overwhelming problems by breaking them down into smaller parts. These parts are firstly the situation this might be a problem, event or difficult situation. From this can follow several further thoughts, emotions, physical feelings and subsequently actions (table 1.2);

Table 1.2 - Example of thought patterns

	Unhelpful	**Helpful**
Thoughts	He ignored me they do not like me.	He looks wrapped up in himself, I wonder if something is wrong?
Emotional feelings	Low, sad, rejected.	Concerned for other.
Physical	Stomach cramps, sickness and low energy	None – Comfortable.
Behaviour	Go home and avoid them.	Get in touch, make sure they are OK.

The same situation has led to two different results. How you think has affected how you feel and what you did. The whole sequence, and parts of it, can also feed-back as shown in figure 1.3;

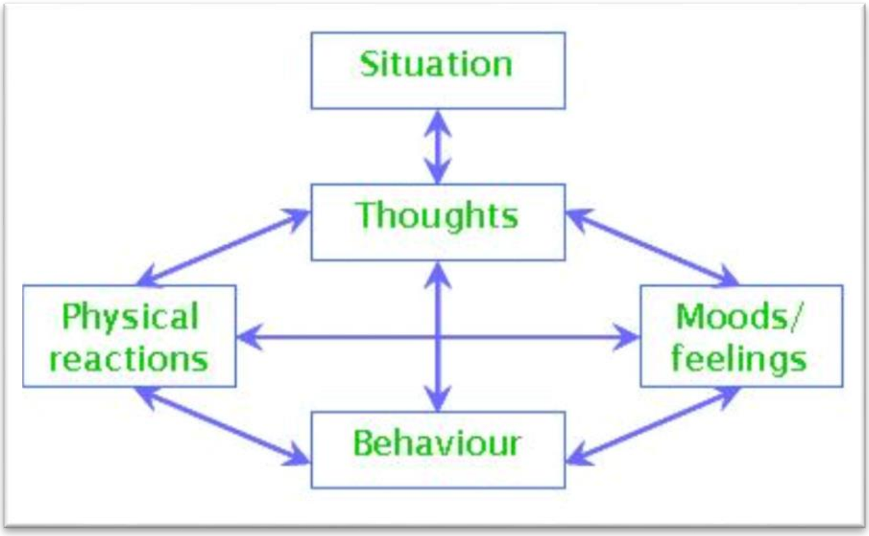

Figure 1.3 - Adapted from Padesky's "Hot Cross Bun" (Padesky & Mooney, 1990)

CBT can help break this vicious circle of altered thinking, feelings and behaviour by the therapist and patient between then breaking each problem down into separate parts. Between them they will look at the thoughts, feelings and behaviours to work out if they are unrealistic or unhelpful and how they affect each other and the patient. The therapist will assess how to change unhelpful thoughts and subsequent behaviours. CBT is increasingly being delivered in primary care, in a variety of delivery formats such as guided self-help CBT, telephone-based CBT, computerised CBT and standard, one-to-one CBT. Twomey, O'Reilly, and Byrne (2015) report a meta-analyses on the efficacy of CBT in primary care. The authors conducted a literature search with the aim of identifying RCTs on CBT interventions (in any modality) for anxiety and depression that were set in primary care or had primary care (e.g., GP-referred) participants. Twenty nine randomly controlled trials were included in three separate analyses. Results demonstrated that Multi-modal CBT (group, computer based, telephone, face to face) was more effective than no primary care treatment (d = 0.59) and primary care treatment-as-usual (TAU) (d = 0.48) for anxiety and depression symptomology. Furthermore, multi-modal CBT in addition to primary care TAU was demonstrated as being more effective than primary care TAU for depression symptoms (there were no comparisons of this kind available for anxiety) (d = 0.37). The results indicate that multi-modal CBT is effective for anxiety and depression symptoms in primary care. Furthermore, based on CBT's economic viability and the current cuts to mental health budgets within the NHS (Docherty & Thornicroft, 2015) increasing the provision of CBT in primary care appears justified.

1.1.5.1 The IAPT "Patient's story" for Health in Mind in North East Essex: In this thesis I will be analysing a dataset obtained from the North East Essex IAPT service (formerly known as NEPFT), Health in Mind. Each IAPT service, formed since the programme's inception, has developed its own interpretation of how to implement the required criteria to run a service. There are elements of each service that remain constant across the country, IAPT minimum datasets are an example of this, however, delivery of the service has been open to interpretation. For a patient seeking help in North East Essex there are several potential routes to enter the service. The highest number of referrals come directly from the patient's GP, following a consultation at the GP's surgery. A second route of entry is self-referral by the patient, calling the service directly to seek engagement. A patient can be referred from another level of the NHS stepped care system such as the secondary care unit at Colchester hospital or the crisis team. Finally there is the potential to be referred from other services, with the patient's consent; this might be from probation services, drug and alcohol services or social workers. Once the referral has been received into the service at the initial administrative level and put onto the Patient Case Management Information System (PC-MIS) for the Improving Access to Psychological Therapies programme it is allocated to a senior practitioner to be triaged. This triage decision is to ascertain the level of initial assessment session required for each individual case, either by a Psychological Wellbeing Practitioner (PWP) at step two or by a High Intensity Worker (HIW) at step three (see figures 1 and 2). This decision is based upon the individual's psychological presentation and risk indication. Once this decision has been made the case is then allocated an "Initial Assessment" (IA) appointment at the appropriate level, either step two or step three. This

IA takes the form of a forty five minute telephone call where the IAPT minimum dataset is collected (see below) and a provisional diagnosis is attributed to the case. Upon completion, treatment options are discussed and a follow up telephone call is booked for a week to ten days later to finalise the treatment decision. Following this second contact and the decision as to which treatment level, PWP level two or HIW level three, to allocate the case to the patient is then added to the appropriate waiting list. Once an appointment becomes free therapy can begin. For level two, for which patients see a PWP, the therapy takes the form of telephone CBT. This is, in general, a shorter length intervention than the more intense step three therapies, and lasts on average six sessions with a maximum of twelve available. For level three service users they are allocated a High Intensity Worker (HIW). The intervention utilised at this level is face to face CBT, with these service users attending an average of twelve sessions and a maximum of twenty. There are several routes for a service user to leave the service. Firstly they could be discharged after reaching recovery thresholds with regards to depression and anxiety scales (PHQ-9 < 10, GAD-7 < 8). Another reason for them leaving the service might be an increase in symptomology or a change in diagnosis to levels that are more appropriately dealt with at a higher level of care (secondary care mental health team). Finally service users may exclude themselves from therapy and leave the service.

1.1.5.2 Evaluating IAPT via the minimum dataset

The IAPT Data Handbook (Department of Health, 2011a) is for everyone working in, managing, or supplying data services to an IAPT service. This includes clinicians, commissioners, and data leads or technicians and system suppliers. Within this handbook the minimum dataset is laid out, these psychological assessment tools are required to be taken at each contact the patient has with their therapist. The datasets include; Patient Health Questionnaire (PHQ-9) for depression, Generalised Anxiety Disorder Assessment (GAD7), IAPT phobia scales, Work and Social Adjustment Scale (WSAS) and IAPT employment status questions

1.1.5.2.1 ***Depression - PHQ-9:*** The nine item version of the Patient Health Questionnaire - PHQ-9 (Kroenke, Spitzer, & Williams, 2001) was designed to facilitate the recognition and diagnosis of depression in primary care patients. It can be used to monitor change in symptoms over time and provides a depression severity index score as follows: 0 – 4 None, 5 – 9 Mild, 10 – 14 Moderate, 15 – 19 Moderately Severe and 20 – 27 Severe. The recommended cut-off for the PHQ-9 severity index is a score of 9. Anyone who records a score of 10 or above on the scale can be considered to be suffering from clinically significant symptoms of depression. This is referred to as meeting “caseness”.

1.1.5.2.2 ***Generalised Anxiety Disorder – GAD-7:*** Though designed primarily as a screening and severity measure for generalised anxiety disorder, the GAD-7 also has moderately good operating characteristics for three other common anxiety disorders; panic disorder, social anxiety disorder, and post-traumatic stress disorder (Spitzer, Kroenke, Williams, & Löwe, 2006). The index scores are as follows: 0 – 4 none, 5 - 10 mild anxiety, 11 – 15 moderate anxiety and 15 - 21 severe anxiety. The recommended cut off for the GAD-7 severity index is a score of 7. Anyone who scores 8 or above on the scale can be considered to be suffering from clinically significant anxiety symptoms, therefore meeting “caseness” for anxiety.

1.1.5.2.3 ***IAPT Phobia Questions:*** These questions are included because it is clear that some patients (such as people with agoraphobia and social phobia) score below the clinical cut-offs for the PHQ-9 and GAD7 even though their life is significantly impaired by their anxiety disorder. This is because marked avoidance (such as being housebound) means that they may not experience moderate/severe anxiety on a daily basis. PHQ-9/GAD7 would not measure clinical improvement in such individuals. Currently the three IAPT phobia questions have not been validated as screening instruments. The questions that are included in the IAPT Data Standard are based on the approach to measurement of the severity of phobias used in the Marks and Matthews Fear Questionnaire (Marks & Mathews, 1979) and many other similar fear questionnaires. Many clinical trials of treatments for phobias exclude patients if they score less than 4 on a 0-8 phobia scale at pre-treatment. If the patient scores 4 or above on any of the three phobia questions at intake, assessors should enquire about the extent to which a phobia is present and interfering with a patient's life.

1.1.5.2.4 ***Work and Social Adjustment Scale (WSAS)*****:** The Work and Social Adjustment Scale (WSAS) is a simple 5-item patient self-report measure, which assesses the impact of a person's mental health difficulties on their ability to function in terms of work, home management, social leisure, private leisure and personal or family relationships (Mundt, Marks, Shear, & Greist, 2002). The WSAS is used for all patients with depression or anxiety as well as phobic disorders.

1.1.5.2.5 ***Employment and Benefit Status:*** Questions relating to employment, benefits status and sick pay should be asked on a sessional basis and should be recorded on systems. The IAPT worker records the patient's status with regard to employment, and whether they are in receipt of sick pay. Then, on a sessional basis, changes in this status can be recorded. Receipt of sick pay from an employer should be recorded as receipt of Statutory Sick Pay (SSP) as it is assumed that the employer will claim SSP in respect of their employee's absence. The employment status data item in the IAPT Data Standard includes reference to a range of other benefits. The NHS Data Model and Dictionary provides a reference point for assured information standards to support health care activities within the NHS in England. It has been developed for everyone who is actively involved in the collection of data and the management of information in the NHS. The value of the minimum data set collected for IAPT services will be evaluated through future review and consultation. Referral to employment support services should also be recorded. A need for employment support is indicated where the individual is: Regularly absent from work, on statutory or employer sick pay (and therefore at risk of moving on to ill-health related benefits), on ill-health related benefits and citing difficulties at work. Where employment services are provided in IAPT, service managers should consider implementing extended data sets that capture a broader range of measures. The impact of a co-ordinated IAPT employment service on patient health outcomes, and evidence of an effective service model, is indicated by measures derived from the data sets.

1.1.5.3 The national IAPT story so far: Clark et al. (2009) were at the forefront of evaluating the new initiative of IAPT. Using data collected from the two pilot sites of Newham and Doncaster they implemented an observational prospective cohort study to evaluate the new services. Using data obtained as part of the standard collection of the MDS during each session Clark et al. were able to assess the effectiveness of the clinical outcomes. These were found to be broadly in line with expectations with 55-56% of patients that attended at least twice (including assessment session) were classified as recovered using the IAPT system of recovery attainment (below caseness on both the PHQ-9 and the GAD-7). Only 5% of patients that attended had improved their employment status from sick pay/state benefits. Clark (2011) later went on to further evaluate the IAPT roll out. In his article in the International Review of Psychiatry Clark was able to summarise the programme’s progress to date midway through its third year (spring 2011). He found that IAPT services had been established in 95% of the primary care trust (PCT) sites, however staffing levels at these sites varied substantially. From the national data collected by the IAPT services at the end of the second year (399,460 people seen) Clark was able to state that a large number of people had received evidence based psychological interventions that would not have done so without the setting up of the new IAPT services. Clark et al. also reported that 5% (13,962) of the people seen, moved off either sick pay and/or state benefits to an employed status. Recovery rates found were reported to be approaching expectation at an average of 40% (compared to a target of 50%) (Clark, 2011).

Chan and Adams (2014) wanted to explore whether this recovery rate discussed by Clark et al differed between the two different offered levels of therapy. They looked at comparisons between high and low intensity treatments in a Suffolk based IAPT. One hundred service records were randomly selected for a between groups design analysis of service use, drop-out rate and clinical outcomes. In line with IAPT guidelines (Improving Access to Psychological Therapies, 2008), the high intensity group received on average more sessions and higher levels of contact time. They also received more CBT and less guided self-help. When they looked at dropout rates there was no significant difference found between the groups. Although the number of participants reported to have “dropped out of treatment” was higher in the low intensity group (n = 9) than the high intensity group (n = 3) this did not meet statistical significance. Their findings for treatment outcomes are discussed in the next section of this chapter.

Whilst there has been research on the existing IAPT services performances to date there appears to be a lack of analyses on predictor variables of service users with regards to both the level of engagement by them once they are involved with the service (percentage of offered appointments attended) or non-attendance (Did Not Attend – DNA) to appointments offered. In chapter two of this thesis I will explore identifying demographic predictors and referral path predictors for both of the areas mentioned with the intention of this knowledge enabling future tailoring of services to maximise efficiency.

1.1.5.4 Evaluation of Patient Outcomes

Chan and Adams (2014) looked at recovery rates across both high and low intensity service user contacts within a Suffolk based IAPT service. For their analysis they used the standard IAPT “recovery” index. Utilising this index meant that an individual is judged to have recovered if s/he is a case at pre-treatment and has dropped below the clinical/non-clinical cut-off for depression (PHQ-9 < 10) and anxiety (GAD-7 < 8) at post-treatment. Only service users that attended at least two sessions including the assessment were included in the analysis. Their results suggested no significant effect of group or time x group interaction. An overall "recovery" rate was determined at 52.6%. Gyani et al. (2013) looked at data from 19,395 patients that had accessed IAPT services within the first year of service. Previous reports of outcomes in IAPT services have used the "recovery" index. This measure does not take into account whether the observed change is greater than the measurement error of the scales. As a consequence, a patient who starts treatment just above the clinical threshold and finishes treatment just below it will be classified as "recovered" even if the improvement is not statistically reliable. To get round this problem, Gyani et al. used a "reliable recovery" index. Patients were deemed to have reliably recovered if they scored above the clinical cut-off on the PHQ-9 and/or the GAD-7 at initial assessment, they showed reliable improvement during treatment, and they scored below the clinical cut-offs on both the PHQ-9 and the GAD-7 at the end of treatment. They reported finding that 40.3% of patients were reliably recovered post treatment. Reliable improvement was assessed using Jacobson and Truax's (1991) reliable change criteria. The measure of reliability used for the PHQ-9 and the GAD-7 was Cronbach's alpha, taken from the validation studies of the measures (Kroenke et al., 2001; Spitzer et al., 2006). To be considered reliable, pre-post change on the PHQ-9 needed to exceed 5.20. For the GAD-7 the comparable value was 3.53. Patients were considered to have shown reliable improvement if their PHQ-9 or GAD-7 score reliably decreased and the score for the other scale either did the same or did not reliably deteriorate. 63.7% of the patients showed reliable improvement. Finally Gyani et al. looked at the data in relation to reliable deterioration. Patients are considered to have shown reliable deterioration if their PHQ-9 or GAD-7 score reliably increased and the score for the other scale either did the same or did not reliably improve.6.6% of patients showed reliable deterioration.

Further research has been carried out exploring the Department of Health key performance indicators (KPIs) (Griffiths & Steen, 2013). Currently using "completing treatment" as a denominator the figures demonstrating patients "moving to recovery" is 44%. However, if you use those “starting treatment” as a denominator that recovery rate falls to 22%. Furthermore, if you change the denominator to “all patients referred to the IAPT programme” the figure falls even lower to 12%. Grant et al. (2014) are implementing a naturalistic observational project to predict outcome after engaging with psychological therapy within an IAPT service. The project is taking place at Southwark Psychological Therapies Service. Participants are approached before staring their therapy and offered a baseline interview whilst they are waiting for therapy to begin. The purpose of the interview is to facilitate testing for relationships between predictor variables and outcome measures. Alongside this interview participants also are asked to provide blood and hair samples for biomarkers and complete a psychological and social questionnaires looking at social support (Social Support Scale OSS-3, Dalgard et al., 2006), self-critical thoughts (Forms of Self-critical/Attacking and Self-reassurance scale FSCRS, Gilbert, Clarke, Hempel, Miles, & Irons, 2004), stressful life events (List of Threatening Events Questionnaire, Brugha, Bebbington, Tennant, & Hurry, 1985), childhood trauma (Childhood Trauma Questionnaire, Bernstein et al., 2003), Quality of life (EuroQol, Herdman et al., 2011), illness perceptions (Brief Illness Perceptions Questionnaire, Broadbent, Petrie, Main, & Weinman, 2006) and self-efficacy (General Self-efficacy Scale, (Luszczynska, Scholz, & Schwarzer, 2005). The aim of this on-going project is to identify factors that predict response to psychological therapy in a primary care setting. Currently there are no analysed results available for this project.

In summary, the analysis of the IAPT services to date have demonstrated that the recovery rates are moving towards the identified target of 50% recovery with reported rates around 40% using the IAPT recovery criteria (Clark et al., 2009). Similar recovery rates, 40%, were demonstrated when a reliable recovery criteria was utilised (Gyani et al., 2013). No significant difference in either recovery or dropout rates were recorded between the two levels of intervention offered (Chan & Adams, 2014). However recovery rates are greatly diminished if the denominator of all people making a referral to the service is utilised as opposed to those that engage in therapy (Griffiths & Steen, 2013).

In chapter three of the thesis I intend to further explore alternative ways of evaluating “recovery”. I will look at clinically significant change (CSC) as well as reliable change (RC) as alternatives to the IAPT recovery (Jacobson & Truax, 1991). CSC is calculated against the premise that the level of functioning subsequent to therapy shall fall outside the range of the dysfunctional population, where range is deemed as extending to two standard deviations beyond (in the direction of functionality) the mean of the population. For RC it is assessed against the change in a client’s score divided by the standard error of the difference for the test(s) being used. This analysis will inform whether IAPT’s recovery index is the most appropriate recovery measure for all that access their service. This information will, I believe, be valuable in modifying assessment criteria for current IAPT services.

1.1.6 Post-traumatic stress disorder in the community

In its original conception IAPT services were designed to provide interventions for people with mild-moderate anxiety and depression. Amongst the anxiety disorders that the services covered are the conditions of generalised anxiety, panic disorder, obsessive compulsive disorder, social anxiety, agoraphobia, health anxiety, specific phobias and PTSD. From the 1st April 2015 to the 31st March 2016 of the 537,131 IAPT referrals that finished a course of treatment 12,300, 2.29%, of these were treated for PTSD (NHS Health and Social Care Information Centre, 2017).

It had previously been suggested that reports of post-traumatic symptomology were first seen as far back as ancient Greece (Jackson, 1986). However in Birnbaum’s (2007) examination of the biblical narrative relating to the Hebrew patriarch Jacob, using a close literal reading of the book of Genesis, he identified evidence of PTSD as defined by the DSM-IV. Furthermore in their 2008 publication Birnbaum’s inspection of the text of the biblical books of Exodus and

Numbers reveals signs of collective post-traumatic reactions among the Israelites in response to the recurrent plagues. Mesopotamian sources mention cases of similar symptoms from even earlier dates. The first cuneiform text was written in 3200 BC in Uruk, southern Iraq. Almost half a million cuneiform tablets have subsequently been discovered, with these being written from the time of the first tablet up until the beginning of the Christian era (Finet, Lafont, & Roux, 2001). Within these discoveries several hundred of the tablets were medical texts (Oppenheim, 2013; Reiner & Oppenheim, 1977). It is here, within these medical texts, where references can be found from physicians reporting symptoms that today might lead to a diagnosis of what is now termed post-traumatic stress disorder or PTSD (Scurlock & Andersen, 2010). Throughout the ages, various sets of reported post-traumatic symptomology have been identified and associated with military conflict (Birmes, Hatton, Brunet, & Schmitt, 2003) with various different terminologies to describe these symptoms. In the 17th century Spanish doctors used the expression estar roto, meaning to be broken, to describe the symptomology presented by their military (Tick, 2012). It was throughout the first world war that the term shell shock first appeared in the Lancet (Myers, 1915). This terminology changed again during the second world war when the terms used were either combat or battle fatigue (Herman, 2015) as physicians were beginning to recognise the link between battle fatigue and psychological trauma in military personnel engaged in combat. According to US government statistics 10% of serving American military personnel suffered from combat fatigue after World War II (Nordheimer, 1972). Following on from the two world wars further conflicts led to more identifications of symptoms akin to a current diagnosis of PTSD. During the Vietnam war the term post-Vietnam syndrome was in common usage by clinicians with some studies suggesting as many as 50% of Vietnam veterans suffered from some form of distress (Kulka et al., 1990). It was in this era that these reports finally led to the formal recognition of Post-traumatic stress disorder (PTSD), in 1980, with specific symptoms that could be reliably diagnosed and the disorder was added to the

American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2000) in its first incarnation. In the latest version of the DSM, DSM-5 (APA, 2013), the following diagnostic criteria need to be met to obtain a diagnosis:

A. Exposure to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways:

1. Directly experiencing the traumatic event(s).

2. Witnessing, in person, the event(s) as it occurred to others.

3. Learning that the traumatic event(s) occurred to a close family member or close friend. In cases of actual or threatened death of a family member or friend, the event(s) must have been violent or accidental.

4. Experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (e.g., first responders collecting human remains: police officers repeatedly exposed to details of child abuse). Note: Criterion A4 does not apply to exposure through electronic media, television, movies, or pictures, unless this exposure is work related.

B. Presence of one (or more) of the following intrusion symptoms associated with the traumatic event(s), beginning after the traumatic event(s) occurred:

1. Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s). Note: In children older than 6 years, repetitive play may occur in which themes or aspects of the traumatic event(s) are expressed.

2. Recurrent distressing dreams in which the content and/or affect of the dream are related to the traumatic event(s). Note: In children, there may be frightening dreams without recognizable content.

3. Dissociative reactions (e.g., flashbacks) in which the individual feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings.) Note: In children, trauma-specific re-enactment may occur in play.

4. Intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).

5. Marked physiological reactions to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).

C. Persistent avoidance of stimuli associated with the traumatic event(s), beginning after the traumatic event(s) occurred, as evidenced by one or both of the following:

1. Avoidance of or efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).

2. Avoidance of or efforts to avoid external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).

D. Negative alterations in cognitions and mood associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:

1. Inability to remember an important aspect of the traumatic event(s) (typically due to dissociative amnesia and not to other factors such as head injury, alcohol, or drugs).

2. Persistent and exaggerated negative beliefs or expectations about oneself, others, or the world (e.g., “I am bad,” “No one can be trusted,” ‘The world is completely dangerous,” “My whole nervous system is permanently ruined”).

3. Persistent, distorted cognitions about the cause or consequences of the traumatic event(s) that lead the individual to blame himself/herself or others.

4. Persistent negative emotional state (e.g., fear, horror, anger, guilt, or shame).

5. Markedly diminished interest or participation in significant activities.

6. Feelings of detachment or estrangement from others.

7. Persistent inability to experience positive emotions (e.g., inability to experience happiness, satisfaction, or loving feelings).

E. Marked alterations in arousal and reactivity associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:

1. Irritable behaviour and angry outbursts (with little or no provocation) typically expressed as verbal or physical aggression toward people or objects.

2. Reckless or self-destructive behaviour.

3. Hypervigilance.

4. Exaggerated startle response.

5. Problems with concentration.

6. Sleep disturbance (e.g., difficulty falling or staying asleep or restless sleep).

F. Duration of the disturbance (Criteria B, C, D, and E) is more than 1 month.

G. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

H. The disturbance is not attributable to the physiological effects of a substance (e.g., medication, alcohol) or another medical condition. Specify whether: With dissociative symptoms: The individual's symptoms meet the criteria for posttraumatic stress disorder, and in addition, in response to the stressor, the individual experiences persistent or recurrent symptoms of either of the following:

1. De-personalisation: Persistent or recurrent experiences of feeling detached from, and as if one were an outside observer of, one's mental processes or body (e.g., feeling as though one were in a dream; feeling a sense of unreality of self or body or of time moving slowly).

2. De-realisation: Persistent or recurrent experiences of unreality of surroundings (e.g., the world around the individual is experienced as unreal, dreamlike, distant, or distorted). Note: To use this subtype, the dissociative symptoms must not be attributable to the physiological effects of a substance (e.g., blackouts, behaviour during alcohol intoxication) or another medical condition (e.g., complex partial seizures). Specify if: With delayed expression: If the full diagnostic criteria are not met until at least 6 months after the event (although the onset and expression of some symptoms may be immediate) (DSM-5, 2013).

1.1.6.1 NICE guidelines for the treatment of PTSD: As with all CMHDs PTSD has a set of NICE guidelines, clinical guideline (CG26), for treatment which is followed within the IAPT services (National Institute for Clinical Excellence, 2005). Within CG26 there are recommendations for recognising PTSD, assessment and co-ordination of care, support for families and carers, care for people with PTSD, treating PTSD and disaster planning.

1.1.6.1.1 ***Psychological interventions:*** Ehlers et al. (2010) in their paper looking at the efficacy of treatments for PTSD countered the previous meta-analysis conclusions made by (Benish, Imel, & Wampold, 2008). Benish et al. had concluded that all *bona fide* treatments are equally effective in PTSD. In their paper to determine if a treatment condition was a bona fide psychotherapy treatment, they used the criteria developed by Wampold, Mondin, Moody, and Stich (1997). First, the treatment must have been delivered by a trained therapist and include an interaction in which the patient developed a relationship with the therapist and the treatment was tailored to the patient. Consequently, the treatment could not be provided via tape recording or protocols that were not contingent on patient response (e.g., progressive muscle relaxation that was not modifiable). Second, the treatment had to satisfy two of the following four criteria: (a) a citation to an established psychological approach was made (e.g., prolonged exposure), (b) a description of the therapy was provided and based on psychological principles (e.g., extinction), (c) a manual of the treatment was available and used to guide treatment, and (d) active ingredients of treatments (Benish et al., 2008) were named and citations for these ingredients were provided in the article. In contrast to this deduction Ehlers et al. (2010) reported that seven other meta-analyses or systematic reviews concluded that there is good evidence that trauma-focused psychological treatments (trauma-focused CBT and Eye Movement Desensitisation and Reprocessing) are effective in PTSD; but treatments that do not focus on the patient’s trauma memories or their meanings are either less effective or not yet sufficiently studied. Some of the threatments explored in Benish et al.’s (2008) meta-analysis were only represented by one study for example trauma desensitization vs. psychodynamic therapy vs. hypnotherapy (Brom, Kleber, & Defares, 1989), Prolonged Exposure vs. stress inoculation (Foa et al., 1999; Lee, Gavriel, Drummond, Richards, & Greenwald, 2002), EMDR vs. stress inoculation (McDonagh et al., 2005). This is a very small database for reaching conclusions about these interventions. Within the UK NHS system all PTSD sufferers should be offered a course of trauma-focused psychological treatment (trauma-focused cognitive behavioural therapy or eye movement desensitisation and reprocessing). These treatments should normally be provided on an individual outpatient basis. Trauma-focused psychological treatment should be offered to PTSD sufferers regardless of the time that has elapsed since the trauma. The duration of trauma-focused psychological treatment should normally be 8–12 sessions when the PTSD results from a single event. When the trauma is discussed in the treatment session, longer sessions than usual are generally necessary (for example 90 minutes). Treatment should be regular and continuous (usually at least once a week) and should be delivered by the same person. Healthcare professionals should consider extending the duration of treatment beyond 12 sessions if several problems need to be addressed in the treatment of PTSD sufferers, particularly after multiple traumatic events, traumatic bereavement, or where chronic disability resulting from the trauma, significant comorbid disorders or social problems are present. Trauma-focused treatment needs to be integrated into an overall plan of care. For some PTSD sufferers, it may initially be very difficult and overwhelming to disclose details of their traumatic events. In these cases, healthcare professionals should consider devoting several sessions to establishing a trusting therapeutic relationship and emotional stabilisation before addressing the traumatic event. Non-trauma-focused interventions such as relaxation or non-directive therapy, which do not address traumatic memories, should not routinely be offered to people who present with chronic PTSD. For PTSD sufferers who have no or only limited improvement with a specific trauma-focused psychological treatment, healthcare professionals should consider the following options: an alternative form of trauma-focused psychological treatment, the augmentation of trauma-focused psychological treatment with a course of pharmacological treatment.

1.1.6.1.2 ***Drug treatment:*** The evidence base for drug treatments in PTSD is very limited. There is evidence of clinically significant benefits for mirtazapine, amitriptyline and phenelzine. (Dietary guidance is required with phenelzine.) For paroxetine there were statistically but not clinically significant benefits on the main outcome variables. Nevertheless this drug has also been included in the list of recommended drugs. This is the only drug in the list of recommendations with a current UK product licence for PTSD. Drug treatments for PTSD should not be used as a routine first-line treatment for adults (in general use or by specialist mental health professionals) in preference to a trauma-focused psychological therapy (National Institute for Clinical Excellence, 2005).

1.1.6.2 PTSD in the UK: Data on PTSD was collated as part of the Adult Psychiatric Morbidity study (APMS), a survey carried out for NHS digital by the National Centre for Social Research and the Department of Health Sciences and the University of Leicester (National Centre for Social Research, 2014). In the 2014 survey all participants were asked whether they had experienced a traumatic event, approximately a third (31.4%) reported having experienced at least one major trauma in their lifetime. This correlates to the proportion of the whole population that have experienced a trauma being between 30.0% and 32.7% (95% confidence interval) (National Centre for Social Research, 2014). There was little difference between the percentage of men (31.5%) and women (31.2%). Across this national survey there was found to be no significant difference in either levels of trauma exposure or screening positive for PTSD (recording a score of 50 of more on the PCL Scale (Weathers et al., 2013) and meeting the diagnosis criteria set out in the DSM (American Psychiatric Association, 2000) between regions. With regards to treatment less than half (47.9%) of the people surveyed that had screened positive for PTSD were currently receiving treatment for mental or emotional problems. Of those receiving treatments the most common form of support was that of psychotropic medication, either on its own (23.9%) or in combination with psychological therapy (15.0%). Psychological therapy in isolation was the least common form of treatment reported (9.0%). Almost one in four of those that screened positive for PTSD (24%) were currently having psychological therapy such as counselling. The most common types were Cognitive Behavioural Therapy (8.6%), counselling (8.6%) and psychotherapy or psychoanalysis (7.6%). When participants in the survey were asked if in the past 12 months they had asked for any kind of mental health treatment or support but had not received it those participants that had screened positive for PTSD were 16 times more likely than those that had screened negative to have unsuccessfully requested treatment. To summarise, PTSD has a long and evolving history with its origins being suggested as far back as 3200 BC. The latest diagnostic criteria has been identified in The DSM-5 (DSM-5, 2013). During the clinical year 2015-2016 there were only 12,300 service users treated for PTSD within the whole national IAPT services. This figure represents just 2.29% of all IAPT treatment cases. This appears to be low in relation to the number of people that report experiencing a traumatic event during their lives, approximately one third of the population surveyed according to results from the APMS (National Centre for Social Research, 2014). Within the results of the APMS it is reported that less than half of the participants that screened positive for PTSD received treatment (47.9%). I therefore hypothesise that there is potentially a large unmet need for treatment of PTSD within UK communities.

1.2 Overview of this thesis

1.2.1 Chapter two

This thesis will initially focus on a data set from the local IAPT service Health in Mind (H.I.M). H.I.M was originally set up under the charity Rethink in December 2008. It ran under this contract until April 2014 when the agreement was then put out to tender and it was subsequently won by Hertfordshire Partnership University NHS Foundation Trust (HPFT). In chapter two of the thesis I present analyse of a dataset of service users from the early Rethink IAPT service (22,300 anonymised data sets were obtained from HIM covering the period from 03/01/2009 to

14/12/2012). Previous analyses have focused on engagement figures and treatment received (Clark et al., 2009; Grant et al., 2014; Richards & Borglin, 2011) but little attention has been paid to identifying demographic predictors that may forecast levels of engagement or Did Not Attend (DNA). Grant et al. (2014) and subsequently Hepgul et al. (2016), in their reports of a naturalistic cohort study of 147 patients awaiting IAPT interventions aimed to establish an infrastructure platform for identifying factors that predict outcomes following psychological treatment for depression and anxiety. Their findings to date look into referral, whether the participant is taking psychotropic medication, diagnosis and experience of stressful life events. However these demographics were not looked at in relationship to therapeutic engagement or DNA, important elements in the therapeutic process (DeRubeis, Gelfand, German, Fournier, & Forand, 2014; Gilbert & Leahy, 2007; Kazdin, 2015; Krupnick et al., 1996). A recent study into the effect of DNA suggested that no-shows, but not cancellations, had negative impacts on the magnitude and rate of symptom change, with larger effects when occurring before the third session (Xiao, Hayes, Castonguay, McAleavey, & Locke, 2017). However in this study the role of demographic predictors of DNA was not explored. Therefore, I will analyse the HIM data set with regards to exploring variations and predictors of referral rates, level of engagement and did not attend (DNAs) as an increased awareness of these factors would assist future tailoring of IAPT services to increase contact rates and improve subsequent engagement levels.

1.2.2 Chapter three

This chapter concerns definition and measurement of a successful therapeutic intervention within an IAPT service. The outcomes achieved in the IAPT data set are analysed using three differing statistical methods: The standard IAPT success criteria, Clinically Significant Change (CSC) and Reliable Improvement (RI). The pressure to be able to perform effectively has increased since the introduction of "Payment by results" (PBR) (Appleby, Harrison, Hawkins, & Dixon, 2012) and "Any qualified provider" (Reynolds & McKee, 2012). Therefore the importance of assessment of successful outcomes is becoming all the more important. In this chapter I build on the existing evidence base (Gyani et al., 2013). Using the different criteria of CSC and RI I will analyse the data set to ascertain whether these measurements of "success" demonstrate differing levels of achievement by the service. These results will potentially enable IAPT services to consider the performance criteria they utilise in the future and to reflect more clearly on the effect of the psychological interventions they offer and the "success rates" these achieve.

1.2.3 Chapter four

Following on from these early chapter analyses of provision for depression and anxiety via an IAPT service chapter four focuses on a specific area of mental health and the current provisions available and alternatives to these. University of Essex is situated in a super garrison town populated by large numbers of both serving and ex-military veterans. Due to the deployment of British military troops to combat zones in Iraq and Afghanistan in the past fifteen years there has been an increase in reported cases of Post-Traumatic Stress Disorder (PTSD) amongst returning military veteran populations (Fear et al., 2010). A number of different aspects of military culture may contribute to mental health stigma. Many of the attitudes and beliefs that prepare soldiers for battle may impede help-seeking (Tanielian et al., 2008). Attitudes such as toughness, mission focus, and self and group-based sufficiency are instilled in service members to ensure combat readiness. These beliefs contribute to the perception that help-seeking is a sign of weakness and that strong, self-reliant individuals can "tough out" any problem or injury (Dickstein, Vogt, Handa, & Litz, 2010). It has also been recorded that military veterans referred to formal therapy may be unresponsive or fail to complete treatment (Gros, Yoder, Tuerk, Lozano, & Acierno, 2011) leading to lower treatment efficacy than in other trauma populations (Bradley, Greene, Russ, Dutra, & Westen, 2005). Accompanying these issues is the problem of access to therapy. Despite the initiation of the IAPT services and the financial commitment to these services by the UK government, Docherty and Thornicroft (2015) state that there has been a substantial reduction in the resources dedicated to mental health treatment and care in England across all CMHDs since 2008. With a combination of these factors suggesting a need to look at alternative treatments and support paths for military veterans suffering from PTSD chapter four of this thesis will consider recent interest in therapeutic approaches delivered outside of formal settings that make use of peer support and outdoor activity. A pilot intervention was designed and evaluated by means of non-controlled and controlled experimental designs. Firstly three uncontrolled pilot studies alternating the activity that the participants engaged with (angling, horse husbandry and falconry). Subsequently I conducted a randomised controlled trial into one of these interventions (angling), leading to the design of Peer Outdoor Exposure Therapy (POET). The purpose of this research is to endeavour to create a new therapeutic intervention that uniquely incorporates the elements of exposure to trauma memories, peer support and green exercise in an attempt to produce a cost effective alternative to the currently offered support.

1.2.4 Chapter five

This section will contain a set of qualitative interviews conducted with four military veterans almost three years post their participation in a POET session. Following the guidelines outlined by Braun and Clarke (2006) thematic analysis was employed to analyse the interviews to identify themes and meanings behind each participants phenomenological experiences of both their PTSD and their thoughts about the intervention. Finally I will endeavour to hypothesise a psychological model of the psychological processes mediating the impact of POET on wellbeing.

1.2.5 Chapter six

This is a summation and discussion of the previous chapters, including a summary of key findings, interpretation of these findings and the ways that they extend current literature, implications for practice, stengths and limitations of the reseach and suggestions for future research.

CHAPTER II

2.1 Predictors of Referral, Attendance And Engagement Rates In An Improving Access To Psychological Therapies Service

In 2007, the UK Government announced new funding to support wider public access to psychological therapies. This initiative explicitly acknowledged that approximately one third of GP caseload involved patients with mental health problems (Clark et al., 2009; McManus, Meltzer, Brugha, Bebbington, & Jenkins, 2009), and that effective therapies have benefits beyond the realm of the mental health needs of the individual (Schlander, 2008), including empowering them to work. Thus, from a Government perspective this offered benefits both to public wellbeing and the national economy. The initiative released government funding to establish a national network of locally-organised Increasing Access to Psychological Therapies (IAPT) services, delivering those therapies known to be effective treatments and recommended by the UK National Institute for Health and Clinical Excellence (NICE). The programme roll-out was rapid – IAPT services are now established in every area of England, with an estimated 6,000 therapists trained by these services by 2014/15 – and the remit of the programme has been broadened beyond its initial focus on just anxiety and depression (Kroenke, Spitzer, & Williams, 2001; Spitzer, Kroenke, Williams, & Löwe, 2006) to include other diagnostic groups (including obsessive compulsive disorder, phobias and post-traumatic stress disorder). These new IAPT services are mandated to offer a defined care pathway for patients from referral through to treatment and discharge, and to undertake routine outcome monitoring (e.g., the “minimum data set” (MDS) that all services collect includes standard scales to assess psychological wellbeing and functioning used with all patients at all points of contact). Within this framework, the precise specification of each service is adapted to local needs. The success of IAPT services (e.g., as measured against the targets they are given) depends upon each service treating large numbers of patients who engage with the therapy offered to them. Moreover, if the goal of achieving equity of access, engagement and recovery is to be achieved, it will be important to monitor and address evidence of inequality.

The aim of this chapter was to extend previous analyses of engagement in the pilot IAPT services(Clark et al., 2009), which had focused upon feasibility and outcomes amongst those who did attend therapy, but did not examine patterns and predictors of both referral and DNA rates. An analysis of the recorded patient's datasets was undertaken for the NE Essex IAPT service, for the 4 years following its inception. Areas examined were the rates of referral, non-attendance after a referral (Did Not Attend – DNA) and the level of engagement once a patient entered the service; together with analysis of variables that predict variation in these rates. These analyses can assist future policy decisions and clinical modelling for IAPT and similar services.

2.1.1 - Variations in Referral Rates to Mental Health Services

Within the United Kingdom National Health Service (NHS) General Practitioners are the gateway to most prescribing, investigation and referrals. In most industrialised countries approximately 5% of Doctor – Patient contacts in general practice result in a referral to a specialist (Christensen, Sørensen, & Mabeck, 1989): 71% have a medication prescribed, 36% a laboratory test and 13% an imaging study ordered (Forrest & Whelan, 2000). Within the referrals, the variation between both individual General Practitioners (GPs) and General Medical Practice's rates of referral (RRs) has for some time been the focus of policy makers (Wilkin & Smith, 1987). The variations between individuals RRs has been claimed to be as much as 20 fold (Secretaries of State for Health, 1989) although published figures range per doctor from less than 0.5 to more than 15 referrals per 1000 consultations (Office of Population, 1970-71) and from 0.6% to 25.9% of patients on a practice list within one calendar year (Fry, 1983; Wilks, 1968). An excessively high referral rate may result in unnecessary, possibly harmful interventions (Franks, Clancy, & Nutting, 1992) whereas under-referral may also result in adverse outcomes (Roland, Green, & Roberts, 1991). There have been many and varied studies of the variation in

RRs but there are some inherent difficulties around comparing the resultant data. It has been stated that as many studies referral data amounts are small (Rashid & Jagger, 1990) or the data was collected over a short period (Armstrong, Britten, & Grace, 1988) these factors do not allow studies to take into account the effect of random variations due to chance. Many of the studies carried out fail to make clear the nature of the referral made, therefore making true comparison difficult.

Previous studies have examined four main potential sources of variation in referral rates these variations are patient characteristics, GP characteristics, practice characteristics and access to specialist care.

2.1.1.1 - Patient characteristics.

2.1.1.1.1 - *Age, sex and social class.* In his study O'Donnell (2000) found that standardising RRs for age and sex of those consulting reduced the observed variability by at most 10%, indicating that these factors had little influence on RRs. Similarly a modification of the RR for the patient's social class, or social class, age and sex had little effect on the variation (O'Donnell, 2000). When comparing high and low rate GPs with regards to their RRs it was found that the GPs saw very comparable numbers in each age, sex and social category (Wilkin & Smith, 1987). Often referred to as the "Jarman score", the underprivileged area score (UPA) is an area-based measure of additional workload or pressure on the services of GPs (Jarman, 1984). This scale has been utilised to assess the social class element of the referral with some studies using it to explore the relationship between the variation of GP RRs and the socio-economic profile of the whole practice population (Hippsley-Cox, Hardy, Pringle, Fielding, Carlisle, & Chivers., 1997). This study demonstrated that practices with high Jarman scores had high total RRs, with the practices with high UPA(8) scores (relatively deprived) had high total RRs ($P < 0.0001$; $R^2 = 23\%$). However this paper received some criticism (Scrivener & Lloyd, 1997; Williams, Jackson, & Turbitt, 1997) for using the (UPA 8) as the scale was developed to evaluate GP workload although it has been used as a proxy measure of deprivation. Sturdy et al. (1997) replicated Hippisley-Cox et al.'s associations between the Jarman score and RRs in their study of paediatric referral rates, although the associations were weak they were significant ($P < 0.0001$; $R^2 = 3.7\%$).

2.1.1.1.2 - Clinical factors. There have been several studies that have highlighted the clinical characteristics associated with the patient's health problem as the primary input to a referral decision (Davis & Yee, 1990; Delnoij, Van Merode, Paulus, & Groenewegen, 2000; Salem-Schatz, Moore, Rucker, & Pearson, 1994). Forrest and Reid (2001) found that the frequency which a patient presents a condition to a GP explains about two thirds of the variation of RRs. It has also been found that differing perceptions of the severity of the complaint the patient presents with and its potential impact on future health were significant considerations in referral decision making. Dowie (1983) postulated that a GP's perception of there being a chance of the patient developing a life threatening disease was important and found a significant negative association with RRs and disease classification, GPs that perceived serious disease to be an infrequent event referred fewer patients to hospital (Dowie, 1983; Roland et al., 1997).

2.1.1.1.3 – *Diagnosis variance across case mix.* Delnoij and Spreeuwenberg (1997) carried out a study of RR in medicine and discovered that 45% of variation in referrals could be explained by patient morbidity. Previously, Morrel, Gage, and Robinson (1971) had demonstrated that adjusting for diagnostic case mix reduced the range in RRs from 15.2 – 27.3 per 1000 consultations to 16.5 – 25.3 a reduction of 14%. However Kerssens and Groenewegen (1990) in their study of the RRs of 6000 GPs to physiotherapy demonstrated that the case mix of low and high referring GP's was similar.

2.1.1.1.4 - *Non Clinical factors.* Another patient factor found to have an influence on RRs is whether the patient held private health insurance as opposed to being seen purely as an NHS patient. Referrals made privately were twice as likely as NHS referrals to have been instigated by the patient (Gillam, 1985). A patient's wishes to be referred were also identified in a Canadian study from Nova Scotia to be the most important factor in the variation of RRs (Langley, MacLellan, Sutherland, & Till, 1992). The awareness of the patients' attitude towards requesting a referral and RRs has been examined before. A study of GP's RRs to local mental health services from a mining valley in South Wales revealed, from the analysis of interviews, that the GP's were influenced by social and attitudinal factors in deciding whom to refer (Rawnsley & Loudon, 1962). Evans suggested that high referring GPs were more likely to respond to a patient's request for a referral (Evans, 1993). This was supported by Armstrong's work in which GP's with high RRs reported to feeling a significantly greater sense of pressure to refer by the patient (Armstrong et al., 1988).

2.1.1.2 - GP characteristics. A study from Finland showed higher referral rates in young, inexperienced GPs (Vehviläinen, Kumpusalo, Voutilainen, & Takala, 1996). These findings were replicated in a small UK study of trainee GP's RRs in comparison to their trainers RRs (Rashid & Jagger, 1990). Despite these findings, it appears that most studies have found no relationship between RRs and the GP's years of experience, age or their membership of the Royal College of General Practitioners (RCGP) (Cummins, Jarman, & White, 1981; Wilkin & Smith, 1987). Another area that has been researched in regards to GP characteristics and RRs is whether a GP's own personal interest or training in a specialist area may influence referrals at a higher rate of specialists from this field (Morrell, Gage, & Robinson, 1971). A hypothesis that the observed differences in RRs were due to the different age, sex, social class and diagnostic characteristics of the patients seen by the individual doctors was not substantiated. Reynolds, Chitnis, and Roland (1991) explored referral patterns across five GP's from within one practice, documenting their interests and also their individual case mix (1991). They demonstrated that the GPs with an interest in Ear, Nose and Throat (ENT) and ophthalmology had high RRs to these specialist clinics, which remained present after adjusting for case mix. However these GPs expressed a feeling of confidence in dealing with these cases so the higher RR rate could not be attributed to a lack of confidence in these clinical decision areas. In Bailey’s work (Bailey, King, & Newton, 1994; King, Bailey, & Newton, 1994) an analytical framework was used to examine referral decisions made by both low and high referring GPs. It was found that there was no sole factor common to either group; however, GPs with high RRs were less tolerant of uncertainty in their referral decision making process. Dowie hypothesised that a GP’s awareness of the possibility of a life-threatening event occurring was important in their referral decision making (Dowie, 1983); this theory was supported by a study of GP’s perceptions of the incidence of serious disease in their practice (Roland et al., 1997).

2.1.1.3 - Practice characteristics.

2.1.1.3.1- ***Geographical location of practice*****.** A study of the RRs between GP’s surgeries in either urban or rural areas in Lincolnshire discovered that GPs from the rural locations had significantly lower RRs than those from the practices classified as urban (Madeley, Evans, & Muir, 1990). This may be highlighting a difference between urban and rural practices with distance of the practice from the hospital/specialist possibly influencing RRs. A study in Wales discovered that higher RRs were linked to shorter distances from the GP to the clinic referred to (Jones, 1987). In an urban area 22% of GP practices with a higher RR were located within one mile of a hospital. However contrary to that finding 37% of the lower rated referring GP practices were also within this distance (Wilkin & Smith, 1987).

2.1.1.3.2- ***Practice size*****.** There is conflicting evidence from the research that has been published on this area of variation in respect of RRs. Several papers have demonstrated no significant association between RRs and list size of numbers of partners (Madeley et al., 1990;

Wilkin & Smith, 1987). However, in contrast, a study using multivariate techniques identified that: singlehanded practices had significantly higher RR's than larger practices (Hippisley-Cox et al., 1997). Armstrong et al. (1988) in their study of Bromley health district's statistics found that the measure with the highest correlation with RRs, once the data had been corrected for age and sex was based on the GP's workload. A study from Denmark found no association between RR and the number of GPs in the practice; it did however find significant association between practice size and RR with the RR falling slightly as the size of the practice increased (Christensen et al., 1989). Contrary to these results in the Netherlands, RRs were seen to grow as GP list size increased (Delnoij & Spreeuwenberg, 1997; Kerssens & Groenewegen, 1990).

2.1.1.4 - Access to Specialist Care.

The accessibility to specialist care appears to have an influence on RRs. A study of the variability in RRs in the new town of Milton Keynes, both before and after the opening of the new hospital facility, showed a significant increase in RRs once the hospital opened and the access to specialist care improved (Noone, Goldacre, Coulter, & Seagroatt, 1989). In another UK study the association between GP's RR and the number of available consultants was examined (Roland & Morris, 1988). This study collected data on the use of services by outpatients, levels of consultant staffing and several measures of need for each of the regional health authorities in England, Scotland and Wales. The study demonstrated that RRs were strongly associated with the provision of consultants, with the relations between use of outpatient facilities and supply of specialists all proving to be significant when looking at the association between outpatient appointments per 1000 population. It was Cummins (1981) that suggested that individual GPs held a unique "Referral threshold" combining all these characteristics which potentially may have a bearing on the referral decision making process. The features he proposed made up this threshold included training, experience, tolerance of uncertainty, sense of autonomy and personal enthusiasms. Following on from Cummins' hypothesis, Dowie's study of RRs across GPs' suggested that a substantial part of the RR differences could be explained within GPs' own cognitive processes (Dowie, 1983). This suggestion included GPs' confidence in their clinical judgement, awareness of the possibilities of life threatening events occurring, their current medical knowledge and the need to sustain the esteem of consultant colleagues. Roland and Grimshaw's (1997) study looked at the GP's perceptions of the occurrence of serious disease amongst the patients from their practices. They found a significant negative association with RRs.

2.1.2 - Variations in Non-Attendance/"Did Not Attend" Rates.

On completion of the literature review into referral rates I next moved on to exploring the indicators and variants associated with non-attendance ("did not attend", DNA). The first step in this process was to carry out a literature review of published papers on this area of interest. Papers were accessed via online sources and then collated the information into a table for further scrutiny (Appendix 2.1). The financial cost of missed appointments within the British National Health Service (NHS) has been estimated to be £65 per failed appointment in 1997, with a total cost of approximately £360 million per year (Stone, Palmer, Saxby, & Devaraj, 1999). The majority of these DNAs were found to be in hospital out-patient clinics and primary care. Estimated failed appointment rates in theses settings have ranged from 12% to 14%, (Deyo & Inui 1980; Hamilton et al.,1999.; Al-Shammari,1991,; Hermoni et al.,1990; Macharia, 1992). The extent of non-attendance in psychiatric and mental health appointments may be significantly greater than in other specialities (Mitchell & Selmes, 2007) with DNAs thought to be double those seen in other medical departments (Killaspy, Banerjee, King, & Lloyd, 2000a). It is important to make the distinction between DNA at the initial appointment for the patient and those who do not attend follow-up appointments. Rates of initial non-attendance are usually higher than for follow up non-attendance although this may vary across specialities. In a study of 1031 Swedish patients with depression that were treated in a primary care setting over a six months period, Åkerblad et al. (2003) found that, with regards to partial non-attendance, only 54.6% of all scheduled appointments were attended. Mitchell and Selmes (2007) examined the predictors of DNAs and categorised them into six classifications environmental and demographic factors, patient factors, memory/cognitive problems, information and health beliefs, illness factors and finally clinician and referrer factors.

2.1.2.1 - Environmental and demographic factors. A number of environmental and social factors have been associated with DNAs in the majority of medical specialities. One of these is the indication that patients that DNA tend to be younger and of lower socio-economic status (Sharp & Hamilton, 2001). Badgley and Furnal (1961) also identified variation in DNA rates by class and race. In this study of New Haven's out-patient's appointments for a paediatric unit the African-American residents constituted 5% of the population, 35% of the department's patients and 49% of those who broke appointments. The class distribution of African-American residents in the three groups was comparable. Jonas (1971) found that in his study of appointment breakers in 20 clinics across New York City there was a significantly higher proportion of younger patients that DNA than older participants in his non-whites category of patients ($X^2 = 16.07$, $P < .01$). This significant difference was not found in the white patient category ($X^2 = 4.279$, $P > .05$). Kruse, Rohland, and Wu (2002) studied the characteristics of patients who missed their intake appointments for a university psychiatric outpatient clinic for patients suffering with severe mental health issues after a referral from a state agency. Amongst the predictors they identified was that of age with the older participant groups of the 35 to 49 years-of-age ($P < .005$) and the 50 years and over ($P < .05$) more likely to attend the appointments than the younger age category group. There was also a significantly higher DNA rate ($P < .05$) amongst the Hispanic (white) ethnic group than there was in the other ethnic groups. Other predictors of a DNA identified in this study were poor family support, lack of medical health insurance and poor adherence to psychotropic medicine. Gallucci, Swartz, and Hackerman

(2005) also found significant differences in attendance rates across age groups. In their study of DNAs among 5,901 patients referred by a medical centre in Baltimore, USA, they found different effects of age for the two programs studied, adult and child referrals, with younger children ($P < .001$) and older adults ($P < .001$) attending at a better rate. Waller and Hodgkin (2000) analysed computer appointment data from nine UK general practices over either 1 or 2 years to examine the DNA rates. They reported that there was a high correlation between the practice DNA rate and the practice's Townsend Index of deprivation score with a higher level of deprivation associated with higher DNA rates ($P = .028$). Also they observed that almost two thirds of the defaulters come from the 20-34 years-of-age category, although it is not clear what percentages of appointments were offered for each age group. Lee, Earnest, Chen, and Krishnan (2005) conducted a retrospective study on outpatient attendance at Tan Tock Seng Hospital in Singapore between 2000 and 2004. They used odds ratios from a multiple regression on the data to identify predictors of attendance and found that that the categories 41-50 years, 51-60 years and more than 60 years had a significantly better rate of attendance than the younger groups ($P < .001$). Accessibility to the appointment venue and its association to DNA rates was explored by Jackson, Booth, McGuire, and Salmon (2006) in their study of an alcohol clinic where they found that distance to the venue was a predictor of DNA rates, living closer to the clinic led to a lower rate of DNAs.

2.1.2.2 - Patient factors. Killaspy et al. (2000a) examined randomly selected attenders and non-attenders at general adult psychiatric out-patient clinics. They reported that the patients that missed their appointments were the ones that were more unwell and also more socially impaired. Gudjonsson et al. (2004) examined the DNA patterns in an alcohol centre in Reykjavik for attendance to a follow up appointment. Predictors of DNA included age ($P < .001$), high trait anxiety ($P < .05$) and lower social desirability scores ($P < .01$). On their exploration of results from the Eysenck Personality Questionnaire they found that Psychoticism was the biggest single discriminator between those that attended (P < .001) with those scoring higher on this scale being more likely to DNA.

2.1.2.3 - Cognitive Impairment (Memory problems). Memory impairment may play a part in DNAs and subsequent engagement with treatment. Rosen et al. (2003) explored the role of cognition in adherence behaviour for a group of patients with diabetes. The two significant predictors found in the study were low scores on the mini mental state examination and non-Caucasian ethnicity. McKellar, Kelly, Harris, and Moos (2006) studied 3,649 male patients at entry to residential substance use disorder treatment clinic. Among the factors that predicted dropout included younger age (P = .004) and greater cognitive dysfunction (P < .001). These results were therefore able to distinguish between age and cognitive ability as older age groups attended more than younger thus pointing to a cognitive impairment, perhaps dementia, being the associated predictor for the patient to DNA.

2.1.2.4 - Information and health beliefs. In a study of patients with schizophrenia, McDowell et al. (2004) found that patients were more likely to DNA if they had lower levels of functioning, were more severely unwell or had substance misuse problems. However, for patients suffering from anxiety disorders or depression, Issakidis and Andrews (2004) found that patients with milder disorders appear more likely to DNA than those with a diagnosis of a more severe disorder. This prompted Mitchell and Selmes (2007) to hypothesise that this indicates a bimodal (U-shaped) relationship is present, with both the mildest and most severe disorders being linked to greater DNA rates compared to those patients whose disorders were deemed to be neither mild nor severe but were diagnosed as a moderate disorder. They also postulated that severity of illness and the likelihood of a client DNA may be mediated by beliefs and insight into their illness. Sanz, Constable, Lopez-Ibor, Kemp, and David (1998) study of 33 patients with a diagnosis of psychosis demonstrated that poor scores on all commonly used insight assessment scales predicted poor adherence to treatment. Nose, Barbui, and Tansella (2003) carried out a systematic review of 103 studies of published studies that report rates of non-adherence with medication and scheduled appointments by psychotic patients in community settings. Predictors of non-attendance were lack of insight into their illness, younger age, male gender, substance misuse, unemployment and poor social functioning.

2.1.2.5 - Illness type. Several studies in the domain of mental health have demonstrated variation in DNA rates by illness type and diagnosis. Matas, Staley, and Griffin (1992) carried out a systematic review of 874 new out-patient referrals for psychiatric programmes finding that DNAs were associated with a diagnosis of personality disorder or substance misuse. Sparr, Moffitt, and Ward (1993) similarly found that patients with post-traumatic stress disorder and/or substance misuse were significantly more likely than others to DNA. Ford, Snowden, and Walser (1991) also demonstrated that patients with comorbid diagnosis of substance abuse and a psychiatric disorder had a dropout rate almost three times higher than that of a single diagnosed group member.

2.1.2.6 - Influence from referral. It is possible that poor communication between the referring professional and the patient can lead to higher DNA rates at initial attendance. Killaspy et al. (2000a) demonstrated that patients who were in agreement with their referral are more likely to attend. However, GP referrals to specialist care may result in lower attendance than a referral from another specialist (Carpenter, Morrow, Del Gaudio, & Ritzler, 1981). In a more recent study, Mitchell and Selmes (2007) demonstrated that the rates of DNA were highest following self-referral and referrals from the police/probation service and community psychiatric nurses (CPNs) for psychiatric specialities.

2.1.2.7 - Influence of the assessor. It appears the patient’s perception of the assessor (primary clinician) had an association with DNA levels with DNA rates for consultants lower than those of trainees (McIvor, Ek, & Carson, 2004). Also rates of DNA on the initial appointment increase when there is a delay between the referral and the initial assessment (Grunebaum, Luber, Callahan, & Leon, 1996). Perhaps the most relevant interpersonal variable that can be used for prediction of attendance might be the quality of the therapeutic alliance and the perception of the level of helpfulness the patient perceives the clinician to be offering (Johansson & Eklund, 2006). However, Meier et al. (2006) demonstrated that clinician-rated alliance is a more robust predictor of DNA than patient-rated therapeutic alliance. Conversely, bad experiences of services received have been linked to an increase in the DNA rate (Gonzalez, Williams, Noël, & Lee, 2005). In this study of the attendance adherence for outpatient appointments for 95 combat veterans over a six month period it was found that the best attendance rate was in those patients who felt ready for treatment, perceived its benefits and had few previous negative experiences with mental health treatment. Also in Moore et al. (2004) it was shown that patients that either receive appointments after a greater delay, or who feel the clinician failed to listen to them or to respect them or understand them are more likely to DNA.

2.1.3 - Variations in levels of therapeutic engagement.

Due to there being a lack of an accepted definition for engagement across research into this area attendance of therapy sessions is most commonly adopted as a proxy term. Spencer et al. (2001) looked at the concept of “therapeutic engagement” proposing that this is achieved by reaching a common ground with the client, an avoidance of premature confrontation regarding explanatory models and the delivery of treatment in as flexible style as possible. O’Brien, Fahmy, and Singh (2009) suggest that whilst physical presence or attendance are necessary engagement is a far more complex phenomenon including factors that include acceptance of a need for help, formation of a therapeutic alliance, satisfaction with the help already received and a mutual acceptance to work towards a shared outcome.

There is evidence to suggest that service users that drop out of mental health services may have more unmet needs than those still receiving therapeutic input (Kendrick, Burns, Garland, Greenwood, & Smith, 2000). In other studies it has been found that patients that fail to engage are more likely to be more unwell and be experiencing higher levels of social inability than those that remain within the service (Bowden, Schoenfeld, & Adams, 1980; Killaspy, Banerjee, King, & Lloyd, 2000b; Orhon, Soykan, & Ulukol, 2007).

2.1.3.1 - Socio-demographic factors in engagement. Research literature describes many different variables concerning to who disengages. In contrast fewer studies explore the reasons as to why people disengage.

2.1.3.1.1 – *Gender.* Whilst gender has not consistently demonstrated that it is a factor related to engagement in a dual diagnosis service both Bogenschutz (1998) and Hellerstein (2001) found that women were more likely to attend appointments than men. Men have been demonstrated as being more likely to miss outpatient appointments (Hamilton et al., 1999) or to drop out of treatment completely (Percudani, Belloni, Contini, & Barbui, 2002). Furthermore there is some evidence to suggest that young men are less likely to engage (Jellinek, 1978; Leaf et al., 1985), with the likelihood of non-engagement higher if they are of black African or Caribbean heritage (Sellwood & Tarrier, 1994). In contrast to these findings other studies have found that it was in fact younger women who were less likely to be satisfied with treatment (Greenwood, Key, Burns, Bristow, & Sedgewick, 1999) and older women more likely to drop out from outpatient follow up (Bowden et al., 1980).

2.1.3.1.2 – *Age.* Across the literature it is reported that young patients are more likely to either drop out (Baekeland & Lundwall, 1975; Edlund et al., 2002; Jellinek, 1978; J. Wang, 2007) or miss scheduled appointments (Hamilton, Round, & Sharp, 2002). It has been suggested that younger patients are sceptical to the usefulness of professional help and hold negative stereotypes around mental health (McGovern & Hemmings, 1994). In general it is suggested within the literature that younger patients are harder to engage (Edlund et al., 2002; Rossi et al., 2002; Tehrani, Krussel, Borg, & Munk-Jorgensen, 1996; P. S. Wang et al., 2007).

2.1.3.1.3 - *Ethnicity.* Some evidence suggests a poor relationship between patients from an ethnic minorities background demonstrating that they are more likely to terminate treatment prematurely (McCreadie et al., 1997; J. Wang, 2007). However contrary to these finding Bindman et al. (2000) found no difference in engagement rates between ethnic groups while McGovern et al. (1994) demonstrated a higher level of broken contact by Black people in his study from Birmingham, England.

2.1.3.2 - Socio-economic factors in engagement. Unemployment has been demonstrated to be associated with dropping out of mental health services in many reports (Bender & Pilling, 1985; Chiesa, Drahorad, & Longo, 2000; Coid, Kahtan, & Cook, 2002; Tehrani et al., 1996) however in one study it was found that unemployed patients were actually more likely to return for a follow up appointment (Greeno, Anderson, Shear, & Mike, 1999). Similarly, a low level of educational achievement has been demonstrated as being associated with higher rates of disengagement (Jellinek, 1978; Romney, 1988). Other significant factors found to be relevant to engagement were being single or divorced and either living alone without family or in a hostel or homeless (Bender & Pilling, 1985; Salokangas, 1997; Schimmelmann, Conus, Schacht, McGorry, & Lambert, 2006; Swett Jr & Noones, 1989; Tehrani et al., 1996).

2.1.3.3 - Forensic history: Patients with a forensic history were found to be associated with higher levels of disengagement from mental health services (Owen, Rutherford, Jones, Tennant, & Smallman, 1997). O’Brien et al. (2009) postulated that this may have been a marker of many factors relevant to both disengagement and a more general dissatisfaction with society.

2.1.3.4 - Clinical factors in engagement.

2.1.3.4.1 - *Diagnosis and severity of illness.* In general there has been little evidence found of a clear relationship between a particular diagnosis and dropping out of treatment (Axelrod & Wetzler, 1989; Bender & Pilling, 1985; Stark, Lewandowski, & Buchkremer, 1992), with the exception being substance misuse and personality disorders. Studies have also found that severity of illness can be a predictor of continuing relationships with mental health services (Ruggeri et al., 2007; Young, Grusky, Jordan, & Belin, 2000).

2.1.3.4.2 – *Insight.* A non-compliance with treatment has been associated with poor insight (Agarwal, Sharma, KV, & Lowe, 1998; Gray, Wykes, & Gournay, 2002; Kampman & Lehtinen, 1999; Olfson et al., 2000). Priebe et al. (2005) found that a difficulty accepting the diagnosis of mental health caused a breakdown of the relationship with mental health services. Axelrod and Wetzler found that when patients showed less denial around the need for treatment coupled with a greater perceived need for medications this was associated with higher levels of engagement (Axelrod & Wetzler, 1989).

2.1.3.5 - Therapeutic alliance factors in engagement. Within the psychotherapy setting it has been found that attitudes towards the therapist is one of the main reasons for patients dropping out and disengagement (Sajatovic et al., 2008). When exploring why patients dropped out of treatment attitude of the therapist was given as one of the major reasons (Mohl, Martinez, Ticknor, Huang, & Cordell, 1991) especially if they are perceived as being unsympathetic (Tehrani et al., 1996).

2.1.4 - Aims of the study

The initial goals for the United Kingdom government, when setting up the IAPT service, was to provide more psychotherapy to the general population by increasing the provision of evidence-based treatments for common mental health conditions such as anxiety and depression.

This provision was to be delivered by primary care organisations in line with the National Institute for Health and Care excellence (NICE) guidelines. One of the major drivers behind the development for these services was to increase access for all. Within this chapter analysis of a data set from an IAPT service I will explore the roles of patient characteristics, G.P characteristics, practice characteristics and access to services on the areas of referral, attendance and engagement to assess the accessibility and utilisation of the service across differing groups.

2.2 Method

2.2.1 Data Collection

In order to explore variations in referral rates across Health in Mind's North East Essex IAPT service I collated the following data. 22,300 anonymised datasets, containing patient demographics and psychometric scores, were obtained from Health in Mind covering the period from 03/01/2009 to 14/12/2012. Information on venues used for therapy was also obtained direct from the IAPT service. To this data set further information was added with regards to the surgeries within the region from the following sources; The Network of Public Health England (Public Health England, 2013), Eastern Region Public Health Observatories (Public Health England, 2015) and NHS Choices(National Health Service, 2013). On completion of my data collection the information obtained was entered into a Microsoft Excel spread sheet and from there into an IBM SPSS data sheet for statistical analysis. Seventy six original variables were created through this process. Figure 2.1 demonstrates the study flow chart for data analysis of North East Essex IAPT service.

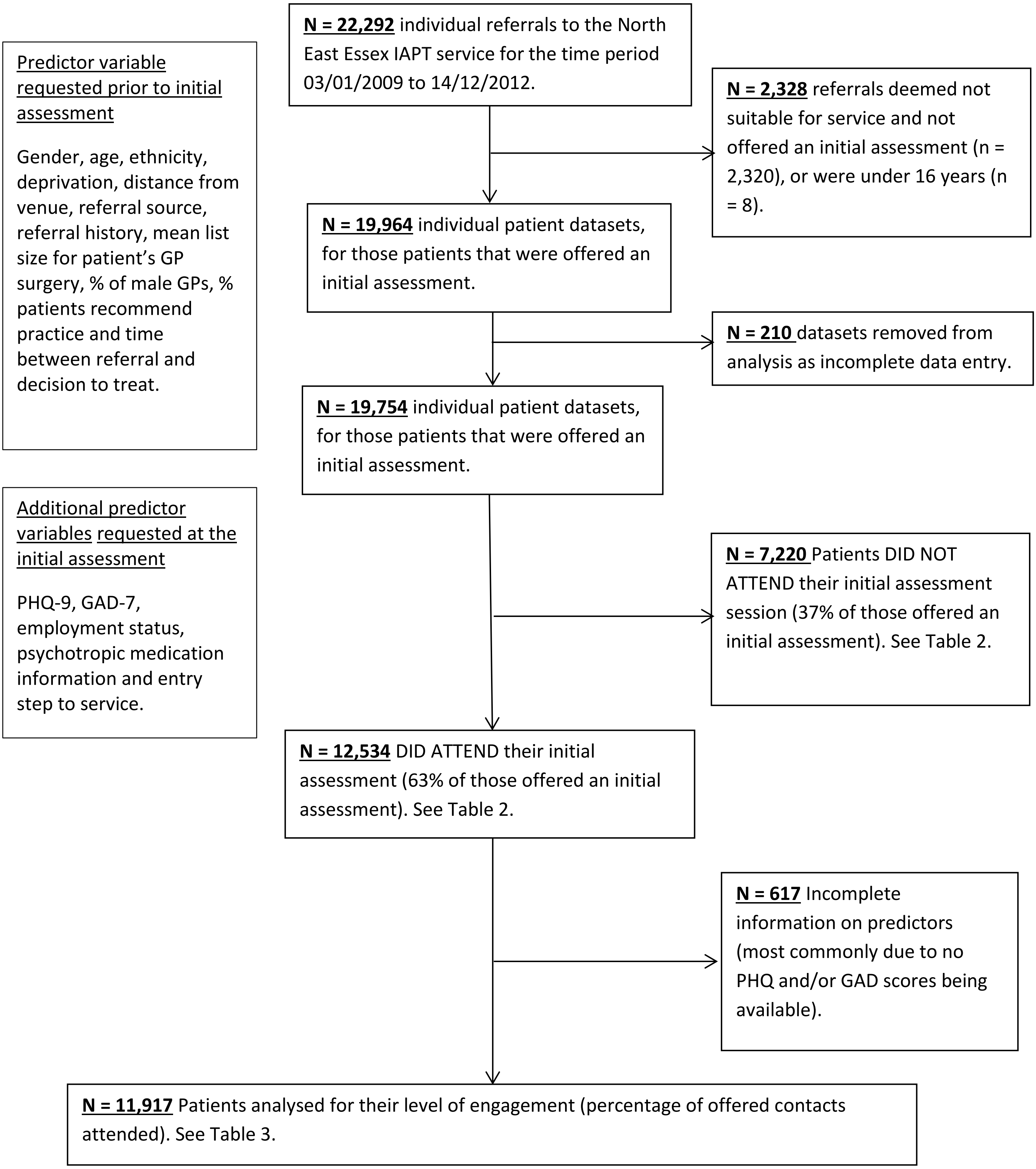

Figure 2.1 -Study flow chart for data analysis of North East Essex IAPT service.

2.2.2 Variable Screening And Selection For Referral Rate

In response to my earlier literature review on variations in referral rates I identified five key areas of interest. The first area I explored was the role deprivation might play in variations in referral rates. I ran a correlation test across the four deprivation indicators that I had incorporated in the data collection; the deprivation decile (Index of Multiple Deprivation IMD), mean IMD deprivation score, mean IMD deprivation score affecting children and mean IMD deprivation score affecting adults. All four variables were highly correlated, with deprivation decile (IMD) and mean IMD deprivation score having the highest level of correlation ($r = .970$, $P < .001$). A cross-tabulation process between deprivation decile (IMD) and mean IMD deprivation score was computed and observations confirmed that the decile measure relies on the more precise mean IMD scores. A decision to use mean IMD deprivation score as a measure of deprivation was reached as this was both a general measure of deprivation and also more precise than the decile measure. The next variable I explored was that of depression. I ran a Pearson's correlation matrix for the following five indicators, mean of depression (NICE Quality and outcomes framework indicator QOF) prevalence for patients aged 18 years+, percentage of patients reporting a long-term mental health problem, number of patients with a comprehensive care plan, number of patients with a severity assessment and number of patients with a second severity assessment. The results demonstrated that mean of depression QOF prevalence for 18+ and number of patients with a comprehensive care plan were significantly correlated ($r = -.39$, $p =0.008$). There was also moderate correlation between the number of patients with a comprehensive care plan and both the number of patients with a severity assessment ($r = .38$, $p = 0.010$) and the number of patients with a second severity assessment ($r = .40$, $p = 0.008$). The variables of the number of patients with a severity assessment and the number of patients with a second severity assessment were also significantly correlated ($r = .77$, $p <.001$). I then created a new variable comprised of the three existing variables of the number of patients with a comprehensive care plan, the number of patients with a severity assessment and the number of patients with a second severity assessment which I titled the depression management index (DMI). Therefore, three variables from this set were considered in further analysis; one reflecting the general prevalence of mental health problems in the patient population, one reflects the prevalence of depression and one reflecting the measurement of depression. A new correlation matrix was computed using this new variable and the remaining two variables. When choosing to analyse this data using Pearson's correlation, part of the process involved was to check that the data could be analysed using Pearson's correlation. To use Pearson's correlation the data "passed" all four assumptions required for Pearson's correlation to give a valid result. The variables measured at ratio level, there is a linear relationship between variables, there were no significant outliers and the variables were approximately normally distributed**.** A significant negative correlation was found between the new grouped variable of depression management index (MW) and the mean of depression QOF prevalence for 18+ ($r = -0.34$, $p = .025$) the other relationships across the matrix were found to be not significant. I then looked at the characteristics of the practice. After carrying out a literature review into referral rate variation I identified five variables for this area of interest. Therefore, a correlation matrix for five variables was utilised including the variables single or group practice, the distance to the nearest HIM venue, total number of GPs, number of registered patients per GP, and the percentage of GPs that were female. Once again the variables that met the criteria for Pearson's correlation were added to a matrix. For those that did not, the categorical variables, I ran an ANOVA analysis against the newly created dependant variable of level of engagement. The predictors that were shown to be statistically significant were kept to be added to the multiple regression, those that were not were discarded. There was a significant negative correlation between number of registered patients per GP and the total number of GPs ($r = -0.53$, $p <.001$) the other relationships across the matrix were found to be not significant. I then wanted to explore measures to reflect two key demographic groups, the proportion of elderly patients in a practice and the proportion of young families registered at the practice. I examined the patient age groups of the estimated percentage of under 14 year old patients and the estimated percentage of the over 65 year old patients. There was a significant negative relationship found through the Pearson's correlation test (r = -0.46, p = 0.002). The final predictor variable I included for the regression analysis was that of geographical region, either Colchester or Tendring. Three referral rate dependant variables were identified for the further correlation analysis against the above predictor variables, these were the percentage of standard referrals per patient over 16 years of age (Referral rate, *M* = 8.28, *SD* = 3.14), the percentage of GP referrals per registered patients over 16 years of age (GP Referral rate, *M* = 4.78, *SD* = 2.66) and finally the percentage of self-referrals per registered patients 16 over years of age (Self-Referral rate, *M* = 2.92, *SD* = 1.50). GP and self-referrals are included within the standard referral measure; therefore these represent 58% and 35% of referrals respectfully. The remaining 12% of referrals came from a variety of services including secondary care mental health services (step four of the stepped care system).

2.2.3 Variable Screening And Selection For Did Not Attend

For the purposes of this analysis Did Not Attend (DNA) was attributed to any patient who failed to attend their initial assessment (IA) session, with either a PWP or a HIW, after being offered the therapeutic intervention. In North East Essex IAPT service this initial assessment is carried out over the phone in almost all cases. For the DNA analysis once again the DNA variable was split into three further subsets across the areas of all combined referrals both GP, self and other (standard referral) DNAs, GP referral DNAs and Self-referral DNA's. To meet my DNA definition, 2,783 patient records were removed from the data set due to the patient not being offered an intervention. A further 253 patient records were excluded from the analysis due to missing data, for example no record of the patient's age, leaving me with a final data set of 19,964 cases. I then recoded some of the variables that were held as the original number of categories for these variables was large and made data analysis difficult to interpret. I re-categorised the ethnicity codes into three classifications: White, Non-White (includes mixed-ethnicity) and Not Stated (i.e. ethnicity not stated). Further information that is not always available prior to the IA was re-coded for inclusion in subsequent analyses of engagement following the IA: psychotropic medication (four classifications: Not prescribed, Prescribed not taking, Prescribed and taking, and Unknown/Declined) and employment status (seven classifications: in work, unemployed but seeking work, students, long term sick, not actively seeking work, retired and not known/stated). I used the same 12 independent variables as previously utilised and a correlation matrix for the three dependant variables was created (see Table 2.4). From these correlations I identified any independent variable that was significant at the level $P \leq .1$. These independent variables, once acknowledged, were regressed on the dependant variable and the model and its components were analysed for significance.

2.2.4 Variable screening and selection for level of engagement

For this further analysis of the data set I wished to explore the level of commitment or engagement with the therapy. To enable this I first had to define the measure of engagement I intended to use. I excluded all patients that DNA their first appointment and subsequently never engaged with the service on that referral, although it should be noted that they may have returned to the service and subsequently engaged on a different reference number but I was unable to ascertain this due to the anonymity of the data. This reduced the database from 22,292 to 12,658 patient data sets. I then removed a further 698 cases from the dataset where the participants were missing either their first PHQ-9 or GAD-7 score. From here I created two new engagement level variables. The first of these was a continuous variable of simply the percentage of appointments offered that the patient subsequently attended. The second was created by categorising these percentage levels into four groups;

- 1.00 = "Poor engagement - less than 25% Attendance"
- 2.00 = "Low engagement - between 25-49% Attendance"
- 3.00 = "High engagement - between 50-74% Attendance"
- 4.00 = "Excellent engagement - above 75% Attendance"

After this categorisation the frequencies for each group were as table 2.1;

Table 2.1 – Proportion of patients classified as poor, low, high and excellent engagement.

	Frequency	Percentage	Cumulative percentage
Poor engagement - less than 25% Attendance	891	7.4	7.4
Low engagement - between 25-49% Attendance	6,140	51.3	58.8
High engagement - between 50-74% Attendance	2,936	24.5	83.3
Excellent engagement - above 75% Attendance	1,993	16.7	100
Total	11,960	100	

I then identified potential predictor variables, using all the previously used variables from our DNA analysis and incorporating another five new variables; PHQ-9 (measurement for depression level) score from first contact session, GAD-7 (measurement for anxiety level) score from first contact session, first step level (which level of service patient started at), employment status of patient and psychotropic medication status of patient. Once I had identified all these potential predictors I broke them down into two categories, those that were binary or continuous and those that were categorical. For the binary or continuous variables I ran a correlation analysis against the newly created dependant variable of level of engagement. The predictors that were shown to be statistically significant were included in the multiple regression, those that were not were discarded. The results are shown in the table 2.2.

Table – 2.2 - Binary and continuous predictor's coefficients for percentage of attended appointments.

Predictor	**Correlation Coefficients r**	**Sig**
Age	.146	<.001 ***
Deprivation	.032	<.001 ***
Distance from venue	.007	.458
Number of clients per GP	-.005	.556
% of male GPs	.025	.005**
% patients recommend practice	.008	.400
Time to decision to treat	.075	<.001***
PHQ-9 First score (Continuous)	-.041	<.001 ***
GAD-7 First score (Continuous)	-.022	.015 *

(¥ = Marginally significant < .1, * = Correlation is significant at the .05 level – 1 tailed, ** = significant at the .01 level – 1 tailed, *** = significant at the .001 level – 1 tailed).

2.3 Results

2.3.1 First set of analysis - Referral Rate Results.

When comparing referral rates across gender the number of clinical contacts into the service during the period analysed demonstrated that the service engaged well with women. The service showed that a higher rate (63.8%) of the 19,948 people seen were female, compared to a regional rate across Essex of 51.9%. Conversely, the percentage of men accessing the service was lower (36.2%) than the regional percentage of men in the population (48.1%).When gender across age was explored it was shown that in both men and women in most categories the percentage referral rate when compared to the regional percentage was roughly the same. However the 60+ year's category failed to engage with the service at a representative level that would match the number of people within this category within the region. For men over 60 years old, despite the regional percentage in this category being 15.3% only 3.5% were accessing the service. Similarly for women only 7.2% engaged with the service despite the regional percentage of women in this category being 18.5%, see Table 2.3.

Table 2.3 - The percentage of clinical contacts across age categories and gender with comparison between North East Essex and general population levels

	North East Essex commissioning group population over 16 years of age. **N = 257,376 (100%)** Number and % of population	Clinical contacts with the North East Essex IAPT service between 03/01/2009 to 14/12/2012 **N = 19,948 (100%)** Number and % of patients
By gender		
All men	N = 123,840 – 48.1%	N = 7,227 – 36.2%
All women	N = 133,536 – 51.9%	N = 12,721 – 63.8%
Males by age group		
16-24 years	N = 18,842 – 7.3%	N = 1,255 – 6.3%
25-34 years	N = 17,310 – 6.7%	N = 1,633 – 8.2%
35-44 years	N = 19,469 – 7.6%	N = 1,799 – 9.0%
45-59 years	N = 28,820 – 11.2%	N = 1,849 – 9.3%
60+ years	N = 39,399 – 15.3%	N = 691 – 3.5%
Females by age group		
16-24 years	N = 17,844 – 6.9%	N = 2,530 – 12.7%
25-34 years	N = 17,359 – 6.7%	N = 3,046 – 15.3%
35-44 years	N = 20,168 – 7.8%	N = 2,795 – 14.0%
45-59 years	N = 30,517 – 11.9%	N = 2,916 – 14.6%
60+ years	N = 47,648 – 18.5%	N = 1,434 – 7.2%

2.3.1.1 Variation in referral rates across age and gender: Patients were allocated to groups in relation to their age at the date of their referral. The analysis then compared the percentage of referrals by gender across these age groupings (Figures 2.4, 2.5 and 2.6). As demonstrated in Figure 2.4 it was found that for “general referrals” (referrals from all sources) from female patients in the first age group studied, 20-24 year-olds, the percentage of referrals received was approximately double the percentage of the female PCT population for that age group (PCT data obtained from Public Health England - http://www.apho.org.uk/PracProf/Profile 13/06/2013) with referral rates of 9.33% compared to a PCT percentage of 4.68%. It was also identified that the amount of female referrals in this age group was approximately double that of male patient referrals (9.33% compared to 4.7%) and that of the percentage of males in the PCT population of this age group (4.55%). From this high position above the PCT population level the rate of female referrals fell at a steep rate. At the age grouping of 55-59 it dropped below the PCT level and remained below it. In contrast the male referral level, starting from a lower percentage score, stayed fairly constant from 20-34 year-old patients, and did in-fact rise in the age group 35-39, finally dropping below the PCT average in the 45-49 year-old group. At no age group was the referral rate of male patients higher than that of female patients. I further broke down the referrals into GP and self-referrals. For GP referrals, Figure 2.5, the pattern of referrals remained similar to the standard referral rates, although the gap between the percentage of female GP referrals for the 20-24 year-old group and the female percentage of the PCT population increased (9.77% - 4.68%). For self-referrals, Figure 2.6, once again there was a similar shape to the referral rates. However, the highest age group for female self-referrals was not in the 20-24 year-old group but in the 25-29 year-olds (8.83%). This demonstrated a slight increase on the previous age group before following the pattern of the previous Figure 2.4 and Figure 2.5 and dropping steeply. In contrast male self-referrals rise to a maximum level of (5.09%) in the 35-39 years-old bracket, although this is still lower than both general referrals (5.25%) and GP referrals (5.28%) for that age category. In summary, across all of the age groups there is a consistently higher percentage rate for female patient referrals than for male patients. It has also become apparent that referral rates as a percentage are higher from the lower age groups than the higher age categories. These findings were found to remain when analysing different referral sources.

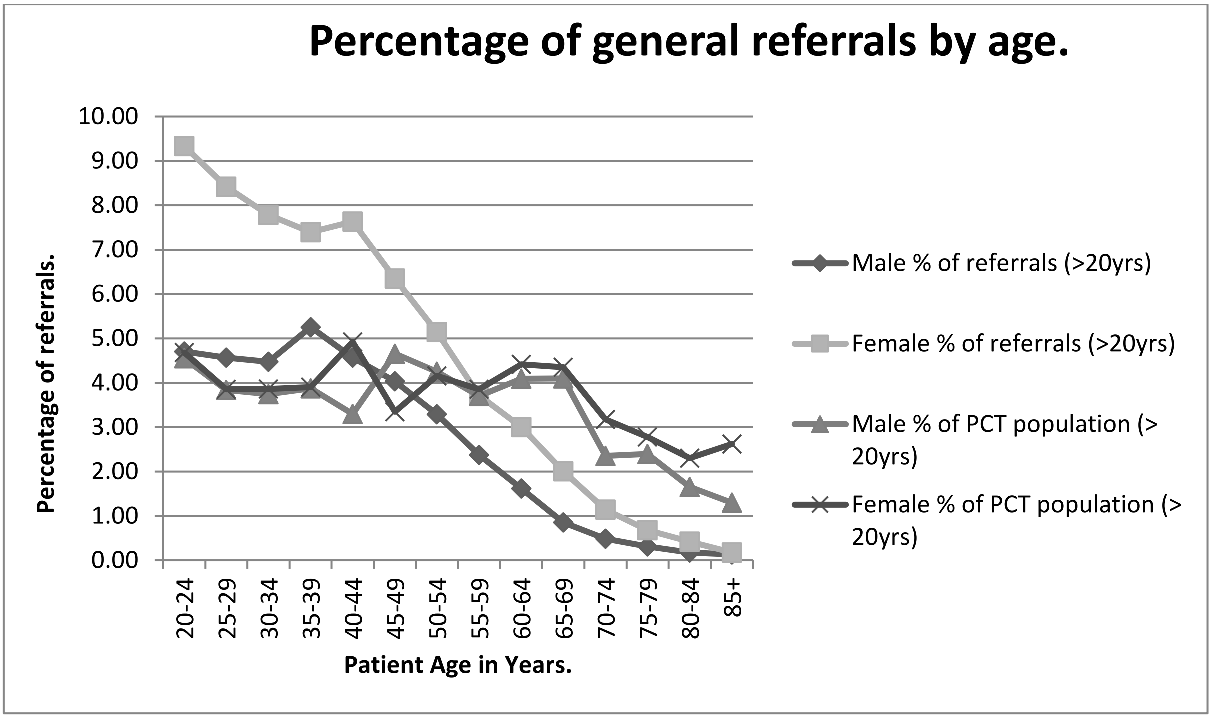

Figure 2.4 - Percentage of general referrals by age.

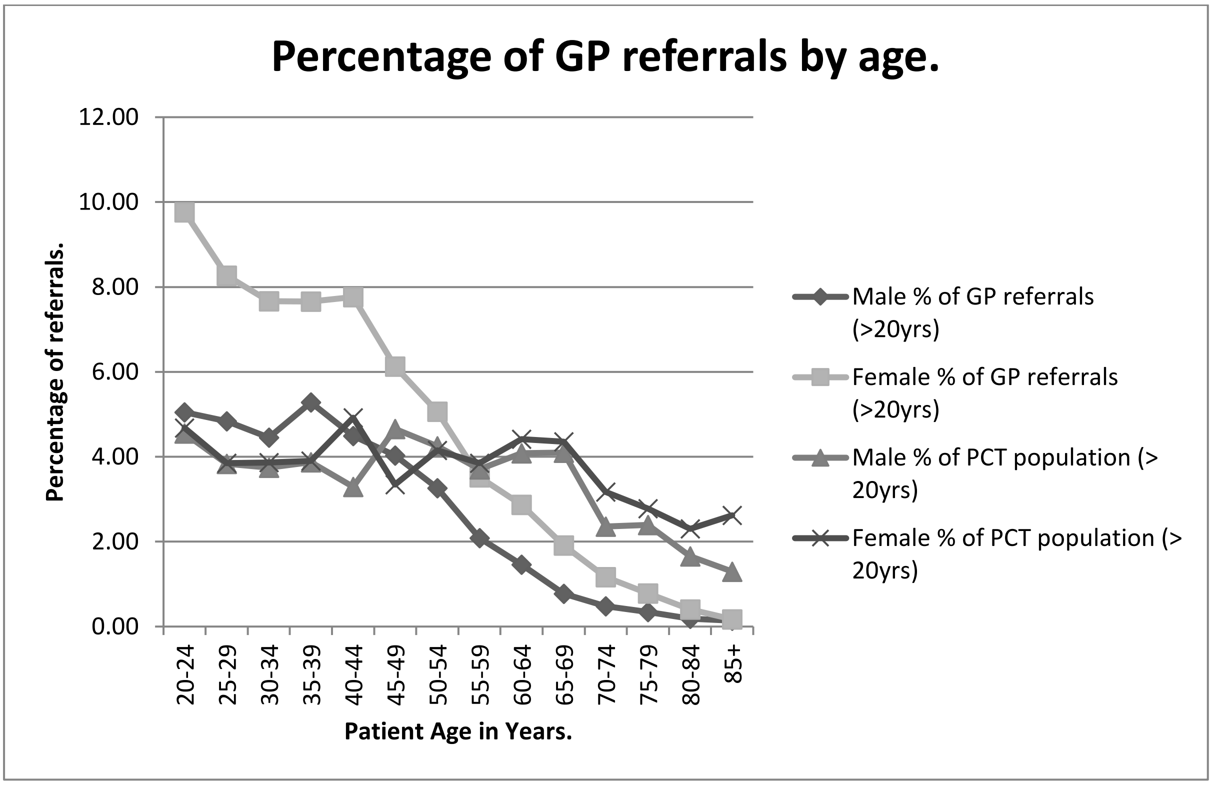

Figure 2.5 - Percentage of GP referrals by age.

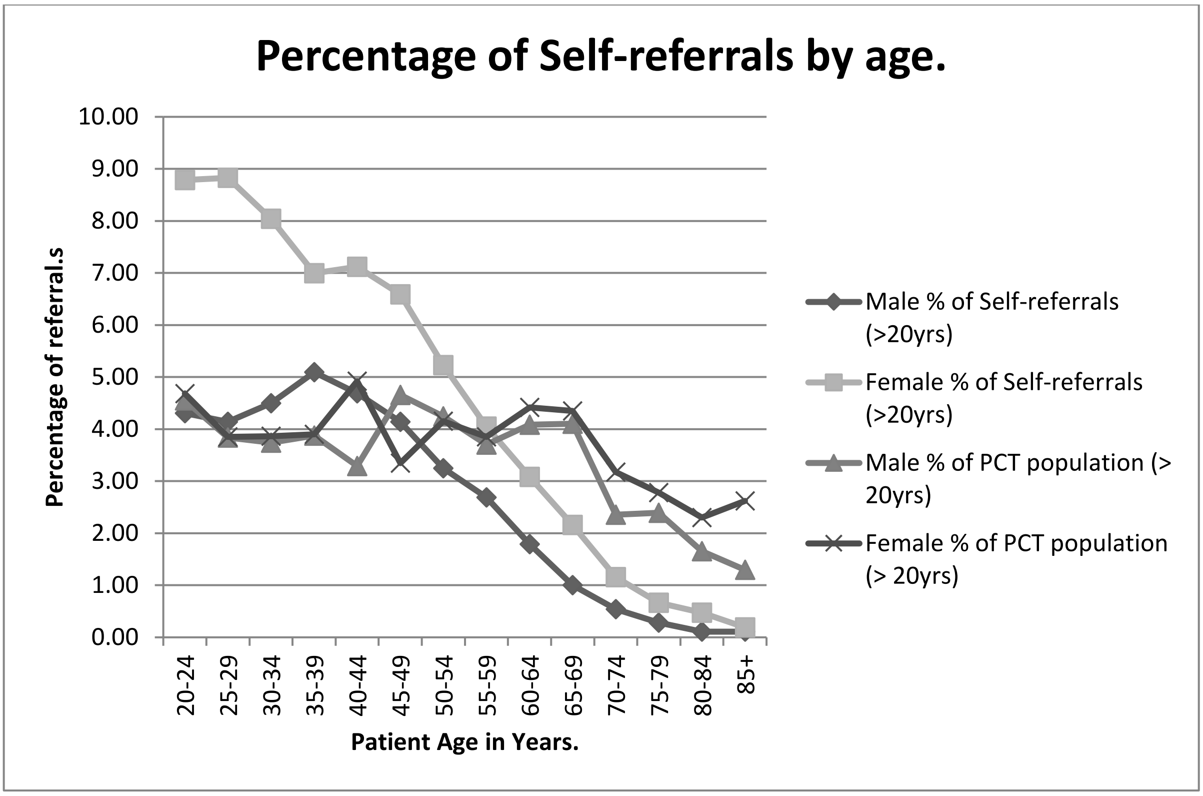

Figure 2.6 – Percentage of self-referrals by age.

A correlation matrix for all three dependant variables (% of standard referrals per 16+, % of GP referrals per 16+ and % of self-referrals per 16+) was created (Table 2.4). Independent variables that correlate to dependant variables (*p*-value <.1) will be analysed further.

Table 2.4 - Correlation matrix

(Table 2.4) - Correlation matrix	**% of standard referrals per 16+**	**% of GP referrals per 16+**	**% of self-referral per 16+**	**Mean IMD Deprivation Score**	**% of patients long term mental health problem**	**Mean of depression QOF prevalence for 18+**	**Depression management index (MW)**	**Est. % of over 65 years old patients**	**Est. % of under 14 years old patients**	**Single or group practice**	**Total number of patients per GP**	**Total number of GPs**	**% of GPs that are female**	**Distance to nearest HIM Venue in miles**	**County Council region**
Mean IMD Deprivation Score	**.412**** .005 44	**.382*** .011 44	.102 .511 44	1 44											
% of patients long term mental health problem	**.439**** .003 44	**.343*** .023 44	.261 .087 44	.271 .075 44	1 44										
Mean of depression QOF prevalence for 18+	.043 .782 44	.082 .599 44	-.065 .675 44	**.436**** .003 44	.115 .457 44	1 44									
Depression management index (MW)	.022 .885 44	-.055 .722 44	.150 .330 44	-.275 .070 44	.039 .803 44	**-.338*** **.025** **44**	1 44								
Est. % of over 65 years old Patients	-.099 .522 44	.060 .698 44	-.261 .087 44	**.320*** .034 44	.044 .775 44	**.306*** .044 44	**-.328*** **.030** **44**	1 44							
Est. % of under 14 years old Patients	.211 .169 44	-.008 .958 44	**.377*** .012 44	-.033 .833 44	.038 .807 44	-.201 .191 44	.242 .113 44	**-.463**** **.002** **44**	1 44						
Single or group practice	.010 .947 44	.039 .803 44	-.064 .679 44	.182 .238 44	.059 .705 44	.277 .069 44	**-.387**** **.009** **44**	-.051 .743 44	-.251 .100 44	1 44					
Total number of patients Per GP	-.040 .796 44	-.149 .333 44	.152 .325 44	.134 .384 44	-.090 .562 44	-.155 .315 44	-.172 .265 44	-.001 .995 44	-.058 .708 44	.227 .138 44	1 44				
Total number of GPs	-.020 .898 44	.038 .808 44	-.073 .639 44	-.172 .265 44	.154 .317 44	.186 .227 44	.143 .354 44	.126 .416 44	-.177 .250 44	.050 .748 44	**-.533***** **.000** **44**	1 44			
% of GPs that are female	.036 .815 44	.162 .293 44	-.228 .137 44	-.122 .431 44	.074 .634 44	-.132 .394 44	.233 .129 44	**-.354*** **.018** **44**	.233 .128 44	-.194 .206 44	-.257 .093 44	.243 .113 44	1 44		
Distance to nearest HIM Venue in miles	-.320 .034 44	**-.345*** .022 44	-.009 .953 44	-.287 .059 44	-.122 .430 44	.121 .433 44	.014 .928 44	.010 .951 44	-.065 .675 44	.138 .371 44	-.014 .927 44	.237 .121 44	-.172 .264 44	1 44	
County Council region	.037 .814 44	.126 .413 44	-.121 .433 44	**.509***** .000 44	.019 .902 44	**.415**** **.005** **44**	**-.382*** .010 44	**.628**** **.000** **44**	**-.343*** .023 44	.079 .611 44	-.010 .947 44	-.040 .798 44	**-.512**** .000 44	-.063 .685 44	1 44

(* = Correlation is significant at the .05 level – 2 tailed, ** = Correlation is significant at the .01 level – 2 tailed, *** = Correlation is significant at the .001 level – 2 tailed).

Firstly a multiple regression was run with Referral rate as the dependant variable and distance to nearest HIM venue in miles, % of patients reporting a long-term mental health problem and mean IMD deprivation score as three predictor variables. The overall results of the regression model were significant ($R^2 = .323$, Adj. $R^2 = .272$, $p = .001$). The individual results for each predictor variable were mean IMD deprivation Score ($\beta = .260$, p-value = .071), % of patients reporting a long-term mental health problem ($\beta = .344$, $p = .015$) and distance to nearest HIM venue in miles ($\beta = -.204$, p-value = .142). A multiple regression analysis was next run using GP referrals as the dependant variable using the same predictor variables as previously. The overall regression model was found to be significant ($R^2 = .262$, Adj. $R^2 = .207$, $P = .006$). The results for each individual predictor variable were mean IMD deprivation Score ($\beta = .245$, $P = .102$), % of patients reporting a long-term mental health problem ($\beta = .246$, $P = .089$) and distance to nearest HIM venue in miles ($\beta = -.245$, $P = .092$). Finally a multiple regression analysis for self-referral as the dependant variable was then run using the predictor variables of the percentage of patients reporting a long term mental health problem, the percentage of patients under 14 years old within the local population and the percentage of patients over 65 years old within the local population. The overall regression model was found to be significant ($R^2 = .217$, Adj. $R^2 = .158$, $P = .020$). The results for each individual predictor variable were percentage of patients reporting a long term mental health problem ($\beta = -.255$, $P = .077$), % of under 14 years old patients ($\beta = .307$, $P = .059$), and percentage of over 65 years old patients ($\beta = -.131$, $P = .414$).

In summary there was a significant effect on referral rates in relation to the % of patients reporting a long-term mental health problem, with the higher the recorded number of these patients resulting in a higher referral rate. When looking at GP referral rates and self-referral rates, although the overall regression models were found to be significant, individual predictors were not seen to be statistically significant.

2.3.2 DNA Results.

When looking at the DNA correlation results against referral source only two of the variables were significant across all three referral source, these were the variable referring to the percentage of patients within the surgery with long term mental health problems and the total number of GPs within the surgery. Deprivation was found to be significant against both standard referrals and GP referrals but was not significant against self-referral (see Table 2.5).

Table 2.5 DNA Correlation matrix across referral source

	Number of DNA's from Standard referrals	Number of DNA's from GP referrals	Number of DNA's from Self referrals
Mean IMD Deprivation Score	r = .368 *P* = .007**	r = .394 *P* = .004**	r = .105 *P* = .249
% of patients long term mental health problem	r = .434 *P* = .002**	r = .358 *P* = .008**	r = .453 *P* = .001***
Mean of depression QOF prevalence for 18+	r = .169 *P* = .137	r = .182 *P* = .118	r = .032 *P* = .419
Depression management index (MW)	r = .107 *P* = .245	r = .067 *P* = .332	r = .199 *P* = .097¥
Est. % of over 65 years old Patients	r = .181 *P* = .120	r = .248 *P* = .052¥	r = - .054 *P* = .363
Est. % of under 14 years old Patients	r = -.098 *P* = .263	r = - .160 *P* = .149	r = .089 *P* = .283
Single or group practice	r = .179 *P* = .122	r = .169 *P* =.136	r = .112 *P* = .235
Total number of patients Per GP	r = .107 *P* = .245	r = .045 *P* = .386	r = .179 *P* = .123
Total number of GPs	r = .433 *P* = .002**	r = .396 *P* = .004**	r = .379 *P* = .006**
% of GPs that are female	r = .089 *P* = .282	r = .107 *P* = .246	r = -.015 *P* = .461
Distance to nearest HIM Venue in miles	r = -.196 *P* = .101	r = - .235 *P* = .062¥	r = -.004 *P* = .490
County Council region	r = .069 *P* = .329	r = .151 *P* = .164	r = - .156 *P* = .156

Table 2.6 - Predictors of the standard referral DNA rate (Adjusted $R^2 = .409, p < .001$)

	Multiple regression		Bivariate correlation	
Predictors	*β*	*p*-value	*r*	*p*-value
Percentage long-term mental health problem	.261	.043	.44	.002
Mean IMD deprivation	.376	.005	.37	.007
Total number of GPs	.457	.001	.43	.002

Table 2.7 - Predictors of the GP referral DNA rate (Adjusted $R^2 = .453, p < .001$)

	Multiple regression		Bivariate correlation	
Predictors	*β*	*p*-value	*r*	*p*-value
Percentage long-term mental health problem	.161	.219	.36	.008
Mean IMD deprivation	.343	.020	.39	.004
Total number of GPs	.475	.001	.40	.004
Percentage of over 65 years old patients	.074	.573	.25	.052
Distance to nearest HIM venue	-.230	.082	-.24	.062

Table 2.8 - Predictors of the self-referral DNA rate (Adjusted $R^2 = .323, p = .001$)

	Multiple regression		Bivariate correlation	
Predictors	*β*	*p*-value	*r*	*p*-value
Percentage long-term mental health problem	.402	.004	.45	.001
Total number of GPs	.297	.031	.38	.006
Depression management index	.141	.289	.20	.097

After identifying all significant categorical predictors from our list (Table 2.9) and continuous variables (Table 2.10) a further multiple logistic regression, for the categorical dependant variable DNA (yes/no), was utilised with these variables (Table 2.11).

Table 2.9 - Categorical predictor variables for DNA

Predictor variable	Predictor type	Outcome	Phi	*P*-Value
Gender	Categorical	Significant	-.031	.000***
Ethnicity	Categorical	Significant	.189	.000***
Referral source	Categorical	Significant	.126	.000***
New or Re-referral	Categorical	Significant	.024	.001***

(* = P value is significant at the .05 level – 2 tailed, ** = P value is significant at the .01 level – 2 tailed, *** = P value is significant at the .001 level – 2 tailed). *Interpretation of the Phi coefficient. -1.0 to -0.7 strong negative association. -0.7 to -0.3 weak negative association. -0.3 to +0.3 little or no association. +0.3 to +0.7 weak positive association. +0.7 to +1.0 strong positive association)*

Table 2.10- Continuous predictor variables

Predictor variable	Predictor type	Outcome	Cohen's D	*P*-Value
Age	Continuous	Significant	.198	.045*
Num. previous refs	Continuous	Significant	.030	.000***
Distance in miles	Continuous	Significant	.032	.000***
% male GPs	Continuous	Not significant	-	.169
% recomm. practice	Continuous	Significant	.049	.001***
Deprivation score	Continuous	Significant	.140	.000***
Num. clients per GP	Continuous	Not significant	-	.115
Diff. Ref -treat	Continuous	Significant	.059	.000***

(* = P value is significant at the .05 level – 2 tailed, ** = P value is significant at the .01 level – 2 tailed, *** = P value is significant at the .001 level – 2 tailed). *Interpretation of the Phi coefficient. -1.0 to -0.7 strong negative association. -0.7 to -0.3 weak negative association. -0.3 to +0.3 little or no association. +0.3 to +0.7 weak positive association. +0.7 to +1.0 strong positive association)*

Table 2.11 Multiple logistic regression predicting non-attendance (DNA) at I/A (N = 19,754)

Predictor variable	Baseline characteristic	% patients in category	% DNA within category	B	df	Adjusted odds ratio	99% CI for adjusted odds ratio (lower & upper limits)	
Gender	Male	36.2	38.4					
Female		63.8	35.5	-.132	1	.876**	.808	.950
Age in bands	16-24	19.0	44.3		4			
Age 25-34 years		23.5	39.0	-.167	1	.846**	.752	.953
Age 35-44 years		23.0	35.6	-.332	1	.718**	.637	.809
Age 45-59 years		23.9	31.5	-.530	1	.588**	.522	.664
Age $\geq$ 60 years		10.7	30.8	-.552	1	.576**	.494	.670
Ethnicity	White	69.9	30.9		2			
BME		2.5	33.1	.077	1	1.080	.838	1.392
Not known		27.6	51.3	.790	1	2.204**	2.004	2.425
Deprivation decil	Decile 1-2	11.9	43.2		4			
Decile 3-4		11.9	41.1	.065	1	1.068	.900	1.266
Decile 5-6		32.4	36.5	-.201	1	.818**	.711	.941
Decile 7-8		26.4	33.8	-.280	1	.756**	.643	.888
Decile 9-10		17.3	33.2	-.284	1	.753**	.640	.886
Distance to venue				.009	1	1.009	.993	1.026
Referral source	GP	56.0	40.9		3			
Self (i.e., patient)		36.9	28.7	-.251	1	.778**	.708	.855
Secondary care		2.7	44.9	.208	1	1.232	.968	1.567
Other source		1.4	41.6	.165	1	1.179	.970	1.433
Referral history	New referral	77.0	35.9					
Re-referral			38.6	.290	1	1.336**	1.214	1.470
Mean list size for patient's GP surgery				-.006	1	.994	.986	1.001
% of male GPs				.000	1	1.000	.998	1.003
% of patients that would recommend their GP practice				.000	1	1.000	.995	1.004
Time from referral to decision to treat	Same day	70.5	35.5		2			
One day		14.5	37.6	.079	1	1.082	.967	1.211
More than 1 day		15.0	40.6	.175	1	1.191**	1.066	1.330
Constant				-.190	1	.827		

Ethnicity, BME = Black and minority ethnicity; Deprivation quintile, lower = greater deprivation, higher = less deprivation * p < .01 (2-tailed), ** p < .001 (2-tailed).

The results from the multiple logistic regression demonstrated that male patients were more likely than female patients to DNA. The younger the patients the higher the level of DNAs were recorded. With regards to referral source patients that were re-referrals DNA at a higher rate than those from other sources. There were higher levels of DNA recorded by those patients that chose to not give, or failed to have recorded, their ethnicity. Self-referrals into the IAPT service DNA at a lower rate than other referral source categories. The higher the level of deprivation recorded at the patient's recorded surgery the higher rate of DNA. The length of time from referral till the decision to treat led to higher levels of DNA rates. All results can be viewed in Table 2.12

Table 2.12 - Significant predictor variables table with DNA percentages

Variable	Category	Number within category	% in category that DNA
Gender	Male	7,227	38.5
	Female	12,721	35.5
Age	16-24 years	3,788	44.4
	25-34 years	4,682	39.0
	35-44 years	4,598	35.7
	45-59 years	4,767	31.5
	60+ years	2,129	31.0
Ethnicity	White	13,960	30.9
	Non-white	503	32.8
	Not known/stated	5,501	51.3
Deprivation	1-2	2,351	43.3
	3-4	2,361	41.1
	5-6	6,402	36.5
	7-8	5,226	33.8
	9-10	3,429	33.2
Referral Source	GP referral	11,180	40.9
	Self-referral	7,375	28.8
	Secondary care referral	536	46.1
	Other referral	873	42.4
Referral History	New	15,375	36.0
	Re- referral	4,589	38.7
Time between referral and decision to treat	0 Days	14,071	35.5
	1 Days	2,902	37.6
	2 Days	323	47.1
	3 Days	970	37.1
	4 Days	362	41.4
	5 Days	1,332	41.7

2.3.3 Engagement results.

Using the continuous variable of the percentage of appointments attended as the dependant variable I then ran a multiple regression analysis on all the significant variables. I categorised the predictor variables into four sets and entered them into the regression model in blocks: Patient factors – Age (continuous), Gender (dichotomous) and Ethnicity (two dummy variables, coding three levels), Environmental factors – Deprivation level of surgery (continuous), Distance from service venue (continuous), Number of clients per GP (continuous), % of GPs that were male (continuous), % of patients that would recommend practice (continuous), Employment status (six dummy variables, coding seven levels), Clinical factors – First PHQ-9 score (continuous), First GAD-7 score (continuous), Psychotropic medication status (three dummy variables, coding four levels), Referral source (three dummy variables, coding four levels), Referral history (dichotomous) and Service factors – The entry step to the service was determined by what level of the stepped care NHS system the participant began their interaction with the service (GP = 1, Psychological Wellbeing Practitioner = 2, High Intensity Worker = 3 and Secondary care = 4). This variable was then dummy coded (three dummy variables, coding four levels). The final variable was time between referral till decision to treat.

Table – 2.13 Categorical predictor's ANOVA results for percentage of attended appointments.

Predictor	N	Mean	Std. Dev.	F(df)	Sig.
First Step entry level to service - L1	81	70.0	25.2	58.7 (3, 12622)	<.001***
First Step entry level - L2 ***b***	11,323	54.6	19.1		
First Step entry level - L3	1,185	59.1	20.3		
First Step entry level - L4	37	82.0	24.4		
Psychotropic Medication – Not prescribed ***b***	863	56.6	20.3	6.9 (3, 12,654)	<.001***
Psychotropic Medication – Prescribed not taking	6,168	55.0	19.4		
Psychotropic Medication – Prescribed and taking	5,186	55.7	19.3		
Psychotropic Medication – Unknown	441	51.9	19.0		
Employment status – In work ***b***	3,854	55.8	19.4	11.8 (6, 12,651)	<.001***
Employment status – Unemployed	2,020	55.4	19.7		
Employment status – Students	2,383	54.2	19.4		
Employment status – Long term sick	1,038	52.8	18.7		
Employment status – Not actively seeking	2,308	57.4	19.8		
Employment status – Retired	154	55.5	16.7		
Employment status – Unknown or not stated	901	52.9	17.9		
Ethnicity – White ***b***	9,641	55.3	19.4	1.4 (2, 12,655)	.248
Ethnicity – Non-white	338	53.5	19.8		
Ethnicity – Not known	2,679	55.2	29.2		
Referral Source – GP ***b***	6,611	54.8	19.1	3.0 (3, 12,654)	.031 *
Referral Source - Self	5,254	55.8	19.6		
Referral Source – Secondary Care	289	55.2	20.2		
Referral Source - Other	504	55.6	20.5		
PHQ-9 – Minimal depression	862	56.6	18.8	5.6 (4, 12,075)	<.001***
PHQ-9 – Mild depression	1,848	56.7	19.5		
PHQ-9 – Moderate depression ***b***	2,817	55.5	19.6		
PHQ-9 – Moderate to severe depression	3,315	54.7	19.5		
PHQ-9 – Severely depressed	3,238	54.5	19.1		
GAD-7 – Minimal anxiety	882	56.1	18.8	2.1 (3, 12,062)	.093
GAD-7 – Mild anxiety	2,342	55.6	19.3		
GAD-7 – Moderate anxiety ***b***	3,480	55.6	19.7		
GAD-7 – Severe anxiety	5,362	54.8	19.2		
Gender – Male ***b***	4,442	55.8	19.4	6.1 (1, 12,650)	.014 *
Gender - Female	8,210	54.9	19.4		
Referral – New ***b***	9,844	55.7	19.3	23.2 (1, 12,656)	<.001 ***
Referral – Re-referral	2,814	53.7	19.7		
Age - 16-24 Years	2,108	51.7	18.7	69.4 (4, 12,651)	<.001 ***
Age - 25-34 Years	2,855	52.5	18.8		
Age – 35-44 Years ***b***	2,957	55.6	19.4		
Age – 45-59 Years	3,267	57.3	19.4		
Age – 60+ Years	1,469	60.5	19.6		

b = Baseline category for later analysis (¥ = marginally significant < .1, * = is significant at the .05 level – 1 tailed, ** = significant at the .01 level – 1 tailed, *** = significant at the .001 level – 1 tailed).

From this analysis I was able to see that there was a higher percentage of attended appointments came from patients that were new referrals, seen initially at step 2 (Psychological Wellbeing Practitioner), those that were not prescribed psychotropic medication, those that were in full-time employment, had a lower PHQ-9 score and the older the patient the higher level of attendance demonstrated. Also found to be marginally significant was the variable gender, with female patients demonstrating a higher level of engagement than their male colleagues?

Table – 2.14 Percentage of attended appointments by age

Age Category	**N**	**Mean**	**Std. Dev.**
16 – 24 years	1,999	51.7	18.6
25 – 34 years	2,719	52.5	18.9
35 – 44 years	2,783	55.7	19.3
45 – 59 years	3,100	57.4	19.5
60+ years	1,359	60.8	19.4
Total	11,960	55.3	19.4

Table – 2.15 Multiple regression for predictor variables of the level of engagement

	Unstandardised Coefficients		Standardised Coefficients		
Model	B	Std. Error	Beta	T	Sig.
(Constant)	50.435	1.119		45.076	<.001***
Age	2.236	.147	.146	15.197	<.001***
Deprivation	.244	.077	.029	3.148	.002**
Employment – Unemployed	-.261	.528	-.005	-.494	.621
Employment – Students	-1.470	.513	-.030	-2.866	.004**
Employment – Long term sick	-1.545	.685	-.022	-2.256	.024
Employment – Not actively seeking	-.432	.528	-.009	-.817	.414
Employment – Retired	-.989	1.581	-.006	-.625	.532
Employment – Unknown	-8.662	1.128	-.073	-7.679	<.001***
PHQ-9	-.104	.029	-.034	-3.581	<.001***
Psychotropic Med. – Prescribed not taking	-2.455	.780	-.063	-3.148	.002**
Psychotropic Med. – Prescribed and taking	-1.593	.787	-.040	-2.025	.043
Psychotropic Med. – Unknown or declined to say	-4.811	1.194	-.046	-4.097	<.001***
Referral source - Self	1.523	.372	.039	4.097	<.001***
Referral source – Secondary care	1.070	1.200	.008	.892	.373
Referral source - Other	1.099	.946	.011	1.163	.245
Referral History	-1.943	.436	-.042	-4.452	<.001***
First step - 1	10.873	2.422	.041	4.489	<.001***
First step - 3	4.694	.615	.070	7.632	<.001***
First step - 4	21.182	3.805	.050	5.567	<.001***
Time to decision to treat	.575	.127	.041	4.522	<.001***

** = significant at the .01 level – 1 tailed, *** = significant at the .001 level – 1 tailed

After running the multiple regression all the non-significant variables (again utilising a significance level of p< .01) were removed from the model and the regression was then re-run, please see the results for the full model (Step 4) in table 2.15

Deprivation was also found to be significant, with each step up the decile the mean level of engagement increased by 0.2%, *β* = .029, *t*(1139) = 3.148, *p* = .002. When looking at the results from the employment status categories the groups of unemployed, long term sick, retired and not seeking work were all found to be not statistically significant. However, when controlling for all other factors, students were found to be engaging at a level of 1.5% less than the baseline of the "In work" group, *β* = -.030, *t*(1139) = -2.886, *p* = .004. Finally, with regards to employment status, it was noticeable that the group of "Unknown or not stated" were found to engage at a mean level of 8.7% less than those from the baseline group of "In work", *β* = -.073, *t*(1139) = -7.679, *p* < .001. The PHQ-9 first contact score was found to be significant also, *β* = -.034, *t*(1139) = 3.581, *p* < .001, with each incremental increase up the 27 point scale producing a mean decrease in engagement level of 0.1%. For the category of psychotropic medicine it was found that the group for patients "Prescribed and taking" were found to not be significantly different to the baseline category of "Not prescribed". However, for the patients in the "Prescribed but not taking" category, these were seen to have a mean level of a 2.5% lower engagement rate with the therapy, *β* = -.063, *t*(1139) = -3.148, *p* = .002. Once again those patients that were "Unknown or declined to say" demonstrated a statistically significant difference from the baseline category with a 4.8% lower level of engagement, *β* = -.046, *t*(1139) = -4.097, *p* < .001. When exploring the role that referral source plays in the level of engagement it was seen that self-referral patients, *β* = -.039, *t*(1139) = 4.097, *p* < .001, were seen on average to engage at a 1.5% higher level than the baseline GP referral group. Both "Secondary care" and the "Other" referral groups were found to be not significantly different. When measured against the baseline category of the first step at which the patient enters the service at level two, all three of the other categories were found to be significantly different. All three groups demonstrated a higher average engagement level percentage, step one (β = -.041, $t(1139) = 4.489$, $p < .001$) at 10.9% higher, step three (β = -.070, $t(1139) = 7.632$, $p < .001$) at 4.7% higher and finally step four (β = -.050, $t(1139) = 5.567$, $p < .001$). The last significant predictor variable identified was that of the time between referral received and decision to treat by the service. Here it was identified that for each day longer a patient waits for the decision to treat they then engage at a higher level increasing by 0.58% per day, (β = -.041, $t(1139) = 4.522$, $p < .001$).

2.4 Discusssion

2.4.1 Referral

When looking at referral rates I examined the effect of the predictor variables upon the first and second dependant variables, percentage of standard referrals per 16+ and the percentage of GP referrals per registered 16 years +, I identified the same patterns of association. Firstly, a higher level of deprivation attributed to the geographical area that the surgery was located in correlated with a higher percentage of referrals this was in line with previous papers findings (Hippisley-Cox et al., 1997). Also a higher level of the percentage of patients reporting a long-term mental health problem was associated with an increase in the percentage of referrals for the registered 16+ for both standard and GP referrals. An association was also noted between the distance from the HIM venue and the referral rates. Both dependant variables demonstrated that the further the distance from the surgery that the nearest HIM venue was located the lower the percentage of referral rates into the service. This replicated findings from previous studies (Jones, 1987; Noone et al., 1989; Wilkin & Smith, 1987). This relationship is demonstrated more clearly for GP referrals (Figure 2.7), where it can be seen that when the distance to the HIM venue is greater than 2.5 miles (25% of the practices are located at a greater distance than 2.5 miles) the % referral rate drops to below the average (Mean = 4.78). This relationship was not found when I looked at the association between distance from venue and self-referral rates leading us to hypothesise that the GP's awareness of the location of the HIM venues was higher than the awareness held by the individual patients and this may be influencing referral decisions.

Distance from perceived venue effect on referral rates

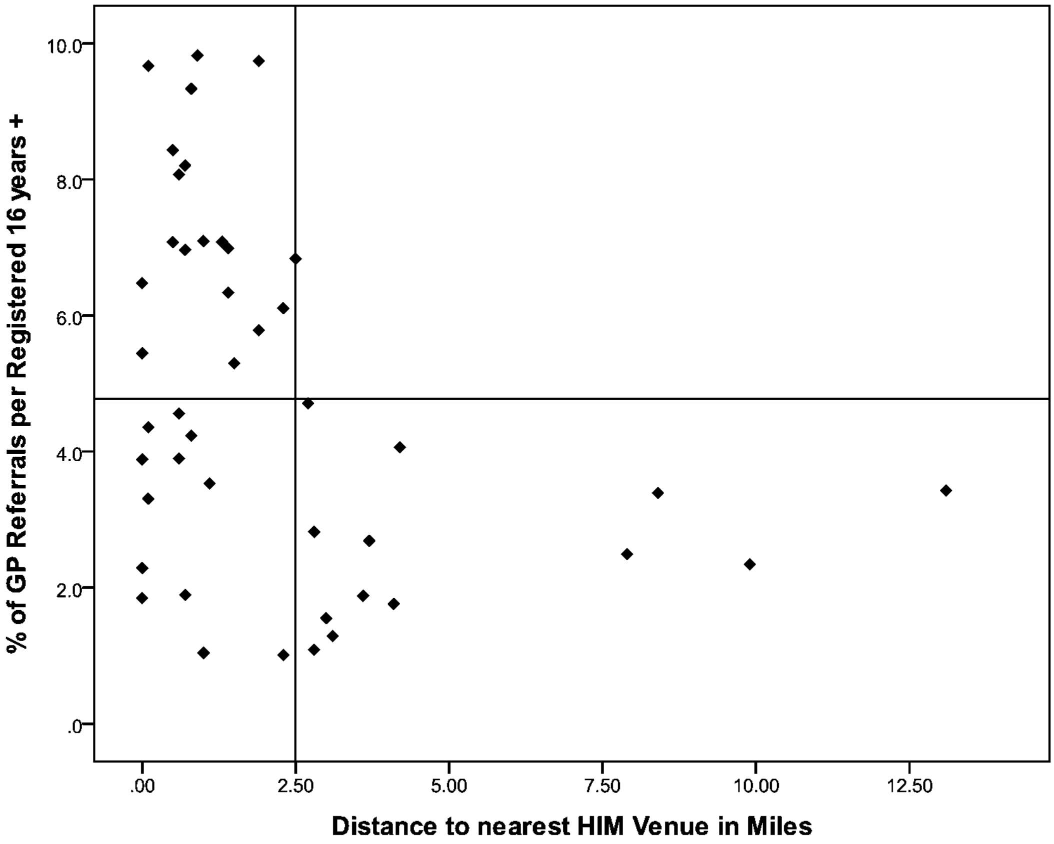

Figure 2.7

In contrast to the first two dependant variables, the final variable of percentage of self-referrals per registered 16 years + was not correlated with distance from the venue or with deprivation. However it did share the relationship with a higher level of the percentage of patients reporting a long-term mental health problem leading to an increase of the level of the percentage of referrals for the registered 16+ when this was factored into a multiple regression alongside the two variables of estimated percentage of under 14 years old patients and the estimated percentage of over 65 years old patients. The individual Betas from this regression highlighted the relationship between age and self-referral rates. When the variable of estimated percentage of under 14 year old patients was high there was a positive correlation with the level of self-referrals and therefore the rate of self-referrals increased. Conversely there was a negative association between self-referrals and the estimated percentage of over 65 year old patients, with the higher level of over 65 patients leading to a lower referral rate. From this I hypothesised that there might either be a different perception of the utilisation of mental health services by different age groups or different life stages might induce different levels of depression and anxiety. The studies have been carried out in many varied areas of the referral decision made by GPs. However, the area of referral to mental health agencies may prove to reveal its own unique properties. The areas that need to be explored to help explain the discrepancies that occur in RRs from GP’s to mental health services should include the effects of the patient’s socio-economic factors and whether belonging to a lower socio-economic group leads to lower referral rates and the GP’s perceived social-attitudinal factors of the patient and the affect this has on the GP’s willingness to refer. A different potential factor is the GP’s perception of the severity of the mental health issue that the patient has presented and also the frequency of this presentation. Another area of interest would be the patient’s and the GP’s understanding and perception of both mental health issues and the services available. In fact GP’s personal interest in, training on and awareness of mental health issues and the long term costs/benefits to patients may be another factor to quantify. Also further exploration is required into whether levels of high awareness in mental health issues helps increase a GP’s own perception in their competency to deal with the patient’s case leading to less referrals, or does it in fact increase perceived severity of the problem and increase RRs? Finally there are the characteristics of the surgery to take into account, rural or urban location, size, partnership or trust and proximity to mental health services.

2.4.2 DNA

From our results I was able to identify several associations and predictor variables. Male clients were statistically significantly more likely to DNA than female clients (Males 39% Female 35%), this finding was in agreement with other research (Gallucci et al - 2005 and Jonas - 1971). The younger the patient is at the date of referral the higher the likelihood of a DNA occurring than that of an older patient replicating the findings of other earlier studies such as Mitchell and Selmes (2007) and Sharp and Hamilton (2001). Patients that were re-referrals, returning to the service, had a higher % of DNAs than patients that were new to the service (36% New, 39% Re-referral) in accordance with Lee et al. (2005) findings. Similarly to Badgley and Furnal's (1961) findings there was an association between the patients that declined to divulge their ethnicity at referral who demonstrated subsequent higher levels of DNA intimating an association to ethnicity. With regards to referral source there are significantly lower levels of DNAs for patients that self-refer as opposed to those that are referred by a clinician. When I examined the effect on DNA rates caused by the distance or proximity to the closest therapy venue I discovered that patients that were closer to the venue had higher DNA rates than those that had to travel a further distance (This association was not found when this predictor was put into the model). This was in contrast to some of Lee et al. (2005) findings where they found that DNA rates were higher for the group 6 to 14 km (39%) distance to the venue when compared against a group of patients that were less than 6 km (37%) from the location. However for patients that were further than 14 km from the venue the DNA rate dropped to 24% in the same way as demonstrated in our results. In concordance with Waller and Hodgkin (2000) findings, patients that were registered at surgeries that were located in areas of higher deprivation had a tendency to DNA more than those patients from surgeries from more affluent areas. There was an increase in the level of DNAs associated with the time a patient had to wait for their initial appointment, those that had a longer wait time between referral and the decision to offer the initial assessment were more likely to DNA than those that had a shorter or instant offer of therapy. Lacy et al. (2005) found a similar association with an increase in DNA rates seen when there were longer waiting times. With regards to surgery characteristics, the number of clients eligible for the service (over 16) per GP saw lower levels of DNAs for the GPs that had higher number of patients. Finally I observed that patients that were registered at surgeries that had a lower number of their patients that would recommend the surgery to others had higher levels of DNA

2.4.3 Engagement

Of all the analysed variables the most predictive was that of age. As the patients in the dataset moved up through each of the five categories, the mean level of engagement rose by 2.2% when controlling for other factors, from a group mean of 51.7 in the youngest category to a mean of 60.5 in the 60+ category. Deprivation was also found to be a significant predictor of engagement with each step up the decile the mean level of engagement increased. For employment status, the dummy variables for unemployed, long term sick, retired and not seeking work were all found to be not statistically significant. However, when controlling for all other factors, students were found to be engaging at a level of 1.5% less than the baseline of the "In work" group. Finally, with regards to employment status, it was noticeable that the group of "Unknown or not stated" were found to engage at a mean level of 8.7% less than those from the baseline group of "In work", when other factors were controlled. (In subsequent descriptions, below, controlling for other factors can be assumed). The PHQ-9 first contact score was found to be significant also, with each incremental increase up the 27 point scale producing a mean decrease in engagement level of 0.1%. For the category of psychotropic medicine it was found that the group for patients "Prescribed and taking" were found to be not significantly different from the baseline category of "Not prescribed". However, for the patients in the "Prescribed but not taking" category, these were seen to have a mean level of a 2.5% lower engagement rate with the therapy. Once again those patients that were “Unknown or declined to say” demonstrated a statistically significant difference from the baseline category with a 4.8% lower level of engagement. For referral source, it was seen that self-referral patients were seen on average to engage at a 1.5% higher level than the baseline GP referral group. Both “Secondary care” and the “Other” referral groups were found to be not significantly different from the baseline GP referral group. When measured against the baseline category of the first step at which the patient enters the service at level two, all three of the other categories were found to demonstrate a significantly higher average engagement level percentage, step one at 10.9% higher, step three at 4.7% higher and finally step four. The last significant predictor variable identified was that of the time between referral received and decision to treat by the service. Here it was identified that for each day longer a patient waits for the decision to treat they then engage at a higher level increasing by 0.58% per day.

2.4.4 Summary

The identification of the predictors for referral rates, attendance and engagement may enable IAPT services to increase equitable engagement across demographic groups, as the initial policy required. The implications and recommendations for these services, with regards to the predictors, will be examined in more depth in chapter 6 of this thesis. Whilst the predictors may help the further development of IAPT services, the introduction of Payment by Results (PBR) in April 2018 has resulted in further unanswered questions around predictors of suitability for potential IAPT service users. The following chapter will endeavour to explore this new component of the IAPT provision and explore the alternative options for measuring successful or unsuccessful patient interactions.

2.4.4.1 Limitations: One of the major limitations of this analysis was the quality of data examined. As the data set obtained was from the embryonic start up era of the IAPT service examined, and before the minimum data set was confirmed, the data collected initially was missing data. However there appears to be an improvement in the data recorded as the service matured. I chose to investigate the missing data as a variable in some cases with interesting results for both ethnicity, employment and medication use. Another limitation was the anonymised nature of the data recording. This prevented exploration of predictors for returning patients. Final limitations are the generalisability and the lack of other variables that could be included.

CHAPTER III

3.1 Evaluation of Outcomes in IAPT

This chapter will explore the success rate of NE Essex IAPT service, Health in Mind, covering the period from 03/01/2009 to 14/12/2012. I will assess the ability of the service to deliver equitable therapeutic interventions outcomes across different demographic groups and also identify predictors of successful outcomes.

3.1.1 IAPT assessment criteria and payment by results

Most developed countries have implemented some form of prospective payment to encourage efficient provision of care, differentiating payments using local variants of Diagnosis Related Groups (DRGs) such as the Healthcare Resource Groups (HRGs) used in England (Grašič, Mason, & Street, 2015). In 2017 NHS England and NHS Improvement (NHS England and NHS Improvement B, 2017) issued a detailed guidance document titled “Developing an outcomes-based payment approach for IAPT services.” The guidance document was created to support commissioners and providers to implement an outcomes-based payment approach for IAPT services. It followed NHS Improvement’s publication of the 2017/19 National Tariff Payment System (2017/19 NTPS) (NHS England and NHS Improvement A, 2017). The rationale for this decision was to increase efficiency, clinical outcomes and patient centred services (Horton, 2007). The government document states that payment linked to quality and outcome measures can better support greater accountability and transparency in patient outcomes in the mental health sector. It can also better help patients make meaningful choices between available providers. The report states that through incentivising the delivery of effective, evidence-based treatments an outcomes-based approach has the potential to bring about widespread quality and efficiency improvements (Taunt, Allcock, & Lockwood, 2015). A mental health clustering tool, which classifies individuals into clusters based on service needs, was developed as a broad-based means of planning care packages (Lee et al., 2013). When entering into the care of an NHS mental health service the patient will be clustered according to perceived need into one of twenty one treatment clusters, each with a different tariff. The government document (NHS England and NHS Improvement B, 2017) mandated the use of an outcomes-based payment model for IAPT services from 1 April 2018. An outcomes-based payment approach consists of both a basic service price component reflecting activity and also an outcomes payment component: based on the performance of the service against outcome measures (Figure 3.1).

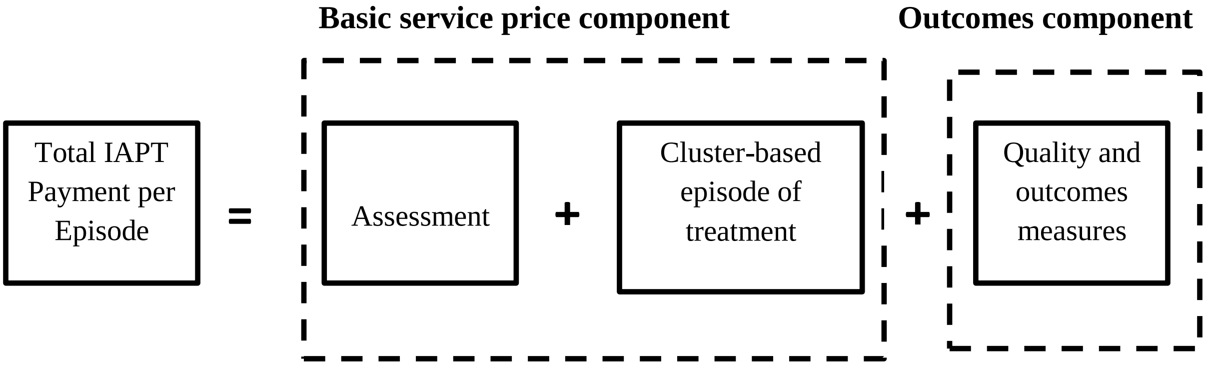

Figure 3.1 An overview of the IAPT payment approach (NHS England and NHS Improvement B, 2017)

As outlined in diagram 3.1 the PBR payment falls into two areas the activity component and an outcomes component. The activity component incorporates discrete payments for both initial assessment of a service user and the episode of treatment provided. It focuses on the severity and complexity of the needs of the patient and should support delivery of evidence-based episodes of treatment. For the outcomes component payment is based on data for the ten national quality and outcome measures captured as part of an episode of treatment.

IAPT treatment programmes are intended to aid clinical improvement and social inclusion, including return to work, meaningful activity or other occupational activities. This therefore requires the service to collect routine sessional clinical, social, employment and patient experience data as part of a provider's submission to the IAPT minimum dataset (MDS). There are ten quality outcomes measures within the MDS. These are; waiting times, access by Black Asian and minority ethnic (BAME), over 65s, specific anxieties, self-referral, clinical outcomes, reduced disability and improved wellbeing, employment and patient experience. These outcomes are summarised in table (Table 3.1). During development of these measures, nominal weights were assigned for each of them along with nominal targets (figure 3.2)

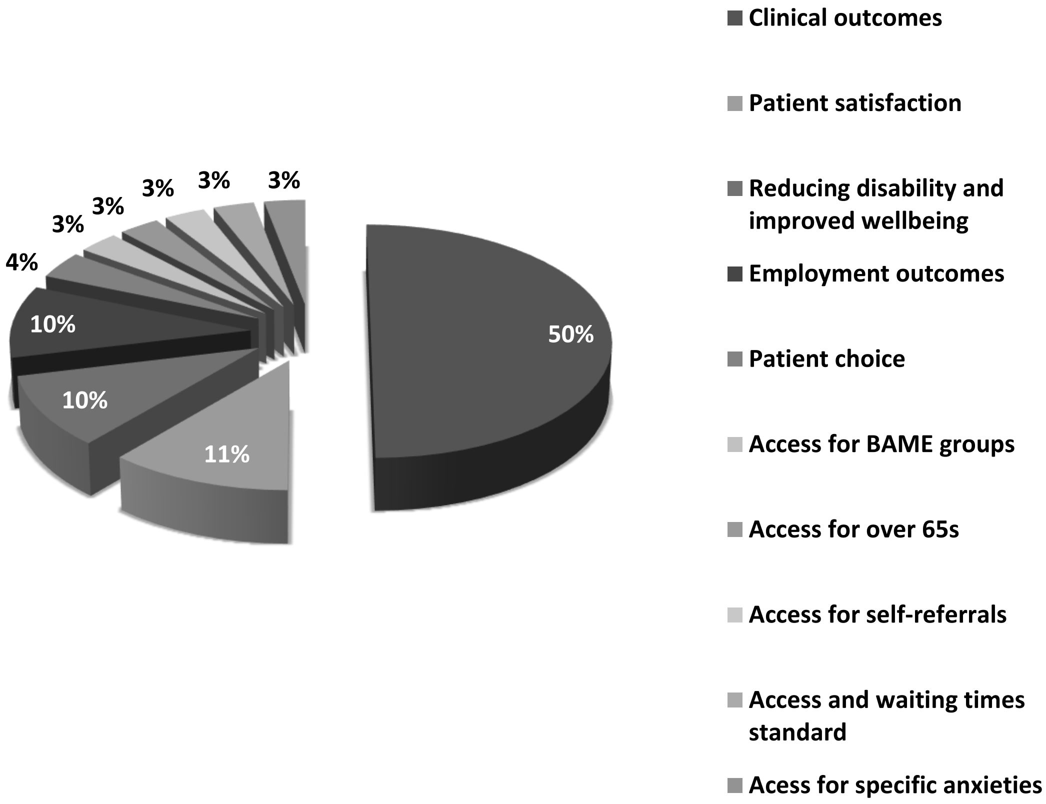

Figure 3.2 - Nominal weightings of the ten outcomes comprising the outcomes element

Table 3.1 – Ten outcomes components for payment by results within the minimum data set

Measure	Weighting	Level	Source	Expected performance	Business rules
Waiting time standard	To be determined locally	Calculated at service level	IAPT MDS	In line with national standards	No payment for partial achievement
BAME access	To be determined locally	Calculated at service level	IAPT MDS	Locally agreed threshold	No payment for partial achievement
65+ access	To be determined locally	Calculated at service level	IAPT MDS	Locally agreed threshold	Pass/Fail
Self-referral	To be determined locally	Calculated at service level	IAPT MDS	Locally agreed threshold	Pass/Fail
Specific anxieties	To be determined	Calculated at service	IAPT MDS	Locally agreed	Pass/Fail
Clinical outcomes	To be determined locally	Calculated at patient level	Disorder specific clinical assessment scales	In line with disorder-specific clinical assessment scales	Must be statistically reliable change Partial compliance rewarded as per scale of movement towards clinical recovery
Reduced disability and improved wellbeing	To be determined locally	Calculated at patient level	WSAS	Statistically reliable movement towards wellbeing	Must be statistically reliable change. To be rewarded as per scale of movement towards wellbeing
Employment	To be determined locally	Calculated at service level	IAPT MDS	Locally agreed level of net movement towards employment	Partial compliance rewarded in line with level of performance
Choice	To be determined locally	Calculated at service level	IAPT PEQ	Locally agreed level of performance	Pass/Fail
Satisfaction	To be determined locally	Calculated at service level	IAPT PEQ	Locally agreed level of approval	Pass/Fail

#

The focus of this chapter will be on the clinical outcomes for both Depression and Generalised Anxiety Disorder from the dataset for the North East Essex IAPT service. To assess depression IAPT services utilise the nine point Patient Health Questionnaire PHQ-9 (Kroenke, Spitzer, & Williams, 2001) and for Generalised Anxiety Disorder the seven question GAD-7 (Spitzer, Kroenke, Williams, & Löwe, 2006). A quantitative assessment of the outcome of treatment is based on comparison of the pre and post scores on the relevant clinical scale. A change from one occasion to another is only considered statistically reliable if it exceeds the measurement error. The amount of change a patient needs to show on these measures for the improvement to be deemed statistically reliable is shown in Table 3.2.

Table 3.2 - Standardised clinical assessment scales for success criteria

Measure	Disorder	Range of scale	Caseness[1]	Statistically reliable change
PHQ-9	Depression	0 -27	10	≥ 6
GAD-7	Generalised Anxiety Disorder	0 -21	8	≥ 4

However the IAPT services do not rely on statistically reliable change in their assessment of treatment outcomes. Recovery is classified as simply moving a service user from a score at or above caseness on the PHQ-9 and/or the GAD-7 at the first appointment, to a score below caseness on both the PHQ-9 and the GAD-7 at the last appointment. Other clinical outcomes, such as the Work and Social Adjustment Scale, are used to monitor change, but not to calculate recovery.

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[1] Below this score is deemed to not be clinically significant

The IAPT payment method rewards the clinical outcome at the service user level. It also reflects a focus on reliable change, and remuneration is only triggered if the amount of improvement surpasses the minimum that would be considered statistically reliable. Therefore the size of the payment will then be contingent on how far the person has progressed towards recovery. Firstly, if a service user achieves statistically reliable change and recovers then the full clinical outcomes payment is awarded. Secondly, if a patient achieves statistically reliable change but does not recover, the following formula is used to determine what proportion of the payment for clinical improvement should be awarded:

$$\frac{pre\ score - post\ score}{pre\ score - caseness}$$

If a service user has both depression and an anxiety condition, meaning that they are above caseness on the PHQ-9 scale and the GAD-7 anxiety scale, then the improvement/recovery (or not) in both are taken into account in the calculation of payment.

3.1.2 Payment by results in IAPT services and alternative success assessment criteria

Since the proposal of the move to a PBR system there has been some expression of concern regarding this format of mental health care delivery with apprehension that financial incentives change behaviour (Yeomans, 2014). Individuals and organisations engaged may change in an attempt to maximise their financial remuneration, this is referred to as “gaming”. General practitioner commissioners have protested that trusts in acute physical care “game” their PBR results (Vize, 2013). An example of this can be seen whereby some trusts that were facing financial penalties for failing to adhere to a 4-hour waiting target in accident and emergency (A & E) departments apparently made new patients wait outside in ambulances so as to delay the actual entry to A & E, when the clock starts ticking on the target (Watts, 2012). Another form of gaming that could potentially be utilised by services is that of up-coding. In a PBR mental health service the clinician is regularly assessing the cluster of the patient, and is therefore assigning a price. Practitioners may tweak their patient’s ratings up a bit to move them to a higher paying cluster, with potentially this becoming easier for a practitioner over time as they become more au-fait with the idiosyncrasies of the clustering algorithm (Yeomans, 2014). Equally, services could hypothetically reorganise their provision to only include simple and/or predictable cases that bring in steady income, this is sometimes called "cream-skimming". This practice leaves patients with more complex presentations (and higher financial risks) with less input, this is termed "dumping". Potentially organisational and clinical entrepreneurs may use the PBR system to their advantage therefore it is imperative that there are clear quantifiers of patient benefit and harm to ensure patients do not miss out. One possible way to challenge the current PBR framework might be to look at alternative modes of measuring recovery.

In the following section I will outline alternative methods of measuring therapeutic outcomes. This will include a description of the method proposed by Jacobsen and colleagues (Jacobson, Follette, & Revenstorf, 1984; Jacobson & Revenstorf, 1988; Jacobson & Truax, 1991). Jacobsen-Traux's method proposes two criteria to ascertain whether or not the change experienced by the client reaches the level of clinical significant. They are clinically significant change (CSC) and reliable change index (RCI). To fully understand these methods it is imperative to look at the premise of cliical significance. Clinical significance has been postulated by many researchers as a necessary criterion for evaluation of psychotherapy (Clark et al., 2009; Kazdin, 2011; Kendall, 1982). However there is little coherence or consensus as to what constitutes clinical significance in psychotherapy, with the idea being poorly defined and decidedly subjective. According to Risley (1970) clinical significance assesses the practical value of the effect of an intervention, does the intervention make a real difference in everyday life to the clients or to those around them that interact with them daily. Kazdin and Wilson (1978) defined clinical significance change as an improvement in the client's everyday functioning, whilst Hugdal and Ost (1981) saw it as a large proportion of clients improving. Other views include a change that is large in magnitude (Barlow, 1981) and the client needs to achieve normative levels of functioning by the end of treatment (Kendall, Flannery-Schroeder, & Ford, 1999; Nietzel & Trull, 1988).

The goal of this chapter is to analyse IAPT outcomes data employing Jacobsen and Truax's CSC and RCI criteria and then compare these results against the currently used IAPT definition of an outcome measure.

To help comprehend the theory of clinical significance, and the many definitions hypothesised around it, it is imperative to understand the concept of social validation (Wolf, 1978). Wolf states that social validity is a term coined by behavioural analysis to refer to the social importance and acceptability of treatment goals, procedures and outcomes. It incorporates ways in which evaluation of the effects of an intervention produce changes of applied or clinical meaning. Two of these methods of evaluation are social comparison (Kazdin, 1977) and also subjective evaluation (Wolf, 1978). Kazdin's (1977) social comparison model reflects on comparing the behaviour of the client both before and after the treatment in direct comparison to the behaviour of normal peers. So the question asked would be whether the client's behaviour is distinguishable from the behaviour of their peer group. Therefore the hypothesis is that if socially valid or clinically significant changes occur due to the observed intervention then the client's post intervention symptomology will be indistinguishable from the peer reference group.

The most widely practiced social comparison method is the one developed by Jacobsen and colleagues initially in 1984 and then revised by Jacobsen and Revenstorf (1988), Jacobson and Truax (1991) and Jacobson and colleagues (1999). It has become to be reffered to as the Jacobsen-Traux method for assessment of clinical significance. This method postulates that clinical signicance can be determined by the client's score at post treatement falling within the functional poplualion as opposed to the dysfunctional one. Despite being the most commonly used method the Jacobsen-Traux method has not been without criticism with the most common critiscism being that this criteria does not allow for measure error nor does it take into account regression to the mean (Hollon & Flick, 1988; Lunnen & Ogles, 1998; Tingey, Lambert, Burlingame, & Hansen, 1996a, 1996b; Wampold & Jenson, 1986). Jacobsen-Traux reponded to these criticisms by refining the method, however they did point out that the method was only as good as the outcome measures available (Jacobson et al., 1984). There have been other methods proposed to measure clinical significant change (Hageman & Arrindell, 1999; Hsu, 1989; Nunnally & Kotsch, 1983; Speer, 1992) however Ogles Lunnen and Bonesteel (2001) reported that 35% of studies reporting on clinical significance in the Journal of Consulting and Clinical Psychology over a nine year period had used Jacobsen-Traux's methodology or a close variation of it.

3.1.2.1 Reliable Change Index (RCI): The first of Jacobsen-Traux's proposed criteria is that of Reliable Change Index (RCI). This criteria is used to establish whether or not change is large and clinically significant enough to be thought as meaningful. The formula for calculating RCI are (Figure 3.4);

Figure 3.4 - Calculation of RCI

$\boldsymbol{RCI = \frac{X_2 - X_1}{S_{diff}}}$ $\boldsymbol{x_1}$ = Client's pre-test score, x_2 = Client's post-test score.

$\boldsymbol{S_{diff} = \sqrt{2(S_E)^2}}$ $\boldsymbol{S_{diff}}$ = Standard error of difference between the two tests

$\boldsymbol{SE_m = S_{1\sqrt{1-rxx}}}$ $\boldsymbol{SE_m}$ = Standard Error of Measurement. $\boldsymbol{S_1}$ = SD of the normal (functional) population, *rxx* = Internal consistency of the measure.

Jacobsen et al. (1984) recommended utilising a test-retest reliability coefficient in their originally proposed formula. In contrast to this several authors have encouraged the use of the internal reliability coefficient alpha (Evans, Margison, & Barkham, 1998; Martinovich, Saunders, & Howard, 1996; Tingey et al., 1996a) suggesting that the issue with the test-retest coefficient being used is that in cases where the construct being measured can change over a period of time this may cause an underestimation of the real measure of reliability. Therefore in light of the fact that the PHQ-9 and GAD-7 are measures of depression and anxiety, both constructs that change over a period of time, the internal consistency coefficient was employed. If the RCI found for each client in the test is larger than + / - 1.96 it is concluded with a 95% probability ($p < .05$) that a change has occurred.

A further way of assessing if the size of change achieved by the client is reliable is by determining a general reliable change index. This index measures the number of points required in a given measure (e.g., PHQ-9) a client needs to move (pre/post treatment) to demonstrate reliable improvement or indeed reliable deterioration. This is calculated using the formula below;

$\pm 1.96 \times \boldsymbol{S_{diff}}$

3.1.2.2 Clinically Significant Change (CSC): The second proposed criteria by Jacobson and colleagues were the proposed use of standardised criteria for determining the percentage of the clients demonstrating a return to the normal level of indicative functioning. Therefore they propose that clinical significance will have been realised if the client’s outcome scores drops into the normal population range of function after the clinical intervention. So their proposal was an index of clinical significance whereby treated clients are evaluated in terms of whether their post intervention scores can be considered to be in either a functional or dysfunctional population. This proposal was broken down onto three separate criteria and the selection of the most efficient criteria is reliant upon what data is available.

3.1.2.1 Criterion “a”: For this criterion a clinically significant change is attained when at post-test the client’s level of functioning falls outside the range of the dysfunctional population. Jacobsen and colleagues (1984) defined the range as being two standard deviations beyond the mean of the dysfunctional population. They stated that a subject who was two standard deviations past the mean of a dysfunctional population ($p < .05$) is unlikely to be dysfunctional. The equation for a positive instrument is below;

a = $\boldsymbol{M_1} + \mathbf{2}\boldsymbol{s_1}$ M_1 = Mean dysfunctional**,** s_1 = SD dysfunctional

For a negative measure the formula is changed to below;

a = $\boldsymbol{M_1} - \mathbf{2}\boldsymbol{s_1}$

3.1.2.2 Criterion "b": In contrast this criterion is achieved when post-test the client's level of functioning falls within the range of the functional population, where range is defined by extending two standard deviations below the mean of the normal population (Jacobson et al., 1984).

$\boldsymbol{b} = \boldsymbol{M_0} + 2\boldsymbol{s_0}$

$\boldsymbol{M_0}$ = Mean functional

$\boldsymbol{s_0}$ = SD functional

The above equation is correct when utilising an instrument that is positive, when working with negative instruments the equation used is as below.

$\boldsymbol{b} = \boldsymbol{M_0} - 2\boldsymbol{s_0}$

3.1.2.3 Criterion "c": This criterion is applicable when the client's post test score is more likely to have come from the functional population group as opposed to the dysfunctional one. It is believed to be the optimum method. However to utilise this criterion two conditions are required to be met. One, the distributions must meet the criteria for normality and two the norms for both the functional and dysfunctional populations are required. The formula for calculating the cut-off point is below;

$$c = \frac{s_0 M_1 \;\; + s_1 M_0}{s_0 + s_1}$$

$M_0 + s_0$ = Mean and SD of the functional population

$M_1 + s_1$ = Mean and SD of the dysfunctional population.

3.1.2.3 Determining which criteria and norms to utilise: Criterion “a” is recommended to be selected when there are no norms for well-functioning people available to employ. Without such information to guide me as to how functional people perform on a variable interest, I have the dysfunctional sample only to use in calculating cut off points for clinically significant change. Criterion “b” this criterion is of value when normative data is available for the functional population. This cut off point gives the advantage that the value does not vary depending on the level of dysfunction within the dysfunctional sample and therefore allows for comparisons to be made across multiple studies. Criterion “c” this is the optimum cut off point as it estimates a point between “*a*” and “*b*” as it takes into account both populations, both functional and dysfunctional. This criterion should be used when the populations overlap.

Mitchell and colleagues (2016) carried out a diagnostic meta-analysis of 40 cross-sectional validation studies of PHQ-9 as a screening tool to identify major depressive disorder. This was to determine clinical utility of the PHQ-9 scale. In their conclusions they posited that their findings emphasised the importance of being cautious when selecting a specific cut off score. They found that PHQ-9 has diagnostic properties for a range of cut off scores between 8 –11. In fact there were no significant differences in sensitivity or specificity at a cut off score of 10 when compared to other cut off scores within this interval (8 – 11). These findings emphasise the need for using caution when setting an external cut off score.

The primary goal of this chapter is to calculate treatment outcomes for the IAPT data across three different assessment criteria, IAPT, CSC and RIC. The secondary goal is to consider the variables that may predict treatment outcomes. All the predictors analysed are from both the demographic and the service related variables described in chapter two.

3.2 Method

3.2.1 Database restructuring for outcomes analysis.

All analysis employed the IAPT dataset provided by the service and described in chapter 2.

3.2.1.1 IAPT criteria restructuring: For the restructuring of the original data set to assess recovery rates using the existing IAPT criteria I used the dataset that I had created for all patients that had attended at least one session once offered by the service. Some restructuring of the dataset was required in order to calculate the IAPT success criteria. The original dataset held 12,658 participants. I first removed all patients that did not have a score on either the PHQ-9 or the GAD-7 scales, or both, that was above caseness (PHQ-9 > 9 or GAD-7 > 7). I then omitted all cases that did not have the last session scores recorded; this reduced the dataset down in size from its original size of 12,658 to 6,133. From here a “Success” variable was created where a success was recorded if both the following conditions were met PHQ-9 < 10 and GAD-7 <8.

3.2.1.2 CSC criteria restructuring: To assess success against clinically significant change as defined in Richards and Borglin’s (2011) paper a success can be recorded where the PHQ-9 had to be at 9 or above pre-treatment and then be 8 or below post. For the GAD-7 the scores were required to be 10 or above pre-treatment and 9 or below post. Therefore all patient scores that were outside of these parameters were removed from the data set resulting with a total remaining figure of 4830 participants.

3.2.1.3 RIC criteria restructuring: For a success to be noted under reliable improvement according to Richards and Borglin the PHQ-9 had to improve by 6 points or more and the GAD-

7 by 5 points or more. For the purposes of comparison I utilised the same dataset as CSC but removed any scores that would be unable to achieve success (PHQ-9 < 6, GAD-7 < 5) resulting in a total figure of 4710. For all three assessment groups I used the success on both mood scales as criteria for being an overall success for the patient (Table 3.3).

3.2.2 Predictors of outcomes.

Having calculated three separate indices of success for each service user, represented by a dichotomous variable (success yes/no), the next stage of analysis was to examine predictors of success across these indices. I identified predictor variables for success or failure of the therapeutic interventions by running a multiple binary logistic regression (non-dichotomous categorical variables were dummy coded) using the same predictor variables that I utilised in chapter two. I did this for each of the three sets of criteria. I then removed all the non-significant variables from the model. This left the independent variables of gender, age, deprivation level of surgery address, employment status, referral source, referral history, PHQ-9 first score, GAD-7 first score and finally the level of engagement/attendance. I then re-ran the binary logistic regression for each indices.

Table 3.3 - Success and data exclusion criteria

	Starting criteria	**Criteria to achieve a successful intervention**	**Notes for exclusion from analysis**	**Number of cases analysed**
IAPT success criteria	Must have either a PHQ-9 > 9 and/or a GAD-7 > 7	Must record final score of PHQ-9 < 10 and GAD-7 < 8	Excluded all cases that did not meet the starting criteria and any cases missing final session scores	6133
CSC success criteria	Must have either a PHQ-9 = 9 or above and/or a GAD-7 = 10 or above	Must record final score of PHQ-9 = 8 or less and GAD-7 = 9 or less	Excluded all cases that did not meet the starting criteria and any cases missing final session scores	4830
RIC success criteria	No stated starting criteria. Used all cases above PHQ-9 score of 5 and above the GAD-7 score of 4 and above.*****	Must improve PHQ-9 score by 6 points or more and improve the GAD-7 score by 5 points or more	Excluded all cases that did not meet the starting criteria and any cases missing final session scores	4710

*If PHQ-9 < 6 and/or GAD-7 < 5 it is impossible to achieve a successful outcome with this criteria.

3.3 Results

3.3.1 Outcomes analysis

Each of the three success criteria had a separate multiple logistic regression employed results can be seen in tables 3.4, 3.5 and 3.6.

When utilising the IAPT criteria (table 3.4) to assess treatment outcomes it was found that there was no significant effect of gender. Similarly the variable of age was not significant however there was a positive association with age, the older the patient the higher percentage achieved success. There was not a significant effect of the level of deprivation for the area that the patient's surgery was in, however, the more deprived areas did show a lower success rate. When compared to the baseline category of "In work" the categories of students, the long term sick, "not seeking" and "not known" were significantly less likely to have a successful outcome. Both of the psychometric mood scales (PHQ-9 and GAD-7) found significantly improved chance of achieving success for all the categories except for the category of minimal against the baseline of moderate. This can be explained by the criteria used to assess success currently by IAPT services. Finally the more engaged the patient was the better outcomes they achieved. For CSC (table 3.5) mostly the same variables were found to be significant as in the IAPT criteria analysis. However the GAD-7 was not found to be significant. The final analysis, RIC (table 3.6), found the unemployed, students, the long term sick and the participants not seeking work to be significantly less likely to achieve success when compared to the baseline category of "in work". It was also found again that the higher level of engagement led to a better success rate. Finally there was a significantly higher chance of achieving a successful outcome if the patient entered the service with a severe level of anxiety, something not found in the other analyses.

Table 3.4 - Predictors for successful outcomes utilising IAPT criteria N = 6133 (part one)

Predictor variable	**Baseline characteristic**	**% patients in category**	**% success within category**	***p* value**	**β**	***df***	**99% CI for adjusted odds ratio (lower & upper limits)**
Gender	Male	33.3	37.8	-	-	-	-
Female		66.7	37.9	.381	1.058	1	.896 - 1.250
Age in bands	16-24	15.9	32.9	.204	1.033	1	.967 – 1.103
Age 25-34 years		21.9	37.0	-	-	-	-
Age 35-44 years		23.9	37.5	-	-	-	-
Age 45-59 years		27.0	37.6	-	-	-	-
Age $\geq$ 60 years		11.3	47.9	-	-	-	-
Deprivation decile	Decile 1-2	10	31.3	.188	.983	1	.950 – 1.017
Decile 3-4		11	37.6	-	-	-	-
Decile 5-6		32.5	39.2	-	-	-	-
Decile 7-8		27.1	41.4	-	-	-	-
Decile 9-10		19.4	38.3	-	-	-	-
Employment	In work	33.1	45.4	-	-	-	-
Unemployed seeking		16.9	41.1	.019	.818	1	.655 – 1.020
Students		21.1	24.7	≤ .001	.471	1	.377 - .588
Long term sick		7.8	28.0	≤ .001	.545	1	.399 – .745
Not seeking		19.3	41.1	.004	.774	1	.618 - .970
Retired		1.0	42.2	.365	.781	1	.386 – 1.578
Not known/Stated		0.8	18.4	.006	.325	1	.113 - .934
Referral source	GP	53	37.9	-	-	-	-
Self (i.e., patient)		41.1	39.8	.734	1.021	1	.871 – 1.197
Secondary care		2.3	26.6	.022	.620	1	.362 - 1.063
Other source		3.5	23.0	≤ .001	.482	1	.300 - .775
Referral history	New referral	79.7	38.9				
Re-referral		20.3	33.9	.342	.930	1	.765 – 1.131

Table 3.4 - Predictors for successful outcomes utilising IAPT criteria N = 6133 (part two)

Predictor variable	**Baseline characteristic**	**% patients in category**	**% success within category**	***p* value**	**β**	***df***	**99% CI for adjusted odds ratio (lower & upper limits)**
Psychotropic Med	Not Pres.	5.9	39.0	-	-	-	-
Pres. not taking		51.2	35.1	.862	.978	1	.704 – 1.358
Pres. Taking		39.6	40.9	.813	1.031	1	.740 – 1.436
Unknown/Declined		3.2	42.4	.272	1.245	1	.745 – 2.079
PHQ-9	Moderate	26.2	47.8	-	-	-	-
Minimal		1.8	62.5	.004	1.848	1	1.064 – 3.211
Mild		9.9	59.7	≤ .001	1.639	1	1.253 – 2.146
Mod. Severe		32.1	35.3	≤ .001	.689	1	.567 - .837
Severe		30.0	22.9	≤ .001	.418	1	.335 - .522
GAD-7	Moderate	34.2	44.3	-	-	-	-
Minimal		1.4	55.8	.002	2.083	1	1.116 – 3.889
Mild		12.2	54.1	≤ .001	1.551	1	1.218 – 1.974
Severe		52.2	29.4	≤ .001	.732	1	.614 - .871
Engagement	Less 25%	4.1	14.6	≤ .001	2.196	1	1.993 – 2.420
26 – 50%		31.3	21.8	-	-	-	-
51- 75%		38.5	41.4	-	-	-	-
76 – 100%		25.1	56.2	-	-	-	-

Table 3.5 **-** Predictors for successful outcomes utilising clinically significant change criteria N = 4830 (part one)

Predictor variable	**Baseline characteristic**	**% patients in category**	**% success within category**	***p* value**	**β**	***df***	**99% CI for adjusted odds ratio (lower & upper limits)**
Gender	Male	33.3	35.2	-	-	-	-
Female		66.7	34.0	.861	1.013	1	.839 – 1.223
Age in bands	16-24	16.2	30.3	.248	1.034	1	.960 – 1.114
Age 25-34 years		22.2	34.2	-	-	-	-
Age 35-44 years		23.9	33.8	-	-	-	-
Age 45-59 years		27.4	34.0	-	-	-	-
Age ≥ 60 years		10.3	44.0	-	-	-	-
Deprivation decile	Decile 1-2	10.4	29.2	.198	.981	1	.945 – 1.019
Decile 3-4		11.2	34.6	-	-	-	-
Decile 5-6		32.2	36.1	-	-	-	-
Decile 7-8		27.0	37.2	-	-	-	-
Decile 9-10		19.1	34.1	-	-	-	-
Employment	In work	32.1	42.7	-	-	-	-
Unemployed seeking		16.4	36.1	.001	.724	1	.561 - .934
Students		22.9	23.4	≤ .001	.479	1	.375 - .612
Long term sick		8.1	25.0	≤ .001	.518	1	.363 - .738
Not seeking		18.7	36.7	.006	.760	1	.588 - .982
Retired		1.0	43.8	.691	.883	1	.395 – 1.976
Not known/Stated		0.8	12.5	.009	.264	1	.071 -.978
Referral source	GP	53.2	35.0	-	-	-	-
Self (i.e., patient)		40.9	35.6	.813	.984	1	.822 -1.177
Secondary care		2.4	21.2	.004	.496	1	.265 - .820
Other source		3.5	19.8	.001	.465	1	.264 - .820
Referral history	New referral	79.2	35.7	-	-	-	-
Re-referral		20.8	29.6	.127	.877	1	.703 – 1.094

Table 3.5 - Predictors for successful outcomes utilising clinically significant change criteria N = 4830 (part two)

Predictor variable	**Baseline characteristic**	**% patients in category**	**% success within category**	***p* value**	**β**	***df***	**99% CI for adjusted odds ratio (lower & upper limits)**
Psychotropic Med	Not Pres.	5.7	35.0	-	-	-	-
Pres. not taking		53.0	31.7	.877	.977	1	.669– 1.429
Pres. Taking		38.3	37.4	.764	1.046	1	.712 – 1537
Unknown/Declined		3.0	41.5	.111	1.446	1	.797 – 2.625
PHQ-9	Moderate	24.5	46.5	-	-	-	-
Mild		3.2	56.5	.029	1.499	1	.929 – 2.418
Mod. Severe		36.0	36.1	≤ .001	.681	1	.549 - .844
Severe		36.4	22.7	≤ .001	.371	1	.291 - .471
GAD-7	Moderate	36.5	41.1	-	-	-	-
Severe		63.5	30.6	.015	.841	1	.700 – 1.011
Engagement	Less 25%	4.4	12.3	≤ .001	2.175	1	1.950 – 2.425
26 – 50%		31.8	19.3	-	-	-	-
51- 75%		39.0	37.6	-	-	-	-
76 – 100%		24.8	52.6	-	-	-	-

Table 3.6 - Predictors for successful outcomes utilising reliable improvement criteria N = 4710 (part one)

Predictor variable	**Baseline characteristic**	**% patients in category**	**% success within category**	***p* value**	**β**	***df***	**99% CI for adjusted odds ratio (lower & upper limits)**
Gender	Male	33.5	41.5	-	-	-	-
Female		66.5	40.6	.638	1.034	1	.862 – 1.240
Age in bands	16-24	16.0	34.7	.565	1.016	1	.946 – 1.092
Age 25-34 years		22.0	40.6	-	-	-	-
Age 35-44 years		24.1	42.2	-	-	-	-
Age 45-59 years		27.9	41.2	-	-	-	-
Age $\geq$ 60 years		10	48.0	-	-	-	-
Deprivation decile	Decile 1-2	10.6	36.5	.513	.991	1	.955 – 1.020
Decile 3-4		11.2	41.0	-	-	-	-
Decile 5-6		32.5	41.4	-	-	-	-
Decile 7-8		27.0	42.7	-	-	-	-
Decile 9-10		18.7	43.7	-	-	-	-
Employment	In work	32.4	49.5	-	-	-	-
Unemployed seeking		16.0	41.0	$\leq$ .001	.689	1	.535 - .886
Students		23.7	31.8	$\leq$ .001	.454	1	.360 - .572
Long term sick		8.2	32.6	$\leq$ .001	.519	1	.372 - .724
Not seeking		18.0	41.6	$\leq$ .001	.673	1	.522 - .867
Retired		1.0	51.1	.702	.888	1	.399 – 1.978
Not known/Stated		0.8	16.2	.003	.243	1	.073 -.812
Referral source	GP	52.9	41.2	-	-	-	-
Self (i.e., patient)		40.9	42.0	.624	1.034	1	.868 – 1.232
Secondary care		2.6	34.7	.206	.769	1	.450 – 1.314
Other source		3.5	28.7	.003	.565	1	.344 - .929
Referral history	New referral	79.0	42.2	-	-	-	-
Re-referral		21.0	36.1	.023	.830	1	.672 – 1.025

Table 3.6 - Predictors for successful outcomes utilising reliable improvement criteria N = 4710 (part two)

Predictor variable	**Baseline characteristic**	**% patients in category**	**% success within category**	***p* value**	**β**	***df***	**99% CI for adjusted odds ratio (lower & upper limits)**
Psychotropic Med	Not Pres.	5.7	44.8	-	-	-	-
Pres. not taking		53.9	39.8	.093	.788	1	.547 – 1.136
Pres. Taking		37.3	41.3	.161	.816	1	.563 – 1.185
Unknown/Declined		3.1	48.3	.437	1.191	1	.667 – 2.127
PHQ-9	Moderate	23.7	37.3	-	-	-	-
Moderate severe		38.4	42.8	.003	1.289	1	1.034 – 1.606
Severe		37.9	41.2	.044	1.202	1	.950 -1.521
GAD-7	Moderate	33.1	37.3	-	-	-	-
Mild		4.3	27.9	.026	.674	1	.427 – 1.064
Severe		62.7	43.7	≤ .001	1.389	1	1.152 – 1.676
Engagement	Less 25%	4.4	14.6	≤ .001	2.271	1	2.043 – 2.525
26 – 50%		31.8	23.8	-	-	-	-
51- 75%		39.2	44.4	-	-	-	-
76 – 100%		24.6	62.1	-	-	-	-

For further understanding I compared the success rates achieved by all three differing criteria looking at the variable for successful outcomes against both the PHQ-9 and GAD-7 (Tables 3.7 & 3.8).

Table 3.7 - Comparison of successful PHQ-9 outcomes across all three criteria.

PHQ-9 First score category		**IAPT criteria for success N = 6133**			**CSC criteria for success N = 4830**			**RIC criteria for success N = 4710**		
		Successful Intervention	Unsuccessful Intervention	Total	Successful Intervention	Unsuccessful Intervention	Total	Successful Intervention	Unsuccessful Intervention	Total
Minimal depression	Count	**70**	**42**	**112**	**-**	**-**	**-**	**-**	**-**	**-**
	% in category	**62.5%**	**37.5%**		**-**	**-**		**-**	**-**	
Mild depression	Count	**363**	**245**	**608**	**87**	**67**	**154**	**-**	**-**	**-**
	% in category	**59.7%**	**40.3%**		**56.5%**	**43.5%**		**-**	**-**	
Moderate depression	Count	**768**	**838**	**1606**	**549**	**632**	**1181**	**416**	**698**	**1114**
	% in category	**47.8%**	**52.2%**		**46.5%**	**53.5%**		**37.3%**	**62.7%**	
Moderately severe	Count	**695**	**1272**	**1967**	**627**	**1112**	**1739**	**775**	**1035**	**1810**
	% in category	**35.3%**	**64.7%**		**36.1%**	**63.9%**		**42.8%**	**57.2%**	
Severe depression	Count	**422**	**1418**	**1840**	**399**	**1357**	**1756**	**736**	**1050**	**1786**
	% in category	**22.9%**	**77.1%**		**22.7%**	**77.3%**		**41.2%**	**58.8%**	
Total	Count	**2318**	**3815**	**6133**	**1662**	**3168**	**4830**	**1927**	**2783**	**4710**
	% in category	**37.8%**	**62.2%**		**34.4%**	**65.6%**		**40.9%**	**59.1%**	

Table 3.8 - Comparison of successful GAD-7 outcomes across all three criteria.

GAD-7 First score category		**IAPT criteria for success N = 6142**			**CSC criteria for success N = 4830**			**RIC criteria for success N = 4710**		
		Successful Intervention	Unsuccessful Intervention	Total	Successful Intervention	Unsuccessful Intervention	Total	Successful Intervention	Unsuccessful Intervention	Total
Minimal anxiety	Count	**48**	**38**	**86**	**-**	**-**	**-**	**-**	**-**	**-**
	% in category	**55.8%**	**44.2%**		**-**	**-**		**-**	**-**	
Mild anxiety	Count	**406**	**344**	**750**	**-**	**-**	**-**	**56**	**145**	**201**
	% in category	**54.1%**	**45.9%**		**-**	**-**		**27.9%**	**72.1%**	
Moderate anxiety	Count	**929**	**1170**	**2099**	**724**	**1038**	**1762**	**581**	**976**	**1557**
	% in category	**44.3%**	**55.7%**		**41.4%**	**58.9%**		**37.3%**	**62.7%**	
Severe anxiety	Count	**943**	**2264**	**3207**	**938**	**2130**	**3068**	**1290**	**1662**	**2592**
	% in category	**29.4%**	**70.6%**		**30.6%**	**69.4%**		**43.7%**	**56.3%**	
Total	Count	**2326**	**3816**	**6142**	**1662**	**3168**	**4830**	**1927**	**2783**	**4710**
	% in category	**37.9%**	**62.1%**		**34.4%**	**65.6%**		**40.9%**	**59.1%**	

To enable a more equitable comparison I then restructured the IAPT database again. I utilised the same exclusion criteria used for the RIC of removing all cases of minimal and mild depression

PHQ-9 < 10 and all GAD-7 scores < 8. Once these cases were removed this also had the effect of removing all of the category of mild anxiety (GAD-7 < 6). I then re-computed success rates for the IAPT success assessment models using this database for the PHQ-9 (Table 3.9) and the GAD-7 (Table 3.10).

Table 3.9 - Comparison of successful PHQ-9 outcomes across all three criteria excluding minimal and mild categories

PHQ-9 First score category		**IAPT criteria for success N = 4710**			**CSC criteria for success N = 4830**			**RIC criteria for success N = 4710**		
		Successful Intervention	Unsuccessful Intervention	Total	Successful Intervention	Unsuccessful Intervention	Total	Successful Intervention	Unsuccessful Intervention	Total
Moderate depression	Count	**490**	**624**	**1114**	**-**	**-**	**-**	**416**	**698**	**1114**
	% in category	**44%**	**56%**		**-**	**-**		**37.3%**	**62.7%**	
Moderately severe	Count	**619**	**1191**	**1810**	**724**	**1038**	**1762**	**775**	**1035**	**1810**
	% in category	**34.2%**	**65.8%**		**41.4%**	**58.9%**		**42.8%**	**57.2%**	
Severe depression	Count	**401**	**1385**	**1786**	**938**	**2130**	**3068**	**736**	**1050**	**1786**
	% in category	**22.5%**	**77.5%**		**30.6%**	**69.4%**		**41.2%**	**58.8%**	
Total	Count	**1510**	**3200**	**4710**	**1662**	**3168**	**4830**	**1927**	**2783**	**4710**
	% in category	**32.1%**	**67.9%**		**34.4%**	**65.6%**		**40.9%**	**59.1%**	

Table 3.10 - Comparison of successful GAD-7 outcomes across all three criteria using RIC exclusion criteria database for IAPT criteria.

GAD-7 First score category		**IAPT criteria for success N = 4710**			**CSC criteria for success N = 4830**			**RIC criteria for success N = 4710**		
		Successful Intervention	Unsuccessful Intervention	Total	Successful Intervention	Unsuccessful Intervention	Total	Successful Intervention	Unsuccessful Intervention	Total
Mild anxiety	Count	**86**	**115**	**201**	**-**	**-**	**-**	**56**	**145**	**201**
	% in category	**42.8%**	**57.2%**		**-**	**-**		**27.9%**	**72.1%**	
Moderate anxiety	Count	**597**	**960**	**1557**	**724**	**1038**	**1762**	**581**	**976**	**1557**
	% in category	**38.3%**	**61.7%**		**41.4%**	**58.9%**		**37.3%**	**62.7%**	
Severe anxiety	Count	**827**	**2125**	**2952**	**938**	**2130**	**3068**	**1290**	**1662**	**2592**
	% in category	**28%**	**72%**		**30.6%**	**69.4%**		**43.7%**	**56.3%**	
Total	Count	**1510**	**3200**	**4710**	**1662**	**3168**	**4830**	**1927**	**2783**	**4710**
	% in category	**32.1%**	**67.9%**		**34.4%**	**65.6%**		**40.9%**	**59.1%**	

Table 3.11 - Summary of overall successful outcomes across the three criteria.

Criteria	% Successful outcomes including patients with initially minimal symptoms (Total N)	% Successful outcomes excluding patients with initially minimal symptoms (Total N)
IAPT	37.8% (6133)	32.1% (4710)
CSC	34.4% (4830)	34.4% (4830)
RIC	40.9% (4710)	40.9% (4710)

The percentage of "success" achieved by the IAPT service when utilising both the IAPT criterion and the CSC criterion reduces as the initial level of severity recorded at the start of therapy increases. However this is not the case for RI. When looking at the results RIC achieved success was worse at the lower levels, this is because of the nature of the criterion.

3.4 Discussion

When looking at the predictor variables for the IAPT success criteria it was observed that with regards to gender success rates were almost identical when comparing men and women. However two thirds of the dataset were female suggesting that the service was not attracting equitable numbers of men and women into the service. Across the categories of age, each increase in age band achieved a higher rate of successful outcomes. The strongest success rate was seen in the 60 years and over age group, however this was also the smallest group analysed. This highlights an area that the service might look to increase numbers of older attendees in the future, to make access more equal but to also improve success rates too. For the areas where patients were registered at a surgery in an area of high deprivation the level of successful outcomes were lower. There were poor entry to service figures from patients at the more deprived areas, again highlighting an inability to engage patients equitably by the service. Part of the ethos for setting up IAPT services in the original format was the economic benefit of the return to work of the service users after successfully completing treatment. However the most successful employment category seen when looking at predictors of success was that of “In work”. The second most successful category found was that of “retired” reinforcing the analysis of age predictors. The categories of “Long term sick” and “Students” were found to be significantly lower rates of success than the baseline “In work category”. This indicates that to date the IAPT service is not returning the “long term sick” to health at a rate similar to that of people who engaged with the service whilst employed. Therefore an economic gain will not be achieved through enable these people back into employment by returning them to health. For the predictor of referral source there was little difference between GP referral and a self-referral. However both of these categories were more successful than referrals stepped down from secondary care mental health services. The small category of other source referral was significantly poorer outcomes than the baseline of GP referral. When comparing a new referral to a re-referral it was found that there was a higher success rate for new referral however this variance was not significant. There was no significant effect found with regards to psychotropic medication however the participants that were “prescribed and taking” did achieve a higher level of success than those that were “prescribed but not taking”. For the PHQ-9 and the GAD-7 there was a significant difference seen with the lower the entry score recorded the higher the success rate achieved. Finally for the predictor of engagement there was a significant improvement seen when the participant demonstrated a higher level of engagement.

When looking at the predictors for the CSC outcome measurements there were a lot of similarities to the IAPT analysis. There was a slightly higher rate of success for men than women, however this was not significant. For the category of age, under CSC, once again the most successful group was the 60+ category. When looking at the deprivation level there was again a lower success rate in the more deprived areas. The overall findings for employment, referral and psychotropic medication did not differ to the findings in the IAPT analysis. When analysing the PHQ-9 scale, utilising the category of “moderate” as the baseline, the other categories were not found to be significant in contrast to the findings under the IAPT criteria. Similarly the category of “severe anxiety” was found not to be significant for CSC when compared to the baseline category of “moderate anxiety”, once again this was in contrast to the IAPT findings. The CSC formula for calculating success requires the database to be restructured and I subsequently lost categories for both scales (PHQ-9 = “minimal”, GAD-7 = “minimal” and “mild”). This reduction in categories may have a bearing on the change from significant to non-significant findings as a predictor. Finally the predictor variable of engagement was found to be significant, mirroring the findings under the IAPT criteria, with once again the higher the level of engagement the more successful outcomes achieved.

Finally when examining the predictor analysis data for RIC there were few differences to the other two criteria. Under employment the category “not seeking work” was found to be significant, against the baseline of “in work”, this was not the case in the other analyses. With regards to the GAD-7 the predictor of “severe anxiety” was once again found to be significant, after failing to be so under CSC.

When looking at the three criteria against total success rate when I include all datasets, even from the low level entry scores in the IAPT dataset (6133) the IAPT system records a higher level of success than CSC but is lower than RIC. If I adjust the dataset to exclude all patients with minimal symptoms the IAPT criteria drops to the least successful rate, with RIC being the most effective. Due to the fact that a successful outcome when looking at RIC is reliant on a set drop across the two psychometric scales, the higher the starting score the less percentage increase required to achieve success. For example somebody entering the service with maximum scores of PHQ-9 = 27 and GAD-7 = 21 would need to reduce scores accordingly;

Reduce PHQ-9 27 to 21 (reduction on the first score of 22%)

Reduce GAD-7 21 to 16 (reduction on the first score of 24%)

In contrast for somebody entering the service with more moderate levels of distress (i.e. PHQ-9 = 11 and GAD-7 = 9) the change needed to occur to record a successful outcome under RIC requires a higher percentage change;

Reduce PHQ-9 11 to 5 (reduction on the first score of 45%)

Reduce GAD-7 9 to 4 (reduction on the first score of 44%).

As a measurement of success RIC delivers a higher “success” rate for people who enter the service at a higher level of distress.

Now that payment by results (PBR) has been implemented across the UK IAPT services will the criteria used for outcomes be changed or will the predictor variables demonstrating a lower rate of successful outcomes start becoming excluded by inclusion/exclusion criteria? If IAPT is truly to improve access to psychological therapies will the in introduction of PBR, coupled with the awareness of predictors of success, likely to enhance or reduce the equity in the provision of service? Will financial pressures and targets influence policy decision making at these services? These are all areas for future discussion, research and reflection.

The previous chapters have concentrated on the current provision for common mental health disorders through established and formal therapeutic interventions in the NHS. As the provision of these clinical interventions becomes increasing under pressure to meet the demand of a growing population, and to also address some of the poor level of engagement seen within the analysis of the current provision, the following chapters will look into an alternative approach to treating a specific mental disorder within a particular patient group, PTSD and military veterans. The rationale for these chosen parameters was the high level of stigma felt by military veterans around mental health issues and the subsequent reluctance to engage in formal therapies.

CHAPTER IV

4.1 Group Outdoor Experiences for Military Veterans Diagnosed With PTSD: Three Preliminary Uncontrolled Trials and a Randomised Controlled Trial Exploring Peer Outdoor Exposure Therapy (POET)

Having looked at the provision of mental health services to the general population across common mental health disorders this chapter will look at a specific mental health disorder and its effects on an explicit patient group. I will look at the provision of care for military veterans with Post-Traumatic Stress Disorder (PTSD).

4.1.1 PTSD and military veterans

Military personnel are among the most at-risk populations for exposure to traumatic events and the development of PTSD (Prigerson, Maciejewski, & Rosenheck, 2001). Amongst veterans consulting specialist military mental health services in the UK, up to 76% present with PTSD (van Hoorn et al., 2013). The established psychological treatments for PTSD available through the United Kingdom National Health Service include trauma-focused cognitive behavioural therapy (TFCBT) or eye movement desensitisation and reprocessing (EMDR) (National Institute for Clinical Excellence, 2009). However outside of the UK other therapeutic protocols are utilised. The Veterans Health Administration (VHA) has launched a large scale initiative to promote prolonged exposure (PE) therapy (Peterson, Foa, & Riggs, 2011; Tuerk et al., 2011). Steenkamp et al. (2015) reviewed randomised clinical trials for psychotherapy efficacy amongst on the symptoms of military related PTSD. They assessed the effectiveness of PE and Cognitive Processing Therapy (CPT) and found them to be efficacious for some patients. Haagen et al. (2015) undertook a meta-analysis of 57 studies that used data from guideline recommended interventions (EMDR, exposure, cognitive, cognitive restructuring, cognitive processing, TFCBT and stress management therapies) finding that veterans are best served using exposure based interventions to target their PTSD. Meta-analytical studies of psychological treatment efficacy in PTSD, however, have yielded inconsistent findings. Some studies have found that psychological therapies are more effective than pharmacotherapy (Adshead, 2000), while others reveal significant PTSD resistance to psychotherapeutic treatment (Vieweg et al., 2006). However a common theoretical element of many of the therapeutic approaches in treating trauma is that the recognition and emotional engagement with traumatic memory is essential for effective processing of the event and subsequent recovery (Ehlers, Clark, Hackmann, McManus, & Fennell, 2005; Foa & Kozak, 1985; Horowitz, 1986). For example, TFCBT incorporates exposure (by recall) of traumatic memory with cognitive restructuring. EMDR similarly involves development of a mental image of the traumatic event and related negative emotions and narrative exposure therapy (NET) comprises development of a narrative of the traumatic event. PE is characterised by re-experiencing the traumatic event through remembering it and engaging with, rather than avoiding, reminders of the trauma (triggers).

Although trauma focused psychological treatments are deemed effective (Seidler & Wagner, 2006) a number of lines of evidence suggest that military veteran populations may fail to benefit due to barriers to seeking treatment that include concerns about treatment, emotional readiness, stigma and logistical issues (Forbes et al., 2010). Despite the possible need for therapeutic support many military veterans, following their initial referral to mental health support services, do not pursue the care offered (DeViva et al., 2016; Harpaz-Rotem, Rosenheck, Pietrzak, & Southwick, 2014; Milliken, Auchterlonie, & Hoge, 2007). Mental health issues may be stigmatised amongst military veterans, potentially leading to low rates of self-referral and engagement (Dickstein, Vogt, Handa, & Litz, 2010). Also military veterans referred to formal therapy may be unresponsive or fail to complete treatment (Gros, Yoder, Tuerk, Lozano, &

Acierno, 2011) leading to a lower treatment efficacy than in other trauma populations (Bradley, Greene, Russ, Dutra, & Westen, 2005). A further compounding factor in their recovery is that military veterans with PTSD tend to become isolated from other veterans because of concerns about stigmatization, thus losing military bonds and social support (Rozynko & Dondershine, 1991). Rozynko and Dondershire suggest that the restoration of the "broken" military group relationship, the development of a sense of belonging and the overcoming of the feeling of isolation are key benefits in group treatment of PTSD in military veterans. At the same time disclosure of military trauma experienced away from home to spouses, relatives and non-military friends is perceived as inappropriate and unsupported and may even exacerbate interpersonal stress (Laffaye, Cavella, Drescher, & Rosen, 2008). Bradley et al. (2005) note that even if engaged in individual therapy, military veterans may have difficulty in disclosure outside of therapy thereby limiting continued exposure and therapeutic benefit.

The following studies were designed to address these potential therapeutic obstacles by re-establishing military group bonds in a supportive and non-stigmatising setting for emotional disclosure of trauma. Furthermore, each intervention took place in an outdoor environment recognised as being conducive to improvement in mood and cognitive functioning and to establishment of military bonds. This chapter reviews evidence justifying the approach before reporting three preliminary uncontrolled studies and then subsequently a randomised controlled trial examining the efficacy of peer outdoor exposure therapy (POET) amongst veterans with PTSD.

4.1.2 Peer Outdoor Exposure Therapy

4.1.2.1 Green Exercise: Recent research suggests that exposure to a natural environment and associated "green exercise" is beneficial to mental health and wellbeing (Gladwell, Brown, Wood, Sandercock, & Barton, 2013; Pretty et al., 2007). A dose of nature (Barton & Pretty,

2010) has been demonstrated as having an immediate beneficial effect on mental health for a wide range of activities, for all age groups, both sexes, for every green environment and habitat (additional benefits are achieved with the presence of water) and for both the already healthy and the mentally ill. Ekblom-Bak et al. (2014) created the terminology non-exercise physical activity (NEPA) to highlight the benefits of daily activities such as home repair, car maintenance, gardening, bicycle rides, gathering berries of fungi and fishing. In this paper they reported that 60-year old Swedish men and women with a high level of NEPA who engaged in these activities experienced a 27% reduced the risk of first time cardiovascular disease and 30 % all-cause mortality over a 12.5 year period. Wilson (1984) proposed that these type of benefits derived from interaction with green areas arise from an instinctive bond between human beings and other living systems and that this bond is rooted within our biology (Biolphilia theory). He posited that the deep affiliations humans have with nature are part of our evolutionary past. As opposed to phobias, which are seen as fears and detestations that people might have for elements of the natural world, philias are the positive feelings and attractions that people have towards certain activities, habitats and objects in their natural surroundings.

It was in the years 2004-2006, following early research by Dr Qing Li at the Department of Hygiene and Public Health, Nippon Medical School, Tokyo, Japan that the belief that exposure to green environments may be beneficial to humans, both psychologically as well as physically, led to the formation of a research project under the ministry of agriculture, forestry and fisheries of Japan. The subsequent programme has produced research that has found many potential benefits in “Shinrin-yoku” or forest bathing as it’s English translation reads (Lee et al., 2011; Q Li et al., 2008; Qing Li et al., 2008; Li et al., 2011; Park, Tsunetsugu, Kasetani, Kagawa, & Miyazaki, 2010; Tsunetsugu, Park, & Miyazaki, 2010). In Japan a forest bathing trip is a short leisurely visit to a forest which is similar in effect to natural aromatherapy. The purpose of the trip is relaxation and the breathing in of volatile substances called phytoncides (wood essential oils) derived from plants and trees, such as alpha-pinene and limonene (Li, 2012). The research has found benefits both psychologically and physiologically when engaging in this practice. In Bum-Jin Park et al's (2010) study they aimed to clarify the relationship between psychological responses to forest and urban environmental settings and the physical variables that characterise these environments. They examined the psychological responses of 168 participants to their physical environments. Results demonstrated that the participants reported higher levels of higher positive emotions when in forests than when they spent time in an urban setting. When analysing the Profile of Mood States (POMS) scale the participants that were in a forest setting reported significant decreases in tension and anxiety, anger and hostility, fatigue, confusion, total mood disturbance and increased vigour. This suggests that forest settings are capable of enhancing positive mood states and reducing negative mood states. In a follow up study Park et al. (2010) looked at potential physiological benefits from green environments. They took groups of twelve male university students to 35 locations across Japan. On day one six students were sent to the forest and six to the city. On the second day the group's destinations were reversed. The groups walked around their assigned areas and also had periods of sitting on chairs viewing the landscapes. Salivary cortisol, blood pressure, pulse rate and heart rate variability were then measured. Results showed that average cortisol levels in the participant's saliva were significantly lower in the forest area than in the city. Similarly the recorded pulse rate and average systolic blood pressure were significantly lower in the group from the forest area than in the city. These findings indicate a decreased level of sympathetic nerve activity, enhanced parasympathetic nerve activity and a higher level of the natural killer (NK) cell activity (a typical index of human immune function). The findings of the increased NK activity when humans are exposed to green environments was further explored by Li (2010). He hypothesises that the phytoncides released from the trees, as well as resulting in decreased production of stress hormones, may also contribute to partially increased NK activity (Q Li & T Kawada, 2011). He speculates that because NK cells can kill tumour cells by releasing anti-cancer proteins, and forest bathing trips increase both NK activity and the intracellular level of anti-cancer proteins, then forest bathing trips may have a preventative effect on cancer generation and development. This led to a hypothesis that people living in areas with higher forest coverage may show lower mortality due to cancers than the people who lived in an urban environment. In his book Forest Medicine Li (2012) looked at the correlation of standardised mortality ratios (SMR) due to lung, stomach, kidney and colon cancers in males and females, breast and uterine cancers in females and prostate cancer in males and data of smoking status of male and female in all prefectures of Japan. Li and other researchers had previously discovered the increased level of NK cell activity related to spending time in green areas and how this in conjunction with increased levels of intracellular anti-cancer proteins contribute to anti-tumour activity (Imai, Matsuyama, Miyake, Suga, & Nakachi, 2000; Kishi et al., 2002). The study results showed a significant inverse correlation between forest coverage and SMR of cancers, lower cancer SMRs were found amongst people living in areas of high cover, compared to those living in areas with lower cover. Mitchell and Popham (2008) also reported that people’s exposure to green space, including forests, significantly lowers the mortality rate from all causes and circulatory disease. Further studies by Li and his colleagues (Qing Li & Tomoyuki Kawada, 2011) found reductions in urinary adrenaline, and/or noradrenaline and salivary cortisol levels. These changes helped to produce a relaxing effect which led them to hypothesise that phytoncides from the trees were at least partially contributing to this effect.

Tidball (2014) extrapolated Wilson’s Biophilia further with his concept of Urgent Biophilia. Tidball postulates that during times of war and other crises people often recall and think about the role of gardening, planting trees, hunting, fishing and other forms of nature contact in helping to foster feelings of well-being and recovery (Tidball, Krasny, Svendsen, Campbell, & Helphand, 2010). Roszak (2001) described the emerging field studying how the relationship between disconnection and alienation from nature affects emotional wellbeing as Ecopsychology. In her paper utilising qualitative interviews with military veterans with PTSD, and their perception of their military experiences and their recovery, Westlund (2015) states that upon hearing accounts of soldiers in training and combat, one realises that the training and actual act of being a soldier can narrow a person's sense of humanity, however contact with more-than-human nature provides possibilities for regaining that lost sense. Similarly, in their 2015 paper Windhorst and Williams published findings suggesting that positive experiences in natural places growing up may have long term mental health benefits through fostering a more ecological self (Windhorst & Williams, 2015). Iwata et al. (2016) looked at the ecopsychological effects of group walking in forests for people with significant mental ill-health including depression, bipolar and anxiety disorders based on a pilot program in Ireland. Despite the difficulty of separating the effects of being in the forest from the social interaction benefits or physical exercise, it was tentatively concluded that the "positive" environment that forests provide can act as a first step in encouraging those with significant mental ill-health to reengage with society. Parallel to Biophilia is Topophilia, the love of place (Tuan, 2013). Topophilia differs from Biophilia as it is culturally derived rather than innate and rests on symbolic meaning which we give to place. Tuan states that Topophilic identity and attachment to a specific locale is enduring and is therefore essential for wellbeing and health. It is a familiar sentiment, a word that encapsulates the pleasantly varied relationships we have with particular bits of the world both as individuals and as participants in cultures with long histories.

The ecological dynamics approach suggests that the positive health benefits derived from green activity is due to the fact that in comparison to synthetic environments, nature environments provide more invitations or possibilities such as sport and other social recreational activities (Brymer & Davids, 2013, 2014). This therefore offers individuals the opportunity to experience a broad range of emotions and psychological feelings such as peace, calm and mindfulness (Brymer & Davids, 2014).

Psycho-evolutionary stress reduction theory hypothesises that being exposed to nature facilitates and promotes stress recovery (Herzog & Strevey, 2008; Thompson et al., 2012; R. S. Ulrich et al., 1991), the exposure to natural environments offers individuals positive distractions from the daily stressors they encounter and raises a sense of interest, pleasantness and calm which in turn reduces the symptoms of stress and promotes a positive affect. This reduction in stress positively impacts on the individual’s physical and mental wellbeing through effective emotional changes. Studies looking at the impact of such green exercise report findings demonstrating reduction in stress indicators such as blood pressure, heart rate and stress hormones (Ewert, Frankel, Van Puymbroeck, & Luo, 2010; Herzog & Strevey, 2008; Laumann, Gärling, & Stormark, 2003; R. S. Ulrich et al., 1991).

Further theorising suggests that the natural environment restores fatigued attentional resources that are important for information processing (Kaplan, 1995). Within this theory it is hypothesised that there are two distinct types of attention: directed attention and involuntary attention. Directed attention necessitates mental effort and deliberation and if overused leads to directed attention fatigue. We regularly engage in directed attention throughout our everyday lives, nevertheless exposure to natural environments instigates the use of involuntary attention hence providing an opportunity for recovery from mental fatigue (Berman, Jonides, & Kaplan, 2008; Faber Taylor & Kuo, 2009; Rogerson & Barton, 2015). An example of the restorative properties of green spaces was demonstrated in Ottoson and Grahn’s paper (2005) which reports that resting for an hour in an outside garden resulted in greater enhancements in directed attention than the equivalent amount of rest indoors. According to Hartig and Staats (2006) the study of restorative environments complements research on the conditions in which our functional resources and capabilities diminish, such as conditions of conflict or disaster (Tidball et al., 2010). Berman and colleagues (2008) compared the restorative effects on cognitive functioning of interactions between nature and urban environments. Their comparison experiments demonstrated that simple and brief interactions with nature can produce marked increases in cognitive control. They state that to consider the availability of nature as merely an amenity fails to recognise the vital importance of nature in effective cognitive functioning.

Further studies have demonstrated that the ability to see or experience green spaces can reduce stress and improve physical health thus bringing about both cognitive and psychological benefits in individuals (Hartig, Mang, & Evans, 1991; R. Kaplan & Kaplan, 1989; A. F. Taylor, Wiley, Kuo, & Sullivan, 1998; R. Ulrich, 1984; R. S. Ulrich et al., 1991; Wells, 2000). Also views of nature or the presence of plants in the workplace has been demonstrated as leading to a reduction in mental fatigue (Berto, 2005; S. Kaplan, 1995; Raanaas, Evensen, Rich, Sjøstrøm, & Patil, 2011). Dietrich and Sparling (2004) linked physical activity with attention restoration via the transient hypofrontality hypothesis (Dietrich, 2006; Dietrich & Sparling, 2004). This hypothesis suggests that directed attention is associated with prefrontal cortex activation and that physical activity results in prefrontal cortex restoration; as the activation of the prefrontal cortex lessens in order to facilitate greater activation of the brain structures concerned with movement (Daffner et al., 2000; Dietrich, 2006; Dietrich & Sparling, 2004; Miller & Cohen, 2001; Rogerson & Barton, 2015). Although this decrease in prefrontal cortex activity may be unfavourable for cognition during physical activity the prospect for restoration is likely to result in improved executive function and cognitive performance (Byun et al., 2014; Yanagisawa et al., 2010). Therefore when we consider the individual benefits of both physical activity and contact with nature for cognition, green exercise facilitates greater opportunities for restoration due to the interaction of the two disparate influences (Rogerson & Barton, 2015).

Blue exercise was a term coined to refer to physical activity undertaken in and around outdoor natural aquatic environments such as lakes, rivers, canals and the coast (Depledge & Bird, 2009).

Included in the more obvious activities such as outdoor swimming/diving, sailing or surfing is the sport of angling. Although it may be associated with lower levels of physical activity than other blue exercise categories, energy expenditure estimates are similar to those for walking at a slow to moderate pace (Ainsworth et al., 2011). Research suggests that just residing in close proximity to the coast leads to higher levels of self-reported health than those inland (Wheeler, White, Stahl-Timmins, & Depledge, 2012) as well as self-reported levels of physical and mental health being higher for the years that people lived by the coast as opposed to inland (White, Alcock, Wheeler, & Depledge, 2013).

Clancy et al. (2001) and Greene et al. (2002) state that to be able to feel safe is a prerequisite for well-being, quality of life and good health. Maas et al. (2009) reported people who had green space in their living environment were generally associated with enhanced feelings of social safety and therefore psychologically benefitted from the green space. In a comprehensive study of ten thousand Danish adults researchers explored the relationships between the participants levels of stress and health related quality of life to the proximity of green spaces to their homes (Stigsdotter et al., 2010). Participants living within a kilometre of green space reported better health than participants further away. Moreover the more these green spaces were visited the less stress was reported. There are many other examples of the psychological benefits of spending time with nature (Annerstedt & Währborg, 2011; Austin, Johnston, & Morgan, 2006; Okvat, 2011; Wells, 2000).

4.1.2.1.1 *Green exercise and military veterans.* The research reviewed so far concerned a large range of samples such as people accessing green environments in the UK and Japan across varying different activities from walking, sitting or just viewing scenes of landscapes. However there is also emergent evidence that exposure to green environments might be beneficial for military veterans with PTSD.

4.1.2.1.1.1 Outdoor sport and recreation activities: There is emergent evidence that exposure to green environments might be beneficial for military veterans with PTSD. Duval and Kaplan (2013) studied veterans who participated in a multiday camping and hiking trip in the USA. They reported an improved sense of mental well-being amongst the veterans as well as feeling less socially isolated. Many of the veterans continued to report an improved sense of well-being a month post the trip. Gelkopf et al. (2013), in a pre-post controlled trial, found Nature Adventure Rehabilitation (NAR) as a promising supplemental intervention for chronic combat-related post-traumatic stress disorder (CR-PTSD). They posited that NAR seems to work through a process of behavioural activation, desensitisation, and gradual exposure to anxiety evoking situations and gaining control over symptomatology. Lundberg, Bennett and Smith (2011) identified significant pre and post-test differences in psychological health, overall quality of life, mood states including tension, depression, anger, and vigour, and sports related competence in a study of military veterans with PTSD who participated in therapeutic adaptive sport and recreation programme.

4.1.2.1.1.2 Gardening and horticulture. In his book ‘Defiant Gardens’, Helphand (2006) collected significant evidence from historical documents that demonstrated how gardens may be beneficial to psychological survival in wartime. Sempik, Aldridge and Becker (2005) found, in their examination of therapeutic horticulture in the UK, that it is an effective and useful form of health and social care that can be used for people with a wide variety of social, physical and mental health problems. Similarly, Haubenhofer, Elings, Hassink, and Hine (2010) found that the positive long term effects of horticulture and green care interventions are becoming increasingly more widely accepted and integrated across Western Europe. In her evaluation of the gardening leave project for ex-military personnel with PTSD, and other combat related mental health problems, Atkinson (2009) found that gardening leave is seen as having positive therapeutic benefits on their PTSD by the veterans who attend, and this was echoed by clinical staff.

4.1.2.1.1.3 Water activities including angling. Dustin et al. (2011) studied the University of Utah's Department of Parks, Recreation, and Tourism sponsored four-day river trip on the Green River in Dinosaur National Monument in the summer of 2010 for 13 veterans coping with PTSD. The trip was supported by O.A.R.S., a river rafting company, and the Veterans Medical Centre in Salt Lake City. They found that the therapeutic outdoor recreation showed considerable promise in contributing to the healing process for military veterans coping with PTSD. Caddick and colleagues (2015) report a qualitative analysis of veterans participating in a UK surfing experience. Participants reported relief from PTSD symptomology, however no quantitative data was collected and no follow-up contact was made. Bird (2014) demonstrated significant reductions in depression, anxiety and stress in veterans attending a six day structured peer outdoor support therapy. A pilot study of the effects of a two day outdoor fly-fishing intervention (River to Recovery Program) reported acute and long-term improvements in psychosocial wellbeing (Vella, Milligan, & Bennett, 2013). Mowatt and Bennett (2011), working with a framework of narratology (narrative theory), analysed 67 letters from veterans as they concluded their participation in a therapeutic fly-fishing program in Utah. Several of the letters highlighted the duplication of the outdoor experiences with veterans-peers in their hometowns. This led the authors to state that the environment itself, as much as the actual structure of care, was the component that warranted further studies. Bennett, Puymbroeck, Piatt, and Rydell (2014) used focus groups of participants on a fly-fishing program to discover the two primary themes of the perceived benefits of a successful experience and reconnection. Successful experience relates to the gaining of a new skill, distraction, focus, relaxation, and overcoming challenges and fears allowing the veterans to gain confidence, have a more positive outlook on life, feel normal and re-examine their life. Reconnection related to the veterans relinking with other veterans who had similar backgrounds, building social supports, camaraderie and reconnecting with the military culture and nature. This change in wellbeing has been previously demonstrated by Vella et al. (2013) and Bird (2014) showing quantitative change in wellbeing. However each of these interventions included an element of formal clinical therapeutic intervention.

4.1.2.2 Social support: The lack of social support has been associated to increased perceived need for mental health care (Edlund, Unützer, & Curran, 2006) and has been seen to facilitate the seeking out of treatment among sufferers of mental health problems (Lam & Rosenheck, 1999) and major depressive disorders (Gadalla, 2008). Social capital refers to the networks of relationships among people who live and work in a particular society, enabling that society to function effectively. It is clear that people engage with green areas not just to commune with nature but to facilitate the building of social capital and support. Nature is good for health, green places good for social capital. Holt-Lunstad et al. (2010) carried out a meta-analysis of 148 studies into the benefits of social support for people’s health. They found a 50% increased likelihood of survival over seven years for those people with strong relationships. Contrastingly, social exclusion decreases prosocial behaviour and is related to higher reported levels of anxiety, increases in the perception of loneliness and an increase in poor mental health (Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2007). The perception of social support is also associated with better outcomes in individuals facing stressors (Haber, Cohen, Lucas, & Baltes, 2007). Barriers to engaging with therapy such as anticipated enacted stigma (AES), an individual’s belief that others will react in a hostile or discriminatory manner if they seek help for psychological distress, can be reduced if the individual has a higher level of perceived social support (Blais, Renshaw, & Jakupcak, 2014; Maguen, Madden, Cohen, Bertenthal, & Seal, 2012). Given the low and delayed rates of utilisation of mental health services by military veterans (Maguen et al., 2012) the importance of social support becomes even more paramount. Cloitre, Jackson, and Schmidt (2016) presented a series of case studies in which an intervention, Skills Training in Affective and Interpersonal Regulation (STAIR), focused on building social support and relationship skills is delivered to military veterans with PTSD. They found that the intervention was likely to reduce burdens to both clients and their families by reducing the effects of PTSD.

4.1.2.3 Peer support: Several lines of evidence point to the value of group approaches to treatment of PTSD (Lubin, Loris, Burt, & Johnson, 1998) however little research has been done on the specific client group of military veterans. Rozynko and Dondershire (1991) suggest that the restoration of the "broken" military group relationship, the development of a sense of belonging and overcoming of the feeling of isolation are key benefits in group treatment of PTSD in military veterans (Fontana, Rosenheck, Spencer, & Grey, 2001; Greene et al., 2004). Furthermore, Glynn et al. (1999) noted that soldiers' interpersonal difficulties that arise from exposure to traumatic stress do not necessarily improve with individual approaches. Hundt et al. (2015) used qualitative interviews with military veterans with PTSD to assess their perception of peer support through their recovery. Veterans identified numerous potential benefits to a peer support program, including social support, purpose and meaning, normalisation of symptoms and hope, and therapeutic benefits. Veterans found peer support to be a highly acceptable complement to existing PTSD treatments with few drawbacks. Similarly peer support was perceived to be beneficial by veterans who participated in the River to Recovery Program (Bennett et al., 2014). It has also been reported that peer support may reduce psychological distress (Richardson, Darte, Grenier, English, & Sharpe, 2008) and help to de-stigmatize mental illness (Greden et al., 2010; McGrane, 2011). Westwood et al. (2010) in their evaluation of a residential group based program designed to assist the transition of military personnel back into Canadian society found that a group based approach with peers is highly desirable for this population, many of whom experience a lack of trust in mental health professionals. Caddick et al. (2015) utilised a dialogical approach of qualitative interviews to assess how combat veterans experiencing PTSD made sense of peer relationships with other veterans. Findings revealed the collective story that veterans used to make sense of peer relationships within the group. This collective story worked for the veterans to shape their experiences of well-being by fostering camaraderie, stimulating deeper connections and countering the negative effects of PTSD.

4.1.3 The Present Studies

Having explored the prevalence of PTSD in military veterans, and also looked at the potential barriers to achieving relief from the symptoms of the disorder, it became apparent that there was a requirement for further options in dealing with the symptomology in this specific client group. Having examined existing research on beneficial interactions for PTSD sufferers, military veterans specifically, I wanted to create an intervention combining some of these proven elements into one experience.

Three pilot studies were formulated. These pilot interventions were to be delivered in the context of a recreational experience in a natural environment. The rationale for this approach was fourfold: first, an outdoor recreational experience was likely to be attractive and non-stigmatising to participants. Secondly the exposure to natural environments would promote positive wellbeing and restoration of attentional capacities. Next the element of disclosure of traumatic memory might occur in an emotionally calming environment, thus leading to a level of habitualisation around the trauma memory and relief from the symptoms. Finally, participation in shared outdoor activity and communal meals was likely to enhance military bonding, increase a sense of social and peer support.

The goal of the present studies was to evaluate the feasibility and efficacy of POET in reducing PTSD symptomology amongst military veterans. I propose that participation in an outdoor recreation experience as a part of a peer group, all of whom are veterans and all of whom have PTSD, will reduce the self-reported symptom scores of the participants in the interventions. In study 1 I initially developed three POET interventions (i. angling, ii. equine husbandry, iii. archery and falconry) and evaluated their efficacy in reducing PTSD, depression, anxiety, and stress. Following on from these studies, after encouraging results, a waitlist random controlled trial was implemented (study 2).

4.2 Method

POET is an innovative and unique attempt to integrate elements of previously proven peer reviewed strategies to reduce PTSD symptomology in military veterans. It attempts to integrate the elements of Green exercise, Peer support and Narrative exposure to traumatic memories within a group outdoor activity. To begin the process of evaluation I report on three uncontrolled trials.

4.2.1 Ethics

Ethical approval was requested and granted via the University of Essex Psychology Department. The main areas of concern were the physical and psychological effects on the participants. A full health and safety report was completed to assess any physical risks across all activities. Regarding psychological support it was agreed that as the researcher was a trained High Intensity Psychological Therapist specialising in trauma this would suffice to safe guard all participants during their time attending.

4.2.2 Design

Each intervention was designed to deliver outdoor activity in a peer group context and to facilitate opportunities to recollect traumas if the participant so wished. Each intervention had a single group within participant design and an independent sample. The independent variables were angling, equine husbandry or falconry. The interventions ran sequentially and employed the same eligibility criteria, recruitment process and evaluation.

4.2.3 Participants and Recruitment Procedure Participants were recruited for the study from a population of 65 service users registered at a local military veteran support service. To clarify the term military veteran I used the official UK government definition for a veteran being everyone who has performed military service for at least one day and drawn a day's pay is termed a veteran, and their dependents also qualify for certain benefits as part of the ex-Service community (Burdett et al., 2012). Although they had engaged with the support service none of the participants were currently receiving a therapeutic intervention. No participant participated in more than one group. The service consented a total of 30 willing volunteers. The eligibility criteria utilised were a formal diagnosis of military related PTSD by a national health service (NHS) or Ministry of Defence (MOD) psychiatrist, and to be a military veteran (this was done by self-report from participants). Participants were randomly allocated to each pilot study. The researcher contacted participants by telephone fourteen days before each intervention, and took demographic and baseline measures (table 4.1).

Table 4.1 - Summary of Participant Demographic Characteristics.

	Intervention Type		
Variable	**Angling (N = 11)**	**Equine (N = 8)**	**Falconry/ Archery (N = 11)**
Number of men	10	5	10
Mean age (SD)	38 (8.9)	41 (7.8)	48 (10.7)
Years military service	9.18 (4.45)	10.06 (6.62)	13.77 (7.30)
Years since leaving service	8.36 (8.04)	10.13 (9.34)	14.64 (11.04)
% Not employed	45	100	82
% Taking psychotropic medication	73	88	81

4.2.4 Instruction to participants - Study statement: Before collection of psychological measures each participant was read the following statement informing them of the study design:

“During this study you will be part of a group of military veterans that all share your diagnosis of PTSD. There will be professional angling/riding/falconry* coaches and trained mental health staff available to you at all times. If you would like to discuss your mood, or indeed the trauma you have experienced, with either willing co-participants or a member of the support staff please feel free to do so. You are free to leave the study at any time.”

4.2.5 Psychological Measures: I took repeated measures at three time points: two weeks prior to intervention, two weeks post and four months post intervention. The researcher collected all measures by telephone. Four established and validated measures were included to assess mental health well-being. Firstly to measure PTSD I used the PTSD Checklist Military (PCL-M) (Appendix 4.1) (Weathers, Huska, & Keane, 1991). The Posttraumatic Stress Disorder Checklist is a commonly used measure, with military (PCL-M), civilian (PCL-C), and specific trauma (PCL-S) versions. The PCL shows good temporal stability, internal consistency, test-retest reliability, and convergent validity (Wilkins, Lang, & Norman, 2011). For depression I utilised the Patient Health Questionnaire (PHQ-9) (Appendix 4.2) (Kroenke, Spitzer, & Williams, 2001). The PHQ-9 has demonstrated reliability, convergent/discriminant validity, and responsiveness to change (Cameron, Crawford, Lawton, & Reid, 2008; Titov et al., 2011). For the measuring of anxiety I used the General Anxiety Disorder (GAD-7) (Appendix 4.3) (Spitzer, Kroenke, Williams, & Löwe, 2006). The GAD-7 has similar psychometric properties as the PHQ-9 with reliability and validity being excellent (Beard & Björgvinsson, 2014; Dear et al., 2011). Finally I assessed stress levels for the participants using the Perceived Stress Scale (PSS) (Appendix 4.4) (Cohen, Kamarck, & Mermelstein, 1983). The Perceived Stress Scale exhibits good reliability and convergent validity (J. M. Taylor, 2015).

4.2.6 Study Intervention Content and Procedure: The interventions were designed to deliver an outdoor experience involving tuition in and practice of an outdoor activity within a peer group context. Special attention was given to creating opportunities for participants to bond and talk throughout the experience.

4.2.6.1 Context 1 (angling): On arrival at the lake, angling coaches provided instruction to participants to assemble their own tents, beds and tackle. Participants then spent two days and one night camping and fishing by the lake. Members of the group had the opportunity to move around the lake to mix with their peers and the angling coaches when they chose to, and to spend time alone if they wished. Meal times were communal and the tasks involved in preparing the meals were shared amongst the participants, enabling them to talk to each other whilst carrying out these responsibilities.

4.2.6.2 Context 2 (equine husbandry): Under the tuition of qualified instructors participants collaborated in pairs on a series of tasks including "mucking out" the stables, preparing food, water and bedding for the horses, and cleaning the tack for their own horses. Staff demonstrated grooming techniques and each participant groomed their own horse. A communal lunch break followed where the participants were able to sit, eat and talk together. Afterwards participants were taught basic riding skills in pairs and then practiced these skills under the supervision of the instructors. Finally, the instructors led the group on horseback on a walk through the surrounding fields facilitating further opportunity to talk amongst the group.

4.2.6.3 Context 3 (falconry and archery): Participants were split into two groups. Group one worked with the falconry instructors learning about and flying the raptors throughout the morning whilst group two received tuition in archery with a trained coach. At lunchtime the participants were encouraged to mix and were provided with a meal and drinks. After the break they returned to their allocated groups and engaged with the alternative activity to the morning.

Regular coffee breaks were put into place so that the group members were given the maximum possible opportunities to talk to each other throughout the day.

4.3 Results

All participants completed the assigned intervention, with no early departures. During the interventions participants spent an average of three hours talking with other veterans (self-reported at follow up date, see appendix 4.7) and at the end of each intervention participants voluntarily created a Facebook group page to maintain newly established group bonds. A mixed MANOVA with one between groups factor (intervention type: angling, equine, falconry) and repeated measures on all four measures (time points 1, 2 and 3) was conducted on the data from all three interventions. MANOVA assumes that there are linear relationships among all pairs of dependent variables, all pairs of covariates, and all dependent variable-covariate pairs in each cell. Homogeneity of variances assumes that the dependent variables exhibit equal levels of variance across the range of predictor variables. In multivariate designs, with multiple dependent measures, the homogeneity of variances assumption described earlier also applies. Therefore I used a MANOVA because it enabled me to measure several dependent variables in a single experiment, unlike an ANOVA.

Results revealed a significant multivariate effect of change in psychological measures across time (F (8, 20) = 4.830, $p = .002$, partial eta^2 = .659). The main effect of intervention group was non-significant (F (8, 50) = .517, $p = .838$, partial eta^2 = .076), and the interaction of group x time was also non-significant (F (16, 42) = .554, $p = .899$, partial eta^2 = .174) showing that change across time did not vary statistically by intervention group. Inspection of the univariate F values confirmed significant change across time on all four measures: (F (2, 54) = 22.057, $p < .001$, partial eta^2 = .450 (PTSD symptoms); 15.356, $p < .001$, partial eta^2 = .363 (depression); 9.307, $p < .001$, partial eta^2 = .256 (anxiety); 24.583, $p < .001$, partial eta^2 = .477 (stress)).

Means, standard deviations, pairwise *t*-values and Cohen's *d* (1992) effect sizes for each intervention are summarised in table 4.2 and figure 4.1. For both the Angling and the Falconry studies a significant improvement was recorded at the two week follow up stage, however this was not found for the equine study. These findings held at the four month follow up stage, despite a slight bounce back, demonstrated in figure 4.1. When looking at the effect size of the change in PTSD symptoms, for both the Angling and the Falconry trips, a large effect was found. However for the equine experience only a medium effect was seen. These effect sizes remained large (Angling and Falconry) and medium (equine experience) at the four month follow up.

Table 4.2 - Summary of Measures by Intervention Group 2 Weeks Prior to and 2 Weeks and 4 Months after Intervention

Intervention	**Measure**	**M/SD 2 Weeks Prior**	**M/SD 2 Weeks Post**	**M/SD 4 Months Post**	**Prior/2wk *t (d)***	**Prior/4mth *t (d)***
Angling	PTSD	42.36/14.05	25.64/9.32	28.09/11.22	4.27** (1.29)	3.2** (0.96)
	Depression	15.27/6.0	9.45/5.30	10.82/4.56	3.05*(0.92)	1.83 (0.55)
	Anxiety	13.09/5.91	10.09/5.24	10.64/2.58	1.90 (0.57)	1.33 (0.40)
	Stress	25.45/6.76	16.36/8.52	18.91/5.66	2.9* (0.87)	2.56* (0.77)
Equine	PTSD	42.38/15.61	32.25/14.28	36.13/17.02	1.75 (0.62)	1.19 (0.42)
	Depression	16.63/5.88	12.88/8.68	14.0/6.63	2.33 (0.82)	3.28* (1.16)
	Anxiety	14.00/5.83	9.63/7.50	11.63/5.73	2.43* (0.86)	1.90 (0.67)
	Stress	25.63/8.18	19.13/9.66	20.63/8.85	3.92** (1.39)	3.99** (1.41)
Falconry	PTSD	41.36/9.65	28.09/12.75	28.73/11.84	4.11** (1.24)	4.09** (1.23)
	Depression	14.91/5.72	10.09/5.3	10.00/4.73	3.95** (1.19)	3.63** (1.09)
	Anxiety	12.27/3.64	8.91/4.46	9.00/3.87	2.06 (0.62)	2.27* (0.68)
	Stress	22.82/7.04	15.45/9.5	16.45/9.08	4.02** (1.21)	3.94** (1.19)

(* = significant at the .05 level, 2 tailed, ** = significant at the .01 level, 2 tailed)

(Cohen suggested that *d*=0.2 be considered a 'small' effect size, 0.5 represents a 'medium' effect size and 0.8 a 'large' effect size)

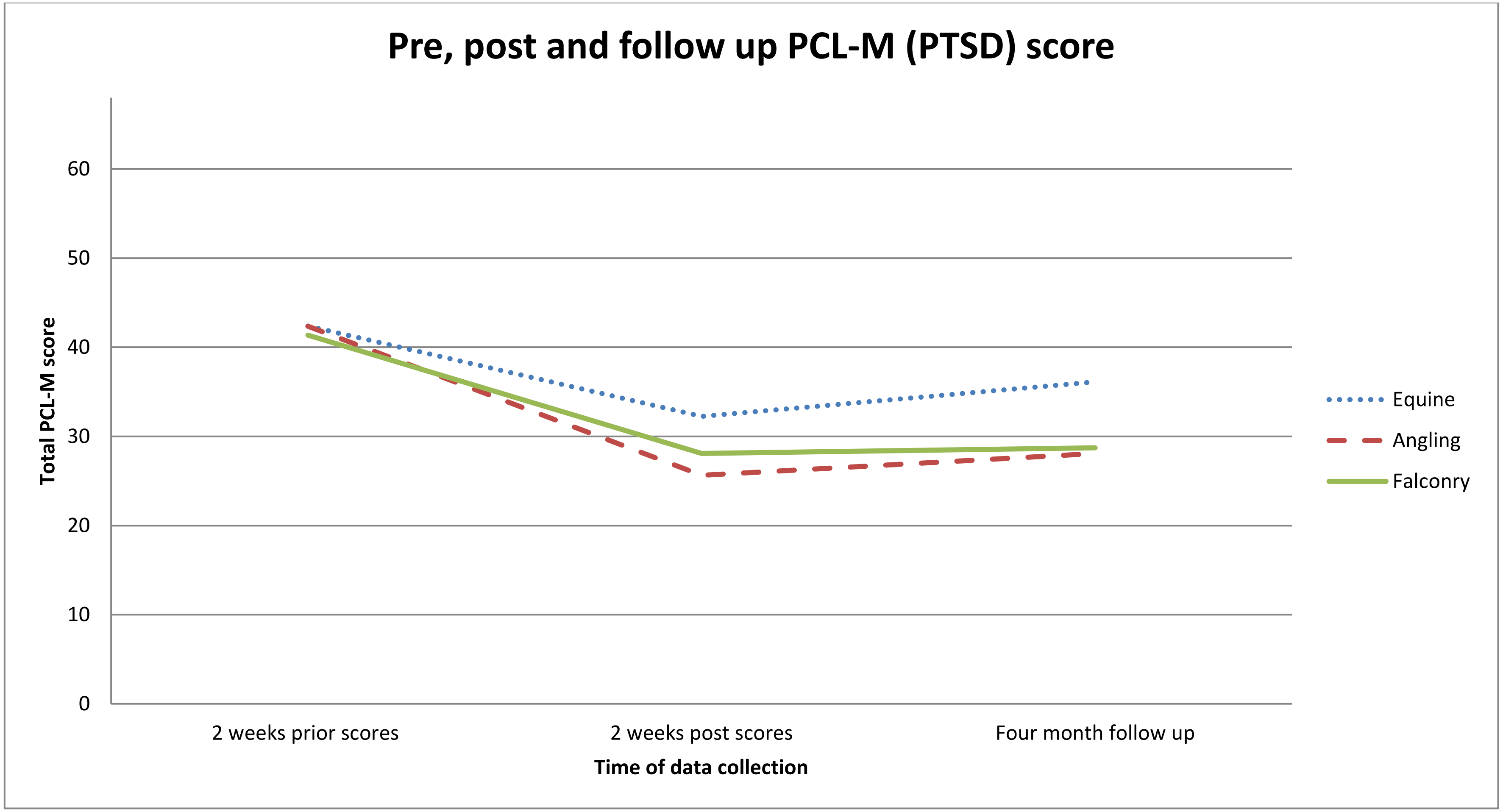

Figure 4.1 - Change in PTSD symptoms by intervention group.

While the previous analysis concerned statistical significance, additional analyses were conducted too. To assess whether the intervention had a “successful” outcome for the participants I once again looked at CSC and RCI as in chapter 3.

Further analysis of the scores was carried out by looking at all three groups scores together in relation to Jacobsen and Traux’s (1991) assessment of CSC and RCI. CSC was calculated against the premise that the level of functioning subsequent to the intervention should fall outside the range of the dysfunctional population, where range is seen as extending to two standard deviations beyond (in the direction of functionality) the mean of the population. For RCI it is assessed against the change in a client’s score divided by the standard error of the difference for the test(s) being used. Once I had combined all three pilot studies scores into one group I looked at the PCL-M scores. For our CSC criteria I used the external cut off for moderate PTSD 34 (Weathers et al., 1991) and a Cronbach’s alpha of 0.94 (Sutker, Davis, Uddo, & Ditta, 1995) means for clinical (mean 63.6, standard deviation 14.1) and non-clinical (mean 34.4, standard deviation 14.1) populations were taken from Weather et al.’s paper (Weathers et al., 1991). Before analysis I removed all participants if they were scoring in the non-clinical range i.e. 33 or below on the PCL-M. This left the sample size at twenty two.

In Figure 4.2 the graph demonstrates the movement for the participant’s PCL-M scores after the intervention when using the external cut off (34). All square plots on the graph represent clients that achieved RCI, the triangles show those that had no change, there were none that deteriorated. Figure 4.3 demonstrates the utilisation of criterion C utilising the norms for both the functional and dysfunctional populations. This criterion is applicable when the client’s post test score is more likely to have come from the functional population group as opposed to the dysfunctional one. It is believed to be the optimum method.

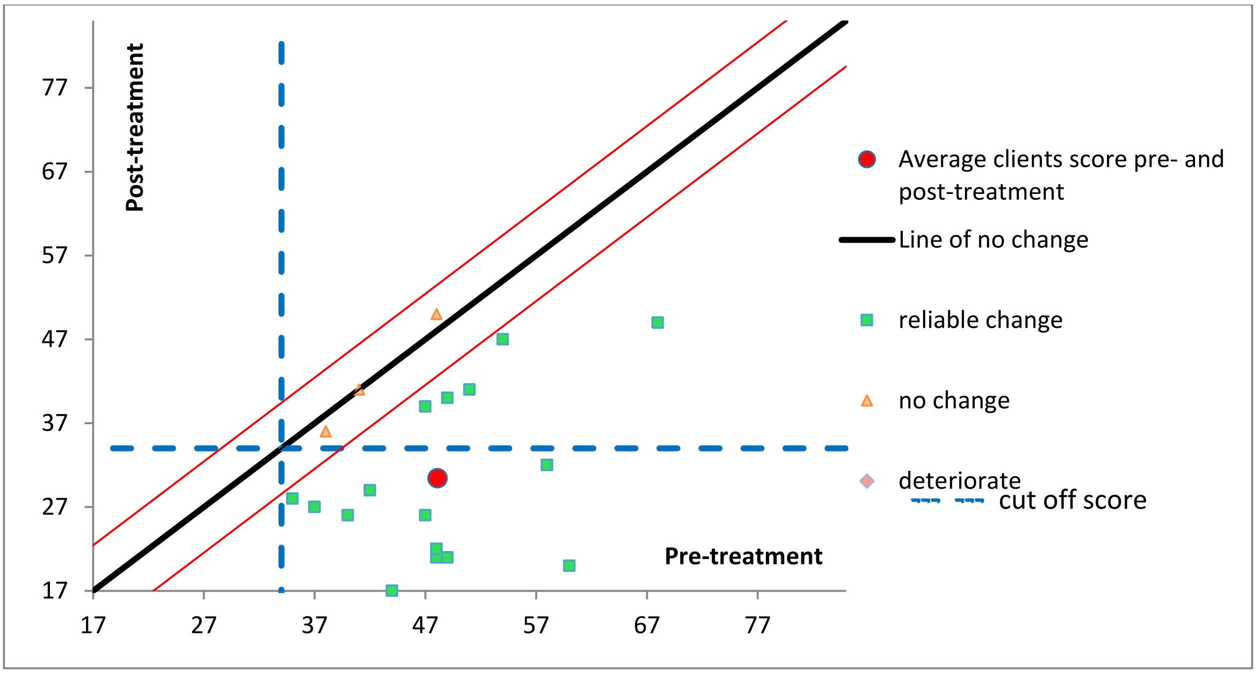

Figure 4.2 - Plot for PCL-M (PTSD) using external criterion

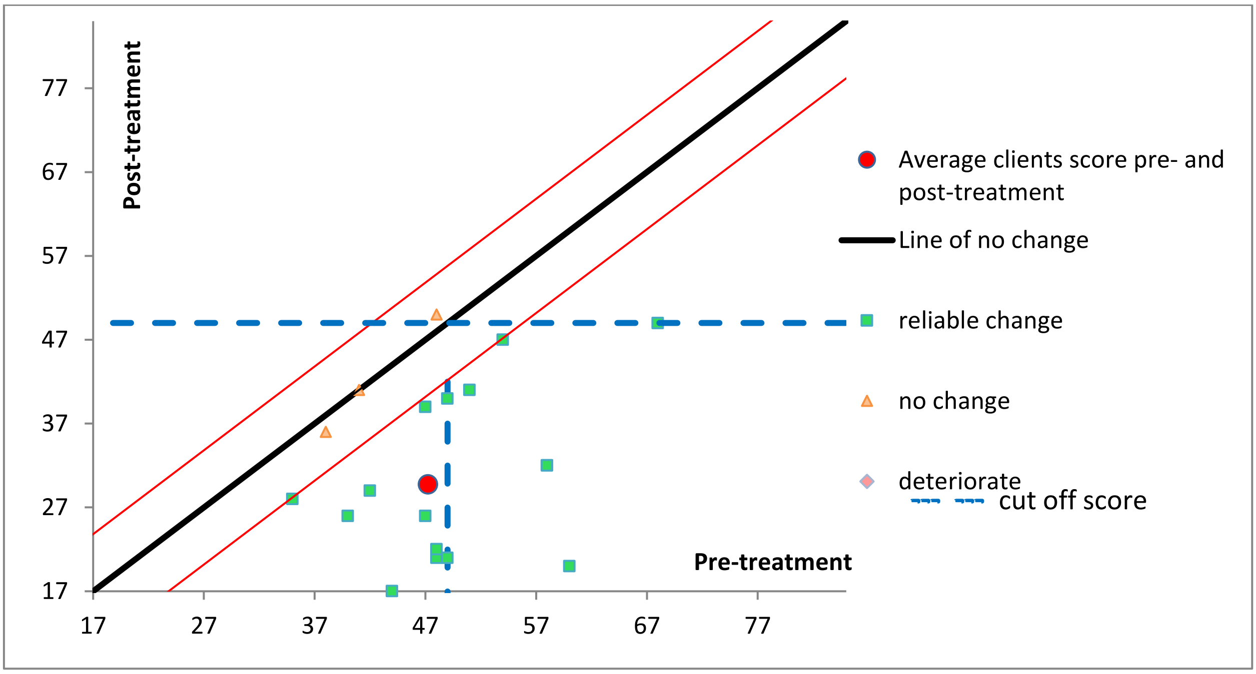

Figure 4.3 - Plot for PCL-M (PTSD) using criterion C

When using the external cut off score of (34) eighteen of the thirty participants improved, eleven recoded scores showing no change and one deteriorated. The numbers were the same under criterion C. I ran these analyses for both pre-post comparisons and also for pre-follow up evaluation too. Similarly I looked at depression scores (PHQ-9) and anxiety levels (GAD-7). As the PSS does not have a clinical cut off score I did not include this scale in the analysis.

Table 4.3 displays the results when using the external cut off whilst table 4.4 looks at the analysis when utilising criterion C.

Table 4.3 - Pilot data Clinically Significant Change (CSC) and Reliable Improvement (RCI) using external criteria

	RCI No change	RCI Deteriorated	RCI Improved	CSC
PCL-M Pre – Post *n* =22	3 (14%)	0 (0%)	19 (86%)	14 (64%)
PCL-M Pre - Follow up *n* =22	5 (23%)	0 (0%)	17 (77%)	17 (77%)
PHQ-9 Pre – Post *n* =26	7 (27%)	1 (4%)	18 (69%)	10 (38%)
PHQ-9 Pre – Follow up *n* =26	13 (50%)	0 (0%)	13 (50%)	6 (23%)
GAD-7 Pre – Post *n* =23	3 (13%)	4 (17%)	16 (70%)	5 (22%)
GAD-7 Pre - Follow up *n* =23	4 (17%)	3 (13%)	16 (70%)	2 (9%)

Table 4.4- Pilot data Clinically Significant Change (CSC) and Reliable Improvement (RCI) using *Criterion C*

	RCI No change	*RCI Deteriorated*	*RCI Improved*	*CSC*
PCL-M Pre – Post n = 22	**4 (18%)**	**0 (0%)**	**18 (82%)**	**17 (77%)**
PCL-M Pre - Follow up n = 22	**5 (23%)**	**0 (0%)**	**17 (77%)**	**12 (55%)**
PHQ-9 Pre – Post n =26	**7 (27%)**	**1 (4%)**	**18 (69%)**	**11 (42%)**
PHQ-9 Pre – Follow up n =26	**10 (38%)**	**0 (0%)**	**16 (62%)**	**10 (38%)**
GAD-7 Pre – Post n =23	**3 (13%)**	**4 (17%)**	**16 (70%)**	**9 (39%)**
GAD-7 Pre - Follow up n =23	**4 (17%)**	**3 (13%)**	**16 (70%)**	**10 (43%)**

4.2.3 Discussion

The goal of the study was to provide preliminary evaluation of the efficacy of POET in reducing psychological distress amongst military veterans in the absence of explicit standard therapeutic intervention. Previous exposure based therapies include as part of the utilised protocols the confrontation of both the initial trauma and also the triggers related to the traumatic event. Whilst these treatments have proved to be highly efficacious (Bradley et al., 2005) the stigma felt by military veterans around mental health issues has led to a reluctance to engage in these formal therapies (Dickstein et al., 2010). As many of the current treatments for PTSD include an element of exposure in their procedures it is felt that this exposure may not only foster habituation or extinction but may also provide an opportunity for rethinking previous interpretations of the traumatic event (Bradley et al., 2005). It is this exposure element, alongside the proposed benefit of the experience of green spaces (Gladwell et al., 2013; Pretty et al., 2007;

Pretty, Peacock, Sellens, & Griffin, 2005) and peer contact (Greden et al., 2010; Richardson et al., 2008) that I utilised in a unique approach to facilitating an improvement in PTSD symptomology, amongst the military veterans that attended each pilot study. Findings indicated that POET led to significantly reduced distress. Multivariate analysis showed that these psychological gains were not specific to intervention type, indicating that all the POET interventions had common benefits. Observed effects in reducing PTSD, depression, anxiety and stress were medium to large, according to Cohen's effect size criteria and many of them reached statistical significance despite the small sample sizes. These benefits were observed at two weeks follow up and were largely sustained at four months. When looking at successfully reducing the PTSD symptom levels high rates of improvement were seen under both CSC and RCI criteria. This positive effects were also seen when looking at depression (PHQ-9) and anxiety (GAD-7) with regards to RCI but not when assessing CSC. These results indicate that differing levels of success can be assumed using different assessment criteria. This reinforces the findings from chapter three and adds to the debate as to the validity of success criteria.

Strengths of the study are the recruitment of veterans with clinical PTSD diagnoses, the use of three different interventions with common elements of peer support, outdoor recreation and opportunity to discuss trauma, and the four month follow up. Despite these strengths, these interventions are preliminary studies and were uncontrolled. Consequently, the study design does not enable us to make definitive statements about the efficacy of POET. Given evidence from these preliminary studies and the substantial effect sizes associated with a very brief intervention, further research using a randomised controlled design is justified. Investigation of effective elements of POET and of mediating mechanisms such as continued peer contact is also warranted.

4.3 Study 2 – Randomised controlled trial

4.3.1 Introduction

In response to the positive indicators recorded after the uncontrolled trials a waitlist designed random controlled trial (RCT) was designed.

4.3.2 Methods

Ethical approval was obtained from the University of Essex for this study.

4.3.2.1 Setting: The study took place at the Warren fishery in Stanford-Le-Hope, Essex, United Kingdom. Two waves of the intervention were conducted between August and September 2015.

4.3.2.2 Research design: A randomised waitlist-controlled design was used (see Figure 4.4). Participants were randomised to either the intervention (two day one night angling experience) or a wait list group (six week wait until received the angling experience) at the ratio of 1:1. Qualitative interviews to be undertaken during intervention with participants.

4.3.2.3 Participants (inclusion/exclusion criteria): Participants were recruited via military veteran’s support groups in both Colchester (appendix 4.15) and Clacton-on-Sea (appendix 4.16) in the United Kingdom. These support meetings were attended by a research assistant who registered veteran’s interest in taking part by distributing a letter (appendix 4.8) with contact details included to enable those that wished to take part to register via email or telephone. Potential participants were required to be a military veteran, the same UK government definition of a veteran as used in the pilot studies was utilised. A second criteria that was required was that the military veteran had to have received a formal diagnosis of PTSD according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5, 2013) by either an NHS or MOD psychiatrist. An exclusion criterion was that the participant was in receipt of concurrent psychological treatment. Final participant’s demographics are displayed in table 4.5.

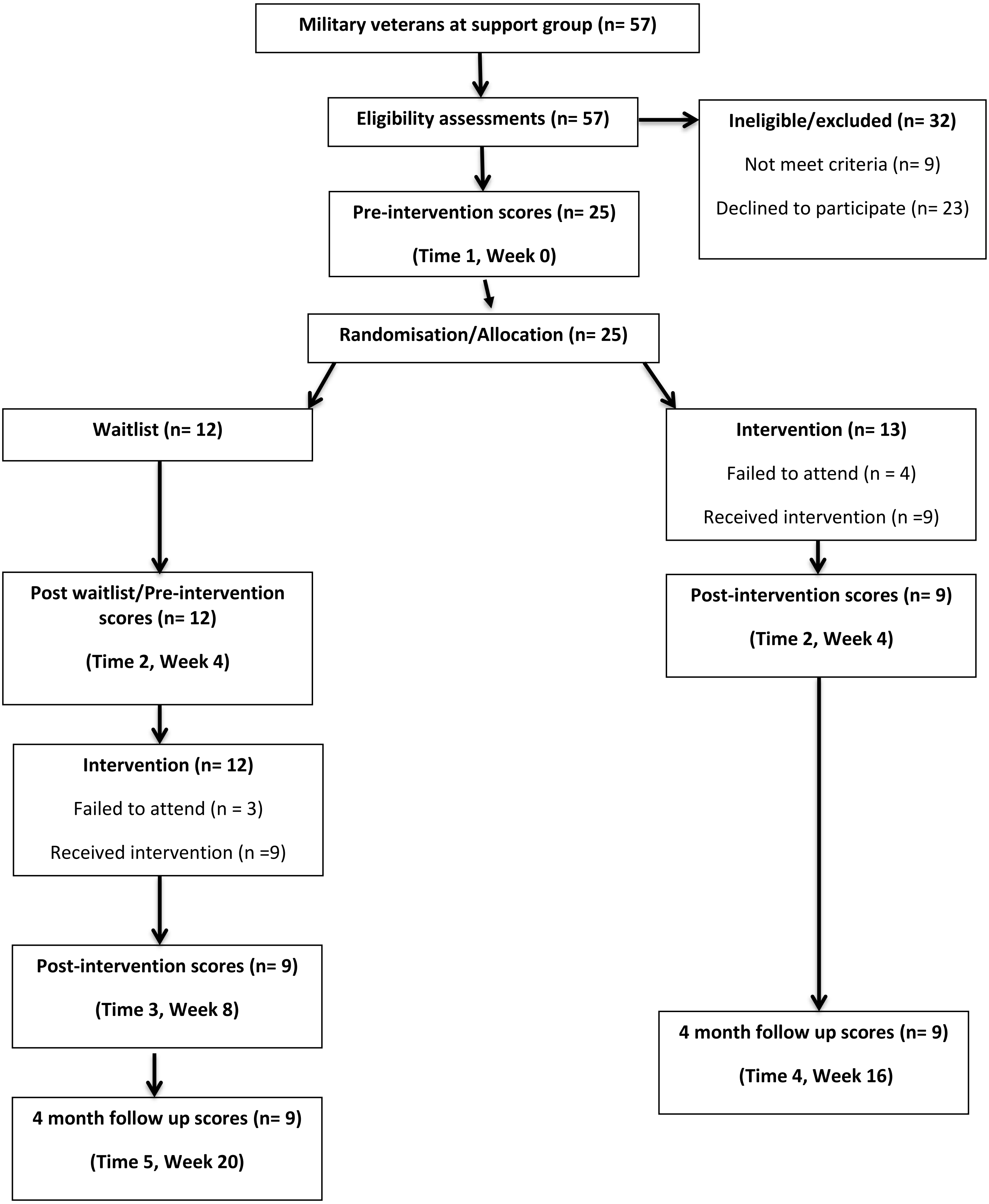

Figure 4.4 - Assessment and measurement data collection points.

Table 4.5 - Group demographics

	Intervention Group	
Variable	**Group 1 (Intervention) (N = 9)**	**Group 2 (Wait list) (N = 9)**
Number of men	8	9
Mean age (SD)	41.22 (13.47)	38.78 (12.56)
Age when joined	18.11 (2.80)	17.44 (2.88)
Years military service	9.33 (4.06)	10.78 (6.53)
Years since leaving service	14.11 (10.98)	10.67 (11.06)
% fished before	78%	67%
% Not employed	44%	44%
% Taking psychotropic medication	78%	78%

4.3.2.4 Randomisation: A research assistant used a block randomisation procedure to allocate participants to either intervention or waitlist conditions using participant's numbers. Randomisation was performed using an online randomisation tool to limit selection bias. A 1:1 ratio was used. The final participant allocation were intervention (n = 13) and waitlist (n= 12). Upon allocation to group the research assistant assigned the participants to the relevant intervention.

4.3.2.5 Sample size calculation: For a sample size regarding a clinical superiority design, the data from the angling pilot study was used. The results from this study reported Cohen's D effect of 1.29 when before and after scores were compared. I used this effect size to calculate required sample size. This gave us required group sizes of $N_1 = 10$ and $N_2 = 9$ for a mixed measures ANOVA.

4.3.2.6 Procedure: Individuals registered an interest in participating in the studies by either emailing or telephoning a research assistant. They were then sent a brief statement and consent form to fill in prior to commencement of the studies (appendix 4.9 & 4.10). A total of fifty seven military veterans registered an interest in participation. These fifty seven potential participants were then assessed for suitability for participation via telephone. A statement outlining the study was read out (appendix 4.11) and eligibility criteria confirmed. Nine military veterans failed to meet the eligibility criteria therefore subsequently forty eight were offered places on the trial. Of this number twenty three declined to take part in the study (15 declared that they did not like the idea of fishing, six were unable to attend on the dates of the study due to other commitments and two had childcare issues). Two weeks prior to the first intervention, time 1 (Figure 4.4), all twenty three participants completed pre-treatment questionnaires to establish a baseline score. This was done over the phone a research assistant who was blind to the group the participant had been allocated to. Participants demographics were also recorded (Table 4.5). Participants were at this point randomised to either a waitlist (n = 12 allocated n = 9 attended) or intervention group (n = 13 allocated n = 9 attended). Attempts were made to contact the non-attendees to enquire as to why they had failed to show but these attempts proved unsuccessful. Those allocated to the waitlist were informed that they would not be receiving the intervention for six weeks but would be required to answer outcome measures again prior to attending the intervention (time 2, week 4) (figure 4.4). The intervention group received the intervention and then reported scores on psychometric tests at two weeks post (time 2, week 4) and at a four month follow up (time 4, week 16). The waitlist group received the intervention and then reported scores on psychometric tests at two weeks post their intervention (time 3, week 8) and at a four month follow up (time 5, week 20). Two additional questions were asked at the two week post intervention data collection (appendix 4.10). The first of these questions was whether the participant held intention to go fishing again on a scale of 0 – 10 where 0 indicated no intention at all and 10 indicated a definite intention to do so. The second question asked the participant to self-rate their PTSD symptomology since taking part in the study with the options being “my symptoms are significantly worse”, “my symptoms are worse”, “my symptoms have stayed the same”, “my symptoms have improved” or “my symptoms have significantly improved”. At the four month follow up the following extra questions were asked of the participants (appendix 4.11). Once again the participants were asked to self-rate their PTSD symptoms. Secondly the participants were asked to respond YES or No to “Have you stayed in contact, either in person, by phone or through social media with any of the other participants or mentors from the study?” Finally the participants were asked whether they had fished again since the study. Brief interviews were held with five participants from each of the study groups. The purpose of these interviews was to increase awareness of the elements of the intervention the participants felt were of importance and therefore help create an interview schedule for further qualitative analysis in chapter 5. Participants were picked at random using an online random generator and their unique participant number. Each interview was then transcribed, pseudonyms applied and then analysed using a thematic analysis approach (Transcripts are in appendix 4.14).

4.3.2.7 Outcomes measures: The primary outcome measures utilised were the PTSD checklist the PCL-5 (Weathers et al., 2013). The PCL-5 is a twenty item self-report measure that assesses the twenty DSM-5 (DSM-5, 2013) symptoms of PTSD. The PCL-5 has a variety of purposes, including: monitoring symptom change during and after treatment, screening individuals for PTSD and making a provisional PTSD diagnosis. Wortmann et al. (2016) carried out a psychometric analysis of the PCL-5 among treatment-seeking military service members. They found the PCL-5 to have very sound psychometric properties overall with test scores demonstrating good internal consistency (.96), test–retest reliability (r .84), and convergent and discriminant validity. For depression I again utilised the PHQ-9 (Kroenke et al., 2001). Similarly I kept the same scales as previously for anxiety GAD-7 (Spitzer et al., 2006) and stress PSS (Cohen et al., 1983). Two new scales were used for our analysis, the first of these being the Work and Social Adjustment Scale (WSAS) (Mundt, Marks, Shear, & Greist, 2002). The WSAS is a simple 5-item measure of general social impairment It measures a distinct social functioning factor, has high internal reliability, and is sensitive to treatment effects (Zahra et al., 2014). The final test used in the study was the Psychological Well-Being Post-Traumatic Changes Questionnaire PWB-PTCQ (Joseph et al., 2012). There are three potential advantages to the PWB-PTCQ. The first advantage is theoretical. The PWB-PTCQ adopts an established conceptual architecture to provide a definition of growth following adversity. This allows researchers to integrate post-traumatic growth within the wider literature on well-being and positive psychology. Second, it promises incremental validity as aspects of change are now included that were previously outside the measurement spotlight. Third, it allows for respondents to rate how they have changed in positive as well as negative directions (Joseph et al., 2012). Joseph et al. also found high internal consistency (.87), six month stability, incremental validity over and above existing measures of posttraumatic growth as a predictor of subjective well-being, convergent validity with existing measures of posttraumatic growth ($r = .50-.56$. $p < .001$), concurrent validity with personality and coping measures, predictive validity of change in well-being over time, discriminant validity with social desirability, and prediction of clinical caseness. La Cour et al. (2016) found the psychometric properties of the PWBPTCQ were satisfactory and the Cronbach’s alpha was .94 when testing a Danish language version of the scale.

4.3.2.8 Peer Outdoor Exposure Therapy Intervention: On arrival the participants were met by a research assistant who then randomly allocated a professional angling coach to provide instruction to the participants in how to assemble their own tents, beds, tackle and subsequently instructed them in angling techniques. Alongside the angling coaches were three military veterans utilised in the role of "mentors". These mentors were previous participants from a pilot study of POET conducted prior to study 1 and were encouraged to mix with the participants and engage with them. Participants then spent two days and one night camping and fishing by the lake. Members of the group had the opportunity to move around the lake to mix with their peers and the angling coaches when they chose to, and to spend time alone if they also wished. Meal times were designed to be communal and the tasks involved in preparing the meals were shared amongst the participants, enabling them to talk to each other whilst carrying out these tasks. Participants that were allocated for interview were recorded whilst they continued to fish.

4.4 Results

4.4.1 Analysis Strategy

4.4.1.1 Quantative research: In order to test the differences between the means of the intervention group and the waitlist group a mixed measures ANOVA was carried out. I used time (Time 1/Week 0 v Time 2/Week 4) as the repeated measures variable, group (intervention v wait list) as the between subject variable and PCL-5 as the DV. This showed a main effect of time (F1,16 = 8.45; p = .01). This main effect was moderated by an interaction with group (F1,16 = 4.59; p < .05). For the PCL-5 (PTSD) scale the results demonstrate a significant reduction in the participants PCL-5 score between time point 1 (two weeks pre study) and time point 2 (two weeks post study) indicating a reduction in the symptoms of PTSD after the intervention $F(1, 16) = 22.06$, $p \leq .001$. Figure 4.4 demonstrates the mean scores on the PCL-5 for both groups. Group 1, the intervention group experience a significant drop in their PTSD symptoms where by in contrast group 2, the waitlist, show no significant change in their mean scores. Despite the scores increasing at the four month follow up, in relation to the scores post intervention scores, $F(1, 16) = 30.99$, $p \leq .001$ (see figure 4.5) they remain significantly improved when compared to the pre study .

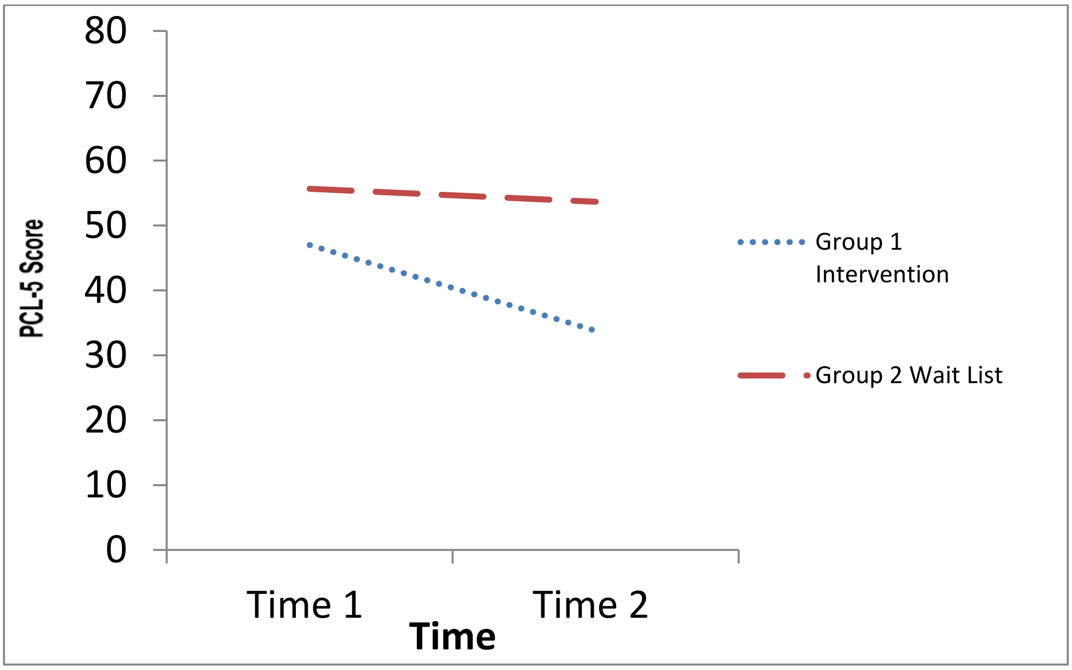

Figure 4.4 - PCL-5 (PTSD scale) - Group 1 & 2

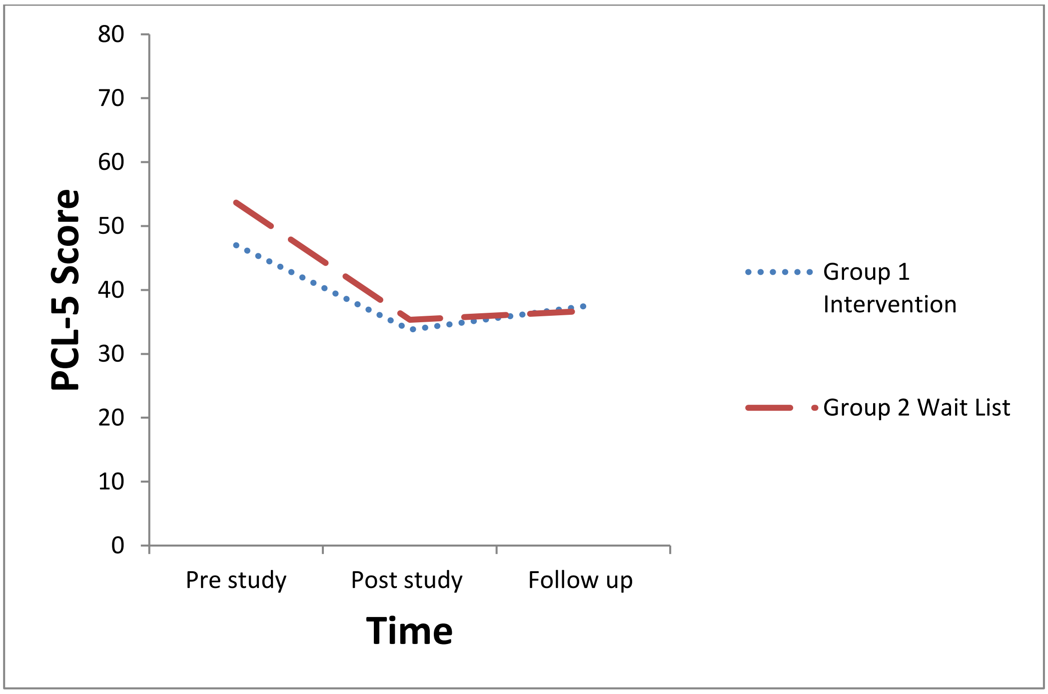

Figure 4.5 - PCL-5 (PTSD scale) - Pre intervention, post and follow up

Follow up comparisons to examine the simple main effects of this interaction showed the decrease in PCL5 scores from t1 to t2 was only significant for the intervention group (t = 2.70 p = 0.027) and not for the control group (t = 1.069 p = 0.316) see table 4.6. This demonstrates that there is an association between receiving the intervention and a reduction in PCL-5 scores. Table 4.6 demonstrates the changes in psychometric self-reported scores between the two time slots of T1 and T2 compared across the groups of intervention and waitlist.

Table 4.6 Change in psychometric scores between time 1 (pre-intervention) and time 2 (post-intervention/waitlist)

		Group 1 – Intervention (*n* = 9)	**Group 2 – Waitlist (*n* = 9)**		
Psychometric scale	**Time**	**Mean (SD)**	**Mean (SD)**	***p-value***	***d***
PCL-5	1	47.00/15.98	55.67/12.35	.048*	1.20
	2	33.78/18.45	53.67/14.39		
PHQ-9	1	18.00/06.16	19.00/04.80	≤ .001**	1.66
	2	10.44/06.21	19.22/04.18		
GAD-7	1	13.44/04.00	15.90/03.79	.005*	1.66
	2	08.22/04.76	15.79/04.55		
WSAS	1	21.89/07.04	23.22/10.89	.009*	0.79
	2	15.44/08.35	22.56/09.67		
PSS	1	24.11/07.17	27.56/04.75	.003*	1.85
	2	17.56/05.81	29.11/06.64		
PWB-PTCQ	1	47.56/11.09	49.44/16.33	.002*	1.28
	2	65.78/08.98	48.89/16.37		

Table 4.7 - Change in outcomes for intervention group (n =9) from pre-treatment to follow up

Outcome	Time	Mean (SD)	*p*-value	*d*
PCL-5	Pre intervention	47.00/15.98		
	Post intervention	33.78/18.45	.027*	0.76
	4 month follow up	37.44/18.06	.017*	0.56
PHQ-9	Pre intervention	18.00/06.16		
	Post intervention	10.44/06.21	.001**	1.22
	4 month follow up	12.89/06.01	.003*	0.84
GAD-7	Pre intervention	13.44/04.00		
	Post intervention	08.22/04.76	.009*	1.19
	4 month follow up	09.56/04.39	.028*	0.92
WSAS	Pre intervention	21.89/07.04		
	Post intervention	15.44/08.35	.008*	0.84
	4 month follow up	17.89/07.90	.014*	0.53
PSS	Pre intervention	24.11/07.17		
	Post intervention	17.56/05.81	.012*	1.00
	4 month follow up	18.44/06.54	.012*	0.83
PWB-PTCQ	Pre intervention	47.56/11.09		
	Post intervention	65.78/08.98	.007*	1.80
	4 month follow up	61.11/15.48	.012*	1.01

(* = significant at the 0.5 level 2- tailed, **significant at the 0.1 level 2 – tailed)

Table 4.7 demonstrates that there a significant improvement in symptoms reported, on all of the scales recorded at both pre-post and pre-4 month follow up reports for the intervention group.

Table 4.8 - Change in outcomes for waitlist group (n =9) from two week pre-treatment to follow up

Outcome	Time	Mean (SD)	*p*-value	*d*
PCL-5	Pre intervention	55.67/12.35		
	Post intervention	35.33/13.03	.001**	1.60
	4 month follow up	36.67/13.36	.001**	1.48
PHQ-9	Pre intervention	19.00/04.80		
	Post intervention	11.33/05.12	.001**	1.55
	4 month follow up	12.11/04.20	.004*	1.53
GAD-7	Pre intervention	15.89/03.79		
	Post intervention	09.89/04.76	.001**	1.39
	4 month follow up	10.78/03.70	.001**	1.36
WSAS	Pre intervention	23.22/10.89		
	Post intervention	15.22/10.41	.034*	0.75
	4 month follow up	15.89/09.71	.045*	
PSS	Pre intervention	27.56/04.75		
	Post intervention	20.33/05.81	.021*	1.36
	4 month follow up	21.11/05.23	.033*	1.29
PWB-PTCQ	Pre intervention	49.44/16.33		
	Post intervention	61.78/12.95	.002*	0.84
	4 month follow up	63.11/14.00	.023*	0.90

(* = significant at the 0.5 level 2- tailed, **significant at the 0.1 level 2 – tailed)

Similarly, table 4.8 demonstrates that a significant improvement in symptoms was reported, on all of the scales recorded at both pre-post and pre-4 month follow up for the waitlist group

Table 4.9 - Change in outcomes for intervention group and waitlist combined (n =18) from pre-treatment to follow up

Outcome	Time	Mean (SD)	*p*-value	*d*
PCL-5	Pre intervention	50.33/15.15		
	Post intervention	34.56/15.52	≤.001**	1.03
	4 month follow up	37.06/15.41	≤.001**	0.87
PHQ-9	Pre intervention	18.61/05.15		
	Post intervention	10.89/05.54	≤.001**	1.44
	4 month follow up	12.50/05.04	≤.001**	1.20
GAD-7	Pre intervention	14.61/04.33		
	Post intervention	09.06/04.70	≤.001**	1.23
	4 month follow up	10.17/03.99	≤.001**	1.07
WSAS	Pre intervention	22.22/08.21		
	Post intervention	15.33/09.16	.001**	0.79
	4 month follow up	16.89/08.65	.004*	0.63
PSS	Pre intervention	26.61/07.18		
	Post intervention	18.94/05.82	≤.001**	1.17
	4 month follow up	19.78/05.91	.001*	1.04
PWB-PTCQ	Pre intervention	48.22/13.58		
	Post intervention	63.78/11.01	≤.001**	1.26
	4 month follow up	62.11/14.35	≤.001**	0.99

(* = significant at the 0.5 level 2- tailed, **significant at the 0.1 level 2 – tailed)

Finally, Table 4.9 demonstrates that when the group's scores were combined a significant improvement in symptoms was reported, on all of the scales recorded at both pre-post and pre-4 month follow.

The first of the additional questions asked at the two week post intervention data collection revealed that seven of the eighteen participants reported their PTSD symptoms had “significantly improved”, ten of them felt their PTSD symptoms had “Improved” and the final participant reported that they had “stayed the same”. When asked the second question whether the participants held any intention to fish again fourteen of the eighteen participants expressed a 10 out of 10 intention to go fishing again. Of the remaining four one scored 9 out of 10, one 8 out of 10 and the final two 7 out of 10. At the four month follow up once again the participants were asked to self-rate their PTSD symptoms. Of the eighteen participants five felt that their PTSD symptoms had “significantly improved” since last reporting on them after the study, eight of them felt their symptoms had “Improved” four participants reported that they had “stayed the same” and the final participant reported that their symptoms had “Got worse”. When asked if they had remained in contact with other participants or mentors from the study days, either in person, by phone or through social media thirteen of the eighteen had made contact with others from the original groups. Finally the participants were asked whether they had fished again since the study, six of the eighteen had done so. For further analysis of the results I used Jacobsen and Traux’s (1991) definitions of both clinically significant change (CSC) and reliable change (RC). When I looked at the PCL-5 scores for CSC I used PCL-5 - Cronbach’s alpha of 0.97 (Rudd et al., 2011) Non Clinical mean and SD and clinical mean and SD (Matthews, Harris, & Cumming, 2009; Tuerk et al., 2011). For the other scales I utilised; PHQ-9 - Cronbach’s alpha used 0.93 (Rudd et al., 2011) Non Clinical mean and SD and clinical mean and SD (Clark et al., 2009).GAD-7 - Cronbach’s alpha used (Dutton et al., 2006) Non Clinical mean and SD and clinical mean and SD (Clark et al., 2009). PSS – Cronbach’s alpha used 0.89 (Roberti, Harrington, & Storch, 2006) Non Clinical mean and SD and clinical mean and SD (Cohen et al., 1983). PWB-PTCQ – Cronbach’s alpha 0.94 (la Cour, Nielsen, Andersen, & Madsen, 2016a) Non Clinical mean and SD and clinical mean and SD (Joseph et al., 2012).WSAS – Cronbach’s alpha used 0.88 (Holahan & Moos, 1981) Non Clinical mean and SD and clinical mean and SD (Mundt et al., 2002).

After the waitlist group had received the intervention too an analysis of pre and post scores across both groups combined was carried out. I removed all participants with scores below the clinical threshold prior to analysis resulting in fifteen remaining (n = 15). The analysis showed a pre-treatment mean and standard deviation of 50.33/15.15 and post-treatment scores of 34.56/15.52. Five of the participants met the criterion for CSC. When I looked at reliable change of the 15 participants 12 improved and 3 demonstrated no change. When utilising criterion C for the analysis pre-treatment and four month follow up, the mean scores and standard deviations at the follow up point were 37.06/15.41. The number of participants meeting CSC criterion when using criterion C was 5 whilst with reference to reliable change 12 veteran’s scores were improved and 3 recorded no change. All other scales are recorded in the tables following (Tables 4.12 and 4.13, Figures 4.6 and 4.7).

Table 4.10 - Clinically significant change and reliable improvement Pre-treatment – Post-treatment: Mean/SD and effect size.

Scale	Pre-treatment mean/SD	Post-treatment mean/SD	Pre-post effect size
PCL-5	50.33/15.15	34.56/15.52	1.04
PHQ-9	18.61/5.15	10.89/5.54	1.50
GAD-7	14.61/4.33	9.06/4.70	1.28
WSAS	22.22/8,21	15.33/9.16	0.84
PSS	26.61/7.18	18.94/5.82	1.07
PWB-PTCQ	48.22/13.58	63.78/11.01	1.15

Effect size of 0.10 = small, 0.30 = medium and 0.50 = Large.

Table 4.11 - Pre-treatment – Follow up: Mean/SD and effect size.

Scale	Pre-treatment mean/SD	Follow up - treatment mean/SD	Pre- Follow up effect size
PCL-5	50.33/15.15	37.06/15.41	0.88
PHQ-9	18.61/5.15	12.50/5.04	1.19
GAD-7	14.61/4.33	10.17/3.99	1.03
WSAS	22.22/8,21	16.89/8.65	0.65
PSS	26.61/7.18	19.78/5.91	0.95
PWB-PTCQ	48.22/13.58	62.11/14.35	1.02

Effect size of 0.10 = small, 0.30 = medium and 0.50 = Large.

Tables 4.12 and 4.13 demonstrate that a large effect sizes were found on all the scales when I compared means at both pre-treatment post-treatment time points as well as pre-treatment and follow up time points. Figures 4.6 and 4.7 demonstrate in graph form the results from tables 4.11 and 4.12.

Table 4.12 - RCT data Clinically Significant Change (CSC) and Reliable Improvement (RI) using Criterion C

	RI No change	RI Deteriorated	RI Improved	CSC
PCL-5 Pre – Post *n* =15	3 (20%)	0 (0%)	12 (80%)	5 (33%)
PCL-5 Pre - Follow up *n* = 15	3 (20%)	0 (0%)	12 (80%)	5 (33%)
PHQ-9 Pre – Post *n* =17	3 (18%)	0 (0%)	14 (82%)	6 (35%)
PHQ-9 Pre – Follow up *n* =17	5 (29%)	0 (0%)	12 (71%)	7 (41%)
GAD-7 Pre – Post *n* =17	5 (29%)	0 (10%)	12 (71%)	9 (53%)
GAD-7 Pre - Follow up *n* =17	3 (18%)	1 (6%)	13 (76%)	9 (53%)
PSS Pre – Post *n* =18	8 (44%)	0 (0%)	10 (56%)	7 (39%)
PSS Pre – follow up *n* =18	10 (56%)	0 (0%)	8 (44%)	6 (33%)
PWB-PTCQ Pre – Post *n* =18	5 (28%)	0 (0%)	13 (72%)	2 (11%)
PWB-PTCQ Pre – Follow up *n* =18	10 (56%)	0 (0%)	8 (44%)	0 (0%)
WSAS Pre – Post *n* =18	12 (67%)	0 (0%)	6 (33%)	6 (33%)
WSAS Pre – Follow up *n* =18	13 (72%)	0 (0%)	5 (28%)	4 (22%)

Table 4.13 - RCT data Clinically Significant Change (CSC) and Reliable Improvement (RI) using external criteria where available

	RI No change	RI Deteriorated	RI Improved	CSC
PCL-5 Pre – Post *n* =15	3 (20%)	0 (0%)	12 (80%)	5 (33%)
PCL-5 Pre - Follow up *n* = 15	3 (20%)	0 (0%)	12 (80%)	5 (33%)
PHQ-9 Pre – Post *n* =17	3 (18%)	0 (0%)	14 (82%)	6 (35%)
PHQ-9 Pre – Follow up *n* =17	5 (29%)	0 (0%)	12 (71%)	3 (18%)
GAD-7 Pre – Post *n* =17	5 (29%)	0 (0%)	12 (71%)	8 (47%)
GAD-7 Pre - Follow up *n* =17	3 (18%)	1 (6%)	13 (76%)	4 (24%)
PSS Pre – Post **	_	_	_	_
PSS Pre – follow up **	_	_	_	_
PWB-PTCQ Pre – Post **	_	_	_	_
PWB-PTCQ Pre – Follow up **	_	_	_	_
WSAS Pre – Post **	_	_	_	_
WSAS Pre – Follow up **	_	_	_	_

** = Non calculable

In Table 4.12 the results for the PCL-5 scale, when assessed using criterion C, remain the same at both pre - post intervention and also pre – follow up. 33% achieved CSC and 80% RI improved. For the PHQ-9 scale there was an increased level of participants achieving CSC at the follow up (41%) compared to the post intervention scores (35%). When looking at RI 82% achieved this when scores were taken post intervention, this level dropped to 71% at the four month follow up. The level of participants achieving CSC when assessed for anxiety on the GAD-7 remained the same at both time points of post and follow up, 53% achieving CSC. When looking at RI in relation to the GAD-7 this was the only scale that I assessed that had a participant record a deterioration when 1 participant scored in this classification. However 71% at post intervention were seen to have improved and this raised to 76% at the follow up point. Success was also found when the participants PSS (stress) scores were analysed. 39% achieved CSC at post intervention, this percentage dropped slightly at follow up to 33%. When looking at RI for the PSS scale 56% achieved improvement at post intervention, this figure dropped to 44% at follow up. The next scale assessed was the PWB-PTCQ Post Traumatic Growth Scale. For reliable improvement 72% improved at post intervention this figure dropped to 44% at the follow up stage. CSC was achieved by 11% at post intervention but no participants achieved CSC at the follow up point. Finally when looking at social adjustment via the WSAS 33% achieved CSC at post intervention time point, with this reducing to 22% at the four month stage. RI improvement was achieved by 33% (post) dropping to 28% (follow up).

Table 4.13 looked at assessing using an external criteria. As there is no clinical cut off for the PSS, PWB-PTCQ or WSAS. For the other scales the results predominantly mirrored those of the Criterion C assessments with a few variations. For the PHQ-9 there was a drop from 41% achieving CSC at post intervention to 18%. There was also a drop from 53% to 24% of the participants achieving CSC when looking at the GAD-7 at the follow up time point. Figures 4.6 and 4.7 represent the data in the previous tables in graph form.

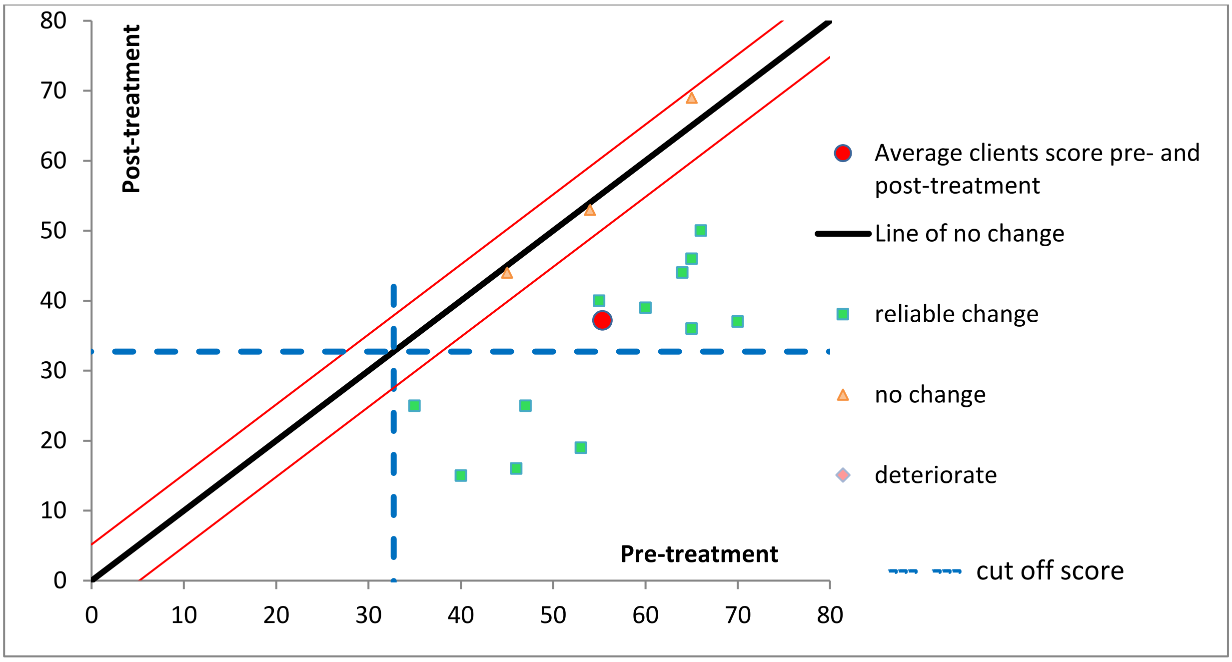

Figure 4. 6 - PCL-5 total for CSC - Pre and Post criterion C

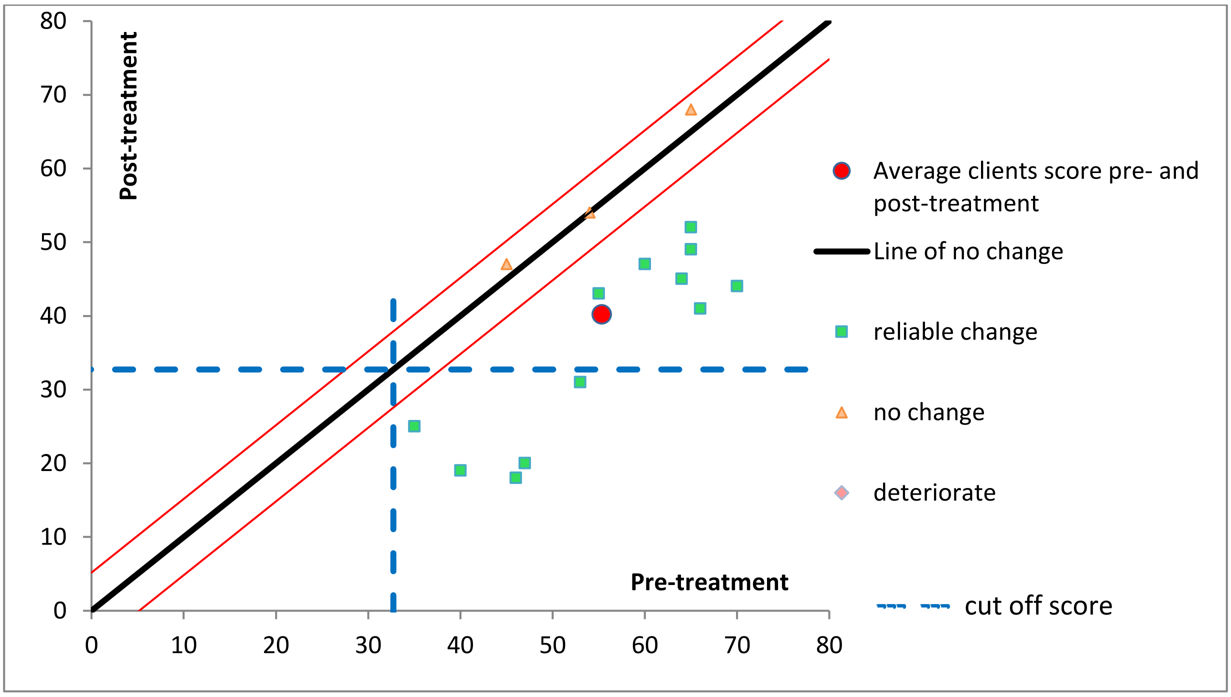

Figure 4.7 - PCL-5 total for CSC - Pre and Follow up external criterion.

4.4.1.2 Qualitative research: To analyse the short interviews undertaken within the RCT I employed a thematic analysis approach. As these short interviews were a precursor to a more in-depth qualitative analysis, reviewed in the following chapter, I have outlined the theory and steps involved to carry out thematic analysis within chapter 5.

Upon analysis of the ten recorded interviews three main themes were identified with further sub-themes also recognised (Table 4.14). First of the identified common themes was that of the “importance of being with peers”. Interviewed participants expressed the significance of being around not only military veterans but veterans that had had the shared experience of the diagnosis of PTSD. They expressed a sense of being understood better by their peers than somebody who had not experienced military life (all quotes contained within table 4.14). Participants specifically referred to this lack of understanding by civilians. A sub-theme that became obvious was that of the “inspiration and motivation generated by the attending mentors”, all of whom are military veterans that have previously experienced PTSD. There were statements from the participants that they were enthused by the mentors recovery and subsequent achievements and this would encourage them to aspire to emulate their recovery. Several of the participants also mentioned forming new social relationships and friendships with other participants taking part in the research alongside a desire to increase social interaction. There was a definite distinction made between mixing throughout the research study as opposed to social interaction in more traditional settings. However some participants expressed a new found desire to actively attempt to increase social interaction and to re-engage with lost relationships. The second common theme that became apparent was that of Biophilia. All of the participants that were interviewed expressed varying different levels of enjoyment experienced by being outdoors throughout the intervention. Elements mentioned as positive were “getting back to nature”, watching the birds and the quietness. Several of the participants attributed being outdoors with an increase in their sleep quality. They stated that the “depth” of sleep was improved. A further subscale was that of Hypofrontality. Several of the veterans expressed a sensation of switching off of the internal chatter/anxiety with statements that included “I always want to get out fishing because it relaxes me, disengages my brain a little bit”. Finally the opportunity to discuss trauma became an evident theme. Participants expressed a positive response of the chance to openly discuss their traumatic memories. They expressed gratitude and a sense of feeling “humble” when others shared their experiences of trauma. Once again it became apparent that an important element of feeling able to discuss the trauma was the fact that they were amongst peers.

Table 4.14 - Common themes and sub-themes for the POET intervention extracted from the qualitative interviews.

POET: **Common themes** and sub-themes	Example quotes
Importance of being with peers	Just people who understand you, because you can try and talk to people at home. Tell them what you’re feeling and what you’ve done and things like that, and stories of Afghan and all that, and they just don’t get it. They don’t get it, and you can’t blame them for it, but they just don’t understand. To get out and about to meet the same sort of people as myself going through this, well, struggling with the same sort of things, it just feels like family again. There's no difficultness between us. You can go round and

	just chat to whoever you like, and they respect you because they're going through the same sort of things without it even being said. Oh absolutely. Absolutely, purely because of our past. I say that as in everybody else, we've all got the same kind of past. I couldn't have that same conversation with my work colleagues because there's no connection there. Absolutely. Yes. With me, I prefer to mingle with forces, because we’re all on the same level and we’ve all got our own individual problems. It’s not pushed onto each other to talk about things.
New friendships	Oh yes. I'm going to go fishing a hell of a lot more. Hopefully I've met some good mates down here and they'll get in contact with each other and if they've got another thing like this, come along. If not, meet up and go fishing somewhere else.
	Socially, yes. I’ve never minded having a barbecue with the guys you’re fishing with and things like that. I’ve always done that, but when it came

Intention to increase social interaction	to things like going out on nights out and doing things like that, that was always a bit… But I think now I might try and engage again. Start going out with my mates again, because I am quite socially isolated now. I did have a great group of mates and all that and then obviously I got into the weed and everything and the drink and I, kind of, just chose that over them. You know?
Biophilia	Oh, I love it, absolutely love it, getting back to nature. It takes me back to when I was happy and not going through difficulty. It's just getting back to nature really. The bonus about this one is you're outside and you've got time to reflect on yourself, think. The views. Just seeing life itself passing by, birds and things like that. It's silly little things like that, but it's changed my brain dramatically. No, it's quiet. I like the quietness. I like being on my own anyway. I think the whole nature is meant to soothe you. Being quietly just sat here and not worrying about anything else is quite good.
Sleep quality	I just absolutely love sleeping under a bit of cloth with the rain hitting it. It's a proper deep sleep.

	I had one of the best night's sleeps, really. Only three hours, but the best three hours [I ever] had.
	Yes. Well, I only had, what, two hours, but it was the deepest sleep I've had, well, since September 2014.
Hypofrontality	The bonus about this one is you're outside and you've got time to reflect on yourself, think. The views. Just seeing life itself passing by, birds and things like that. It's silly little things like that, but it's changed my brain dramatically.
	One, fishing, because it disengages my brain a little bit and it makes me more relaxed. Two, being with the blokes because you know you're safe.
	I always want to get out fishing because it relaxes me, disengages my brain a little bit.
	No, it's quiet. I like the quietness. I like being on my own anyway. I think the whole nature is meant to soothe you. Being quietly just sat here and not worrying about anything else is quite good.
	It's just nice to get away and just sit there on the lake and just sit by yourself, really.

Discussion of trauma	We've all got problems, whether it's minor or people like **** that's lost his leg and his other injuries. Everybody has got dramas and nobody is afraid to talk about them. There were a couple of the guys that have shared stuff with me that I didn't expect them to want to share. That was quite humbling for them to feel that comfortable that they were able to speak about that. That was only, I believe, because of my past experiences and theirs as well. When you do talk to other squaddies and veterans, you can relate. They can talk to you and you can give your experiences across that might help them, and likewise, they might be able to give their experiences to help you.

4.7 Discussion

When I analysed the data from the trial I found that not only the target symptomology of PTSD had significantly improved but all five of the psychometric scores collected were significantly improved at the two week post assessment point (tables 4.7/4.8/4.9). These significant improvements held when I reassessed at the three month follow up point. When I assessed the results for CSC (criterion C) at the pre-post stage (Table 4.12) in the RCT, for the target condition of PTSD, it was found when looking at the PCL-5, 5 of the 15 participants that took part in the trial had indeed achieved CSC. The scale for anxiety, GAD-7, demonstrated the most improvement with 9 of 17 veterans achieving CSC. When examining RI at pre and post intervention none of the veterans reported deterioration from their original pre intervention test scores across all of the psychometric scales recorded. For the target disorder of PTSD 12 of 15 veterans recorded improved scores. Similarly when looking at the scores for pre and follow up comparison for the PCL-5 (PTSD) scale 5 of the 15 military veterans that took part in the trial had indeed realised CSC. Once again the most improvement realised was in the category of anxiety with 9 of 17 participants realising CSC. Also I found that when examining RI just one of the veterans reported deterioration from their original pre intervention test scores to the follow up collection of data three months later. For the target disorder of PTSD 12 veterans recorded improved scores. The answers given in response to the military veterans being asked about their own perception of their PTSD symptomology are equally encouraging. Two weeks post the study seventeen of the eighteen participants reported their symptoms as either "improved" or "significantly improved". At this time point none of the participants reported a perceived increase in symptoms. When this question was repeated at the four month follow up thirteen of the eighteen participants reported their symptoms as either "improved" or "significantly improved" four felt their symptoms had "stayed the same" and one felt that they were worse. There were also high levels, thirteen of the eighteen, which had stayed in social contact with others from the trip.

In their review of comparative effectiveness Jonas et al. (2013) looked at the efficacy of pharmacological treatments for improving PTSD symptoms. They found that there was moderate strength of evidence supporting the efficacy of fluoxetine (d = 0.31), paroxetine (d = 0.49), sertraline (d = 0.25), topiramate (d = 0.96) and venflaxine (d = 0.28). In Cusack et al.'s (2016) systematic review and meta-analysis they assessed the efficacy of psychological treatments for adults with PTSD. The studies included in their analysis were randomised control trials of at least 4 weeks in duration that enrolled adults with PTSD based on DSM I-V criteria. The psychological treatments that assessed efficacy of the intervention against PTSD symptoms utilising Cohen's d included Cognitive therapy (d = 1.33), CBT- exposure (d = 1.27), EMDR (d = 1.08) and narrative exposure therapy (d = 1.25). Despite the POET intervention being only a two day one night format the effect size found was still strong (*d* = 1.33). However it should be noted that this was assessed against the DSM-V criteria as opposed to the DSM-IV criteria used in Cusack et al.'s (2016) meta-analysis. Despite this difference it could be argued that the effect size found when assessing a two day POET intervention can be viewed as favourable to four weeks of more formal therapeutic interventions when looking to reduce PTSD symptoms. With regards to the efficacy of the psychological interventions on depressive symptomology the meta-analysis found effect sizes as follows Cognitive therapy (*d* = 0.96) and EMDR(*d* = 1.13). For the POET intervention a Cohen's *d* of 1.50 was recorded. When looking at effect sizes in relation to generalised anxiety disorder in their meta-analysis Gould et al. (1997) report Cohen's *d* of 0.91 for CBT in the reduction of GAD symptomology, the POET intervention resulted in a stronger effect size of a Cohen's *d* of 1.28.

Whilst all the quantative data points to a significant increase in well-being across the domains recorded for us to be able to hypothesise a psychological model I utilised the qualitative data obtained in the short interviews too. The themes and sub themes gave us further insight as to the potential beneficial elements of the experience and why they might have a positive effect. Whilst these studies show great promise there are some limitations to this work. The number of participants is low and therefore this restricts our ability to extrapolate theories on the quantitative data alone. There is also an element of self-selection by the participants who engaged in the intervention with a large number of potential participants choosing not to engage once they were told the format of the trial. The qualitative data obtained was again limited, it was restricted to short interviews; longer more in depth exploration of the phenomenological experience of the veterans is warranted. Also better monitoring of the exposure to their traumas via narrative of the participants could have been implemented through the use of self-recorded diaries.

4.7.1 Limitations:

Replication of this study, whilst feasibly possible, will be difficult due to uncontrollable factors such as weather and the successful catching of fish or not. (It is worth noting here that on both legs of the RCT, the study was carried out in very poor weather conditions, heavy rain and wind). It could be argued that the sense of achievement when catching a fish might enhance an improved sense of wellbeing. Similarly one could posit that people might find the interventions more enjoyable if the weather was clement as opposed to harsher conditions. Other limitations that are worth considering are the use of a waitlist design and whether a different control group would be more effective for analysis purposes. Whilst the small number participants within the study will be seen as a limitation, it is difficult to recruit willing participants for these studies due to the nature of the participant criteria required. Further studies might be enhanced by utilising clinician assessment pre and post as opposed to self-report scales. Another limitation might be the possibility of experimenter bias. As the experimenter was responsible for all data collection there is a possibility that this may foster a desire to “please” him when scoring the self-report psychometric scales. Finally, the lack of an active control group carrying out a non-green alternative to POET should be addressed in future research studies.

Despite these limitations the research into the efficacy of POET as an alternative or an adjunct to existing therapies or interventions is extremely promising and warrants continued further exploration. There are opportunities in further quantative studies to rectify some of the limitations mentioned above. However, a set of more in-depth qualitative interviews, to further underpin the proposed psychological model, would be of great value to enhance our understanding of the mechanisms at work within POET. Therefore, in the following chapter I carry out such qualitative research for these purposes.

CHAPTER V

5.1 Chapter Qualitative Analysis of Four P.O.E.T Participants

After the completion of the RCT and the analysis of the brief interviews it was felt that further phenomenological exploration of the participants experience would potentially enhance our comprehension of how and why POET may be having a beneficial effect on the symptoms of PTSD for the military veterans that attended. To achieve a greater awareness of the mechanisms at work, follow up interviews with some of the original participants were carried out and these interviews were analysed using qualitative analysis. As discussed in chapter 4, during the short interviews, the participants from the studies indicated that there were different positive elements experienced during the intervention. The emergent evidence of green environments being beneficial to mental wellbeing in military veterans (Dutstin et al., 2011, Duval and Kaplan 2013) was one area of interest for the research and this was built into the interview schedule (appendix 5.1). Similarly the perception of social and peer support, both in terms of being beneficial to the general population (Edlund, Unutzer, & Curran, 2006, Gadalla, 2008 and Lam & Rosenheck) as well as specifically to military veterans (Hundt et al, 2015) were included in the interview schedule. I also wished to explore the area of narrative exposure, discussion of the traumatic memories with others, as this has been found as beneficial in the reduction of PTSD symptomology (Adenauer et al., 2011). Other areas of interest included in the schedule were early life experiences and reasons for joining/leaving the military. The purpose of these interviews was to attempt to understand the concept of POET at a deeper level and identify what are the active elements of the intervention and therefore inform further research into the project. To achieve a greater awareness of the mechanisms at work these interviews were analysed using qualitative analysis.

5.2 Method

5.2.1 Qualitative analysis approach.

Whilst qualitative approaches are incredibly diverse, complex and nuanced (Holloway & Todres, 2003), thematic analysis (TA) is viewed as a foundational method for qualitative analysis (Braun & Clarke, 2006). Braun and Clarke define it as a method for identifying and analysing patterns of meaning in a dataset (2006). It is utilised as a system to demonstrate which themes are significant in the description of the phenomenon under review (Daly, Kellehear, & Gliksman, 1997; Holloway & Todres, 2003). Themes refer to specific pattern of connotation found in the data collected. These meanings fall into two categories: manifest and latent content. Manifest content is content that is directly observable across a series of interview transcriptions. Conversely, TA can contain latent content with references that are implicit themes as opposed to overt. TA tends to draw on both theme types. Another important difference in terms of the differentiation of a theme is whether the theme is either drawn from a theoretical idea brought to the research by the researcher themselves (deductive) or alternatively is derived from the raw data alone (inductive). Boyatzis, in his 1998 book Transforming Qualitative Information, states that whilst theoretically derived themes allow researchers to replicate, extend and refute existing studies there is little or no point in carrying out qualitative research if you do not want to draw on the organically arising themes evident in the data itself. One of the strengths of TA is the flexibility of its approach and its ability to utilise both deductive and inductive themes together. TA has its historical influences and origins embedded in the older tradition of content analysis (CA), a historically quantative tradition dating not only from the early 20th century within social sciences but also from much further back in the humanities (Smith, 2000). CA is simplistic in its analysis basis, relying on assessing frequency attributes within the data (e.g. images, words). However CA has been described as trite (Silverman, 2013) due to its exclusive reliance on the frequency outcomes it generates. TA was therefore established to counter this criticism and go beyond the overt observable material and to look at more implicit themes and thematic structures (Merton, 1975). TA is best suited to elucidating the specific nature of a given group's conceptualisation of the phenomenon under study (Helene, Joffe & Yardley, 2004). It has been used extensively not only in the arena of conceptualisations of illness (Hélène Joffe, 1999, 2003; Hélène Joffe & Haarhoff, 2002) but also in the field of social representations of mental health research (Morant, 2006). It is therefore well suited to use with social phenomenology (Fereday & Muir-Cochrane, 2006) and appropriate for the research I am undertaking with the military veterans.

5.2.2 Ethical approval.

Ethical approval was sought and agreed via the University of Essex Psychology department. The main considerations with regards to this approval was the perceived risk to myself when visiting and conducting the interviews (some of the participants were explicit about having violent pasts in the original short interviews from the RCT) and also the possible detrimental effect on the participants of having to engage with distressing material from their pasts (although this would be contrary to the therapeutic premise that exposure to traumatic memories can lead to habituation).

5.2.3 Demographics.

All the surviving (one participant had died) original angling pilot study participants (August 2014) were approached and asked whether they would consent to an in depth follow up interview. Four participants agreed for the purposes of the research. The demographics of the four were: participant B male, 45 years old employed but currently off long term sick; participant J female, 29 years old employed; participant T male, 40 years old employed and participant S male, 43 years old student. All four of the interviewees had experienced traumatic events whilst serving (participant S – physical bullying, participant B – vicarious trauma, participant T – the onset of physical difficulties and participant J – Combat trauma).

5.2.4 The Interviews

The interviews were in-depth, semi structured and digitally recorded. The interviews took place over a period of one week in May 2017 (33 months after the original study date) in the participants' own homes. The interviews were undertaken at this point to facilitate as long as possible period from intervention to interview time whilst also working within the timescale constraints of the PhD. Consent was given for the interviews to be transcribed and then used for research and publication purposes (transcripts are contained in appendix 5.2). The interview schedule (appendix 5.1) although brief was intentionally broad based and wide-ranging with this design used to encourage the interviewees to narrate their own stories as opposed to adhering to a strict structure. It was employed utilising open-ended questions, with prompts and follow up questions used in order to help elicit a breadth and depth in the participant's response (Breakwell, 2006). The schedule was piloted on a participant from the more recent RCT trip for suitability. This pilot interview lasted 45 minutes in length. All interviews were carried out by the author, who had shared the experience of attending the original angling pilot study with the participants in 2014. The interviews were transcribed and time coded. This time coding was utilised in the analysis of the interview content by using the time code to reference where the participants made their statements in their interviews. The transcription was done using a simple orthographic notation as described and suggested by Bannister (2011) and analysis relied upon organising sections of data into recurrent themes utilising TA (Braun & Clarke, 2006). Within their paper Braun and Clarke outline six phases to the thematic analysis process. Phase 1 is to familiarise yourself with the data. Braun and Clarke state that it is imperative to immerse yourself in the data so that you become aware of the depth and breadth of the content. Phase 2 is to generate initial codes from the data. Codes identify a feature of the data, either semantic or latent, that appears interesting to the analyst and refer to the most basic segment of the raw data that can be assessed in a meaningful way regarding the phenomenon (Boyatzis, 1998). Phase 3 is the searching for themes phase. Here the analyst re-focuses the analysis at a broader level of themes, as opposed to codes. This involves sorting codes into potential themes and collating all the relevant coded data extracts. Phase 4 is the reviewing of these themes. There are two distinct levels of reviewing the themes. Level one involves reviewing at the level of the coded data extracts. This means reading all the collated extracts for each theme and then considering whether they appear to form a coherent pattern. Level two involves a similar process however this is in relation to the entire data set. Here you consider the validity of the individual themes in relation to the data set, but also whether your thematic map reflects the meanings in the data set as a whole. Phase 5 require the defining and naming of the themes. This means to identify the essence of what each theme is about and determine what aspect of the data each theme captures. The final phase, phase 6, is the producing the report stage. This needs to be concise, coherent, logical, non-repetitive and interesting.

Due to the small number of interviews and the loose structure applied throughout the dialogues it was not felt appropriate to base the analysis on a quantification criterion. For the purposes of our research, we were more interested in individual’s phenomenological experiences in relation to the military, PTSD and the intervention. I identified and named themes from the data sets and took direct quotes from the transcripts to illustrate the type of data classified by each theme as advocated by Breakwell (2006).

5.2.4 Trustworthiness.

Guba (1981) proposes four criteria that he believes should be considered by qualitative researchers in pursuit of a trustworthy study. Guba’s constructs correspond to the criteria employed by the analysist, they are credibility (in preference to internal validity), transferability (in preference to external validity/generalisability), dependability (in preference to reliability) and confirmability (in preference to objectivity).

5.2.4.1 Credibility. Shenton (2004) states that the following preventative strategies may be made by researchers to promote confidence that they have accurately recorded the phenomena under scrutiny:

- The adoption of research methods well established both in qualitative investigation in general and in information science in particular. Adopting a thematic analysis approach to the qualitative research meant that the research I conducted adhered to this criteria.
- The development of an early familiarity with the culture of participating organisations before the first data collection dialogues take place. Having worked as a mental health practitioner for military veterans over many years I felt I had a good grasp of the culture.
- Random sampling of individuals to serve as informants. Once again the very small sample size precluded random selection, however as I asked the whole population if they wished to be interviewed this essentially negates the possibility of bias.
- Triangulation may involve the use of different methods, especially observation, focus groups and individual interviews, which form the major data collection strategies for much qualitative research. I did not triangulate the qualitative element of the research however I did undertake quantative research to enhance awareness of the process.
- Tactics to help ensure honesty in informants when contributing data. In particular, each person who is approached should be given opportunities to refuse to participate in the project so as to ensure that the data collection sessions involve only those who are genuinely willing to take part and prepared to offer data freely. I asked all remaining participants, one had died since the study, that were on the original angling pilot study to participate in the research (N = 10). Only the four that agreed were interviewed.

5.2.4.2 Transferability. Since the findings of a qualitative project are specific to a small number of particular environments and individuals, it is impossible to demonstrate that the findings and conclusions are applicable to other situations and populations. Bassey (1981) proposes that, if practitioners believe their situations to be similar to that described in the study, they may relate the findings to their own positions. Lincoln and Guba (1994) and Firestone (1993) are among those who present a similar argument, and suggest that it is the responsibility of the investigator to ensure that sufficient contextual information about the work is provided. In the framework of this thesis there has been sufficient information provided to contextualise this research. Therefore the qualitative research findings are transferable.

5.2.4.3 Dependability. In addressing the issue of reliability, analysts employ techniques to show that, if the work were repeated, in the same context, utilising the same methods and with unchanged participants, comparable results would be achieved. However, as Fidel (1993) and Marshall and Rossman (1999) note, the changing nature of the phenomena scrutinised by qualitative researchers renders such provisions problematic in their work. To address the dependability matter more directly, the procedures within the study should be reported in detail, thereby enabling a future researcher to duplicate the work, if not necessarily to gain the same results. I have outlined clearly the method I utilised to obtain these transcripts and as such feel they are replicable.

5.2.4.4 Confirmability. The concept of confirmability is the qualitative investigator’s comparable concern to impartiality. Steps must be taken to help guarantee, as far as possible, that the findings are the consequence of the experiences and thoughts of the participants, rather than the preferences of the researcher. The semi-structured interview approach adopted for this qualitative approach, based around an interview schedule, may have biased some of the responses in so much as it led the interviewees into predetermined areas. However the subsequent freedom and support demonstrated by the interviewer allowed them to explore their own phenomenological understanding of their experiences.

5.3 Results

It was evident from the data analysed that the participant's time in the military and their experiences of trauma, and subsequent development of PTSD, had had a major significance in their everyday lives. Whilst each individual participant's phenomenology of their own experiences differed, there were many areas of commonality. When coding the data for TA, four main themes were identified (Table 5.1. figure 5.1), each having significant and informative sub-themes.

Table 5.1 – Main themes and their sub themes derived from interview transcripts

Main Theme	Sub - Themes			
Early life	School	Attachment	Social support	Military family
Study/Intervention	Hypofrontality	Exposure	Biophilia	Peer support
PTSD	Isolation	Symptomology	Violence	
Military	Stigma	Lack of support	Military bonds	

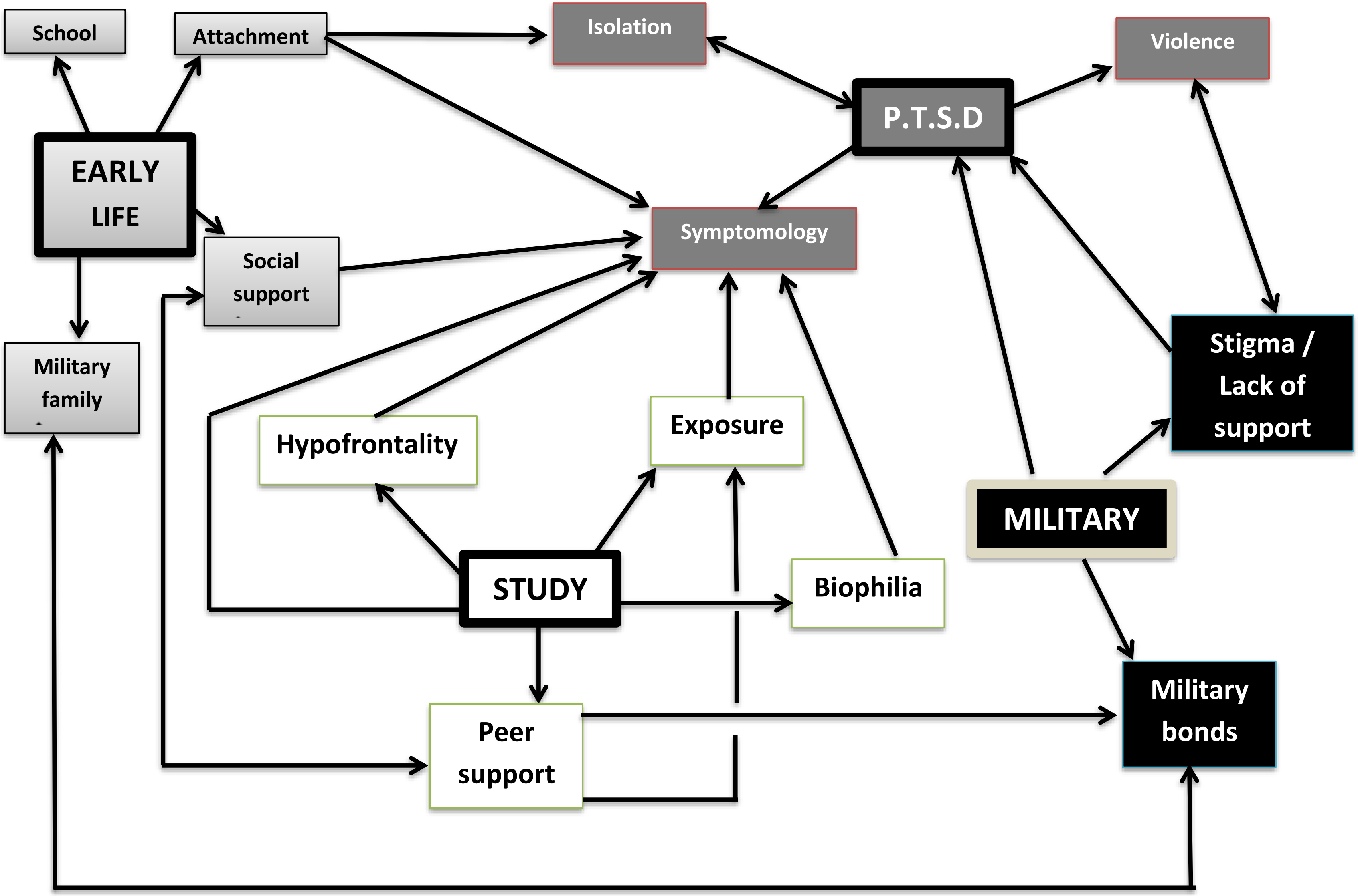

Figure 5.1 – Interview themes identified using thematic analysis on transcribed interview content.

5.3.1 Early life theme

The first of these major themes was the theme of the early formative years of the participants. Two of the four interviewees described having positive early lives with participant S stating;

> **"My childhood was really, really good" and "yes, it was a happy childhood, really happy".**

Similarly participant J said:

> **"Yes, mum was a good mum. She was a good mum, she really was."**

From these quotes it appears that both these participants had both positive role models and potentially strong attachments to primary carers. In contrast participant B and participant T had more challenging early years. Participant B said;

> **"My mother passed the parental responsibility of bringing me up, as the youngest in the family, onto my elder sister."** and **"I felt that my mother had no interest in me, she was uninterested in me. She basically cut me off, as it were."**

Participant B alluded to the emotion he felt when he stated;

> **"In my formative years, it was very much that I was cared for and then abandoned."**

Similarly participant T's recollection of childhood was also one of poor attachment, violence and abandonment

> **"Yes. My step-dad was good as gold. I loved him to pieces, but he just jumped up and left one day."** and **"My dad was really violent towards me, my brother and my mother. She left him, she was on her own. She struggled. Then she met my**

> **step-dad, and everything was working out. Then he left us, and I went off the rails a little bit.”**

When discussing their formative years, school was referred to on several occasions. Participant B said:

> **“School for me was quite terrible. We moved every three years. I went to six different primary schools. Then I went to five secondary schools. I had a very, very broken education.”**

Whilst J said;

> **“I hated school”**

This meant both participant B and J expressed that school was challenging. Participant J clearly states that they hated school whereas participant B alludes to struggling due to the transient nature of being the child of a serving military soldier and moving from school to school. Highlighting that it was also a difficult period for himself participant T went on to state;

> **“Yes. I couldn’t read and I felt embarrassed about it. So I lashed out basically. But for five years they didn’t even click that it was dyslexia. For all my school life, I didn’t get anything done.”**

Another sub-theme that was identified was the influence of family members in the participant’s decision to join up to the military. Three of the four interviewees alluded to being influenced by family military links and cited this as one of the reasons they joined the military. Participant S said;

> **“My brothers and my family, because a lot of my family went into the army. I was looking up to my cousins and uncles who had been in the army. I suppose my brothers as well, being the youngest. As a youngster I always played army and things like that. I remember my cousin mainly, because he was in the artillery, coming back and getting married. All his colours. He had a good life and good career. That was an influence because he really enjoyed his time. He’d done 24 years.”**

Similarly participant B had not only a father;

> **“Father in military? Yes, in Catterick of all places.”**

But also a sister;

> **“My sister then joined the army herself; she went into the corps ranks.”**

Participant J stated;

> **“Yes, there was always a thing with the army, “Oh, I could go and join the army.” My dad was in the TA when I was younger but he didn’t join the army, so I thought, “Right I want to join the army.”**

5.3.2 Military experiences theme

A second theme of the participant’s experiences was their time within the military itself. In this main theme two sub-themes became clear, the first of these being a sense of military bonds and kinship and then the subsequent loss of this support system on the return to being a civilian. The second sub theme was the perception of a stigma when dealing with mental health issues whilst in the military, this was coupled with either a real, or perceived, lack of support from within the senior military ranks. Participant J, when recollecting about a period between her two deployments to combat zones, said:

> **“I think the thought of going out there again and all I kept thinking of, What if that happens again, what if this happens again? The people that I was there with and they’re like you’re brothers and sisters”** and **“You have got a connection there because they have all been through something similar to- you’ve had that family in the army.”**

Participant T stated;

> **“A lot of that does come from going through basic training, where you are taught; these are the people you live with. These are the people that are your group. You are a family. You get on; you do your job together. If one of you doesn’t do the job, everybody is let down”** and **“I felt, yes, that I was part of the family.”**

Participant B when prompted as to his thoughts on military life responded by saying;

> **“Security. Brotherhood. Comradery.”**

He also went on to state;

> “**A soldier will hold himself in a certain way, have pride in himself. What he looks like, things put in certain areas. He’ll have his own routines. A civilian will get up, get dressed, and go out. But a squaddie will get up. Whether his kit needs ironing or not, he’ll iron his kit, make himself presentable, have a shave, basically just look after himself. Have self-worth.”**

Finally participant S said;

> **"In my last four or five years I was with the PTI Corps. I worked with PTIs and there was a fella there who was like my father. He saved my life. Without him I would have committed suicide. Having him in my life was fantastic. So I did have that bond, I did get it. The last five years of my career were brilliant."**

When exploring their thought around leaving the military participant S stated;

> **"I didn't know what to expect, how to talk to people. Military people talk differently to civilian people"** and also **"Coming out and becoming a civilian was hard. Once I was out, it was out. Back then there wasn't any help. I literally drove out of the gates in Germany, they shut the gates, and that was it. I looked about and that was all I had known from a young age. I ended up staying out there for another year, working on and off and sleeping in the car. Whatever I could do to try and find myself. I think the transition between coming out, back then, and getting adjusted, was mad. I spent a lot of time homeless because the council wouldn't help me at the time. The army didn't want to know. The British Legion didn't help at all. The transition was hard."**

For participant T there were similar sentiments around the broken bonds and transition;

> **"I even miss having the sergeant major shout and scream at me, and then ask me to go and make him a cup of coffee. Just stupid little things. If you do something wrong, you're going to get this done to you. I miss all of that"** and **"What it is, is that you've gotten used to something, and that gets taken away from you. You are not capable. Nobody has taught you how to pay the bills, how to cope with money. Because you've never had to do it before!"** and **"It's like being in prison. You've been in prison for seven years, and now you're out. The world has**

> **changed and you don't know what to do. That's exactly what's happened to you. You can't deal with things, because you've never had to deal with them before."**

Participant B experienced a difficult ending to his military career. He was sentenced to military prison before being discharged. He said;

> **"It felt like I was being abandoned again. Like I was being kicked in the teeth and thrown out again. I wasn't wanted, I was shameful. I went from being in a position where I had been recommended for promotion to sergeant, to being a private solider sentenced to 90 days in jail."**

Finally participant J said;

> **"I didn't know how to pay council tax, I didn't know how to pay rent, I didn't know who it went to. I didn't know I had to pay that, so I think if I wasn't with XXX, I don't even know what I would have done. I think XXX was there- she was a massive support because she's obviously a civvy. She said, "Oh, you've got to pay this, you've got to pay that." I thought, "Oh my God."**

The second sub theme to be uncovered in the transcripts under the heading of military experiences is the one of a strong sense of stigma and lack of support around reporting cases of mental health issues both whilst serving in the military as well as when transitioned into civilian life. All four participants spoke extensively about a sense of stigma and how this had led to reluctance to seek out help at the onset of their mental health problems. Participant S's described his experiences by saying:

> **"No, you wouldn't admit any difficulties that you're feeling to anybody else. It's a weakness. When you do get scared, or you get lonely or depressed, that's all seen as weakness in the army. You're a man, you're a fighting machine, get up.**

> **Shrug it off and fucking carry on”** and **“You would be looked at differently. You can’t, you just don’t do it”**

Similarly participant T stated;

> **“Yes, massively. If you say you’re not coping, everybody else would go, “Man up. Sort yourself out.” So you don’t say anything, you just try and crack on with it yourself”** and **“You should be coping. You’re in the army, you’re a soldier. You’re not allowed to be like that”** and with regards to a perception of lack of support **“I didn’t get any help whatsoever, and I think it’s disgusting. Absolutely disgusting. I think everybody should be checked. I know it takes a little bit of time to come out of you, but they should still be checked before anybody leaves the army. Whether it’s medical grounds, or kicked out, they should always be checked for PTSD.”**

There were similar sentiments expressed by participant B;

> **“It was still a case of suck it up, get on with it”** and with regards to lack of support **“The only support I got was from the Church of England priest that came in each Sunday. I even had to fight to be able to go to Church on Sundays. The only emotional and spiritual support I got was from them.”**

Participant J said;

> **“Yes, because I thought that happens to everyone in the army. There’s a massive stigma in the army where you don’t go sick for that, it’s just happened. That’s what you get trained for and stuff like that”** and **“I think because that’s the stigma as well that came from the army, if you’ve got PTSD you’re, sort of, damaged, you couldn’t handle your job. I think that’s the main thing, you**

> **couldn't handle what the army could throw at you really and I didn't want to be associated with PTSD. I thought, "Oh God, I don't want all this PTSD stuff to come up."**

When she spoke about a lack of support, participant J said

> **"I remember it took me about a month to pluck up the courage to go there. I got an appointment and I went in there and I saw a brigadier from artillery and I just burst out crying. I just thought, "I do not feel right at all." I just said, "I don't want to put my uniform on in the morning, I don't want to get up. I just feel down. I don't want to go to the ranges, don't want to pick up my rifle. I just did not want to soldier." The only thing that she said to me was, "Maybe it's time that you left the army." I didn't want to do that, I didn't want to leave. I wanted for someone to say I think, "You'll be alright, it happens to everybody because you've been through this."**

5.3.3 Phenomenological experience of mental health problems

Participant S said during the interview;

> "**It was lonely at the time; I was only 16, coming up 17. It was a lonely time. I was a kid and I didn't understand it. I thought the men would have moulded me into being what they wanted me to be, rather than take the piss and be nasty and physically abusive. It was a bit strange. I felt then, I may have made a bit of a mistake here"** and **"For me PTSD was quite a lonely thing."**

Participant T said;

> **"Yes, I didn't have any self-worth. I was stuck somewhere I didn't want to be. I had no family around me. All my mates were going to work. I wasn't allowed to**

> **do anything. It was in a massive black hole. Slowly sucking me in, further and further and further. I wasn't right then. I was nowhere near right then, looking back"** and **"No, I didn't leave… I don't really go out now, but I think that the majority of it is my choice anyway. I know it still affects me because sometimes I turn the intercom off, close the curtains and just sit here, quite happily. I never left the flat, for about a year."**

Isolation was a recurrent theme referred to by participant B;

> **"I do know that I have some friends, but I find it very difficult now because I feel very isolated a lot of the time, very withdrawn"** and **"It made things more difficult. It started playing on my paranoia and feeling isolated"** and also **"I think some of my symptoms were alleviated. However, I think it drew some of my other isolationist tendencies to the fore because I was given the chance to isolate myself."**

Similarly participant J expressed feeling isolated during her interview too;

> **"Yes, so the first thing I was isolating myself. Usually I would go down the Naffy, sit with the lads and have a drink. People would go out for the weekend and stuff like that and I just didn't do that. I'd rather sit in my room, lock the door, and watch telly"** and **"That's the first thing I felt was I would isolate myself. I wouldn't join in, I wouldn't go to dos after work and stuff like that"** and **"I would come back, I would get showered, I would lock the door. I wouldn't even eat in the scoff house anymore because that's another form of socialising in the army. I wouldn't go there, I would buy food and I would sit in my room"** also **"I think I was more anxious and nervous because I'd isolated myself."**

Another sub-theme of the symptoms that three of the four participants articulated during the interview was a propensity for violence after their time in the military. The Institute of Medicine in the USA (National research Council, 2010) reported that criminal justice involvement is one of the most significant problems for Iraq and Afghanistan War Veterans. Many veterans have returned home diagnosed with PTSD and traumatic brain injury (N. Greenberg, 2009) both of which have been linked to incarceration, antisocial behaviour, and violence among veterans from previous conflicts (Calhoun, Malesky Jr, Bosworth, & Beckham, 2005; Dutton et al., 2006; Elbogen et al., 2012; Golding, 1999; Grafman et al., 1996; G. A. Greenberg & Rosenheck, 2009; Pandiani, Rosenheck, & Banks, 2003; Saxon et al., 2001; Shaw, Churchill, Noyes, & Loeffelholz, 1987). Participant S describes high levels of violence after being discharged from the military:

> **"For me, PTSD was horrendous. It literally led my life into a completely different direction. I was violent to the extent that I was going to kill my mum and dad. I went to do that. Every time I got in trouble, all I wanted to do was… If I was having a fight or there was a violent situation, that person must die. It's not just giving him a dig. He must die; I've got to kill him. I did do some bad things. I stabbed people and did things. It wasn't to warn them. I wanted them to die. For me PTSD was horrendous"** and "**I thought, if I put myself in a really violent situation, if I get killed, then happy days. That's what I want anyway. I couldn't do it myself. I kept doing it but I didn't succeed. Then if, at the same time, I can hurt other people, whatever happens to them happens and it makes me feel better as well. I'm in a win-win situation. I started putting myself in violent situations. I went back and fought as a mercenary, a private soldier. Then I came back and started working as security, working a door for the same firm. I left them. I started collecting money for certain people. That led me to meet**

> **people higher in the criminal world. I got into a situation where I was working for real top players. Then I was doing quite severe stuff. Breaking into people's houses at four o'clock in the morning and causing some harm to them over collecting money. If it came to it, holding people or families in rooms to get what they owe. There was no remorse, it was what it was."**

Participant T also revealed violent out breaks after leaving the army;

> **"I couldn't walk away because I was with my mate, so I turned round and hit someone. There's been a few. It's always at the start of everything."**

Similarly participant B had experienced violence too;

> **"Yes, I had extreme anger issues. I ended up being dragged away from a private soldier that I was beating the crap out of by two warrant officers."**

The final sub-theme to PTSD was each individual's phenomenological experience of being a sufferer of the symptomology. Participant S's experiences of PTSD were narrated as;

> **"First of all with PTSD, in my eyes, if you don't get it sorted, it leads to a lot more problems, other illnesses. Mine started off with posttraumatic stress disorder, which then led to having personality disorder, depression, high anxiety, social anxiety, and massive amounts of violence. No emotion at all towards anything. Not my parents, nothing. For me, PTSD was horrendous. It literally led my life into a completely different direction"**

Participant S went on to say;

> **"Symptoms were bad dreams of situations that I couldn't control. Mainly dreams about not being able to protect the people that I loved. I think for the**

> **first few years, flashbacks of the beatings. After that, the dreams would be of me being violent towards them. Violent dreams where I'd wake up ripping pillows. I've punched my partner and attacked her in the night. Very aware of everything that goes on around you. I couldn't go to pubs, couldn't go drinking. I was getting to a stage where the only place I felt good and safe was my house."**

For participant T his experience was;

> **"With PTSD, I don't know about other people. With me, I know I've had a nightmare because I wake up and I'm covered in sweat. It feels like I've pissed the bed. But I've no idea what I've dreamt about. I'll either go to sleep, have some horrible dreams and not remember in the morning and be covered in sweat. Or I'll stay awake for three days because I couldn't sleep"** and **"I basically closed all the curtains, laid on my sofa, for a good few months, and didn't leave the house. Didn't shave, didn't wash. Proper slumming it. I'd lost everything. Why should I bother anymore? Everything I'd worked for, somebody had taken away from me. Why the hell should I put myself out there again and get everything back? There was no point. I hit rock bottom. I went into the kitchen. I got all my pills out and started drinking a bit of vodka. I got a couple of handfuls of pills, put them in my gob. Where my house was, you'd pull up in the drive and you could see straight into the kitchen window. As I put the second handful of pills in my mouth and started drinking the vodka, my mum banged on the window."**

Participant B's narrated;

> **"We deployed about 19 times out on to the ground while I was out there, to go to suspected sites. One suspected site we went to was a farm. It had a brand new**

> **concrete floor in its shed. Under the concrete floor there were 56 bodies. I was there, I was part of the team exhuming those bodies and then trying to identify them. I actually fainted. I actually passed out. Mentally, I was stuck with a lot of the images. I still now can't listen to somebody using a jackhammer."**

He also felt;

> **"At that point I felt like I was a two people. Underneath, I felt very useless, worthless. I got to the point where I didn't want to live anymore. The best thing I could do for the world was end it all."**

Finally participant J spoke about her feelings on PTSD and how it presented for her;

> **"It's like a black cloud just over your head. It just appears but you don't know where it comes from. All your confidence goes. This cloud is hanging over your head and that's what PTSD is I think. It's, sort of, you know what you want in your mind before you think I was so confident, I would get up and I would do this. I would go out to the pub, I would be the one to go around and go, "Come on lads, we're going out now." PTSD like scrambles it. It's like, "I don't want to do that, and I'd rather sleep. I'll do that but I'll do it tomorrow." You're sort of giving yourself excuses all the time."**

From the quotes used above, and the other multiple references to symptomology throughout their interviews it is apparent that there is not an archetypal set of symptoms to this disorder but rather an individual's unique phenomenological experience of a plethora of varying symptoms. What is commonly shared is the debilitating nature of the varying symptoms reported.

5.3.4 Experience of the intervention.

The final main theme identified through the process of TA was the participants experience, response and thoughts on the P.O.E.T trip they attended thirty three months previously. There were four clearly identifiable sub-themes, the first of these being peer support. As discussed in previous chapters, the importance of peer support has been seen to be beneficial across many areas; reducing psychological stress (Richardson, Darte, Grenier, English, & Sharpe, 2008), destigmatising mental illness (Greden et al., 2010; McGrane, 2011), building trust levels of non-military mental health professionals (Westwood, McLean, Cave, Borgen, & Slakov, 2010), normalisation of symptoms and increased hope (Hundt, Robinson, Arney, Stanley, & Cully, 2015) as well as other perceived benefits such as fostering camaraderie, stimulating deeper connections and countering the negative effects of PTSD (Caddick, Phoenix, & Smith, 2015). Participant S stated;

> **"Once I got there and met everyone, you tend to go down a bit. I met such a variety of people, from being mentally ill, to people having their legs missing. Actually, a lot of them had been stuffed over by the system like I had. I realised, shit, there are other people that are the same as me."**

He also said;

> **"You can take the piss a little bit, but you couldn't take the piss too much. You've still got those rules which I think most military people need. You still need that, "You can't do this, you can do that." If you're allowed to take the piss, you will take the piss. The majority will anyway. You can't do it. Bringing back the connection with the people. Having that time where people understand. You're in a situation where, no matter where you've been and what sort of things are going on, from being bullied to being depressed or having had bad**

> **times in the army, everyone is the same. That’s the outcome of sitting down with boys, but in a situation where you feel safe.”**

Also;

> **“To think back now, all I wanted to do was take life. A massive change for me was one of the fishing studies we did. You said, “Do you want to come along?” I went round, I was talking to all the fellas. One of the fellas gave me a cuddle, which lasted about two minutes. I went to shake his hand and he gave me a cuddle. He had tears in his eyes. He told me a few positive things. Looking back, when I was doing horrendous things, the feeling I got from that was good at the time. But the feeling I got from that fella giving me a cuddle, and changing his perspective… I still talk to him now, and he’s changed his life. I’m not saying it was me, but hopefully I’ve been a cog in the change that he did.”**

Furthermore S expressed;

> **“Being in a safe area. After being there for a little while, a couple of hours or a day or so, you realise you haven’t got to be wary of anyone. You’re all the same. Your guard comes down and I think with that, the hyper vigilant part of you starts easing as well. You haven’t got to have it.”**

Finally S said:

> **“There was a small group that had opened on Facebook, which was set up so we could all keep in contact, which people did. Having that contact, which people still do now, and carrying on fishing, made a massive difference as well. When you did feel stressed, you could go fishing and you knew you wouldn’t have to go**

> **on your own. You'd be with someone who was going through the same thing. It's that support coming from there."**

Participant T also made frequent reference to the perceived benefit of having peers as part of the P.O.E.T;

> **"Solidarity it is. You're more likely to open up to somebody that's been in the army. They've been through the same sort of stuff as you and feel the same sort of way. But not a civilian. I can only open up to an army bloke, or somebody that I've known for a long time, that's gone out of their way to help me, or I've helped them."**

Participant T also said;

> **"Yes. The thing with the army is, when you're in there, when you join your regiment, you don't know anyone, but you're living with them. Once you live with them, you can open up to them. Only squaddies can feel the way they do about squaddies. As soon as you know they're a squaddie, fuck it, I've known him all my life. You can never do that with a counsellor. You know what you can say to a squaddie. A squaddie has got the sickest humour in the world. You know what you can say to a squaddie, which is basically anything. Only a squaddie can say anything to another squaddie. Just take it on the chin, and have a laugh about it."**

For participant B, the impact of the perceived peer support he received during the study had been profound. He more than the others interviewed made constant reference to the benefit he had experienced from this element:

> **“I think it’s very important. One of the challenges that I face, because I’ve also just recently had to change GP because my GP retired, is that I’m having to explain myself to somebody that doesn’t understand. Somebody who can’t objectively see what I’m trying to say to them. They haven’t had the same experiences. They haven’t been put through the same things.”**

Participant B went on to state the below about a conversation shared whilst on the intervention:

> **“I think he did, and he actually expressed it. After he had had the chance to think about what we’d been saying to him, a lot of it made sense to him. He could then understand it. We were actually sharing our experiences of when we’d been in the same situation. Making him understand that it’s not just him.”**

Another statement participant B made regarding whether they would recommend P.O.E.T. to others was;

> **“I’d actually say to them that it is of benefit. Even if they don’t like fishing, just to go along. It gives them the opportunity to interact with people on a level that we all have at least two things in common when we’re sat round that lake. One is that we’ve suffered trauma. The other is, we’re all ex-forces. It’s giving the person those two starting points, and those two common areas, that actually helps. That is a big way that forces or ex-forces do help each other. We know that we don’t have to do the check on them.”**

Finally he said;

> **“It’s the way that we understand it. We put it into military terminology. We know it is a basis, that everybody that has served has done the same thing. We all start from the same point.”**

Lastly participant J also made reference to how important she felt the element of peer support had been to her throughout the study;

> **“It was also nice to meet a lot more people who were there because I’ve never met anyone with PTSD. I didn’t know there was different levels of it, I just thought everyone just slept.”**

Furthermore she said:

> **“you sort of open up a bit more I think a bit more as well when you speak to veterans because you know they’ve served. You know that they’ve even [been] through similar training to you, so you don’t like sort of, hold back in what you say. Yes, I spoke to XXX, XXX came over. I’m mutual friends with people were in XXX’s regiment. We got off on that, like, “What regiment were you in?” You’ve got something instant there to talk about. It is, sort of, anxious going but once you get there you think, “Oh actually yes, you’re in the army. What were you doing?” You have got a connection there because they have all been through something similar to- you’ve had that family in the army.”**

Within the analysis of the interviews the subject of peer support was the most frequently referred to as a perceived benefit of the P.O.E.T. Of all the sub-themes this theme appeared across many different areas of the participants’ narratives. The obvious benefit of having peers around during the event is the perception of reclaiming the broken military bond. This enabled participants to feel at ease and then to subsequently experience a feeling of being safe. Once in this more relaxed safe zone the experience of isolation becomes reduced and the ability to expose themselves to the traumatic memories, through narrative with others, is encouraged and enhanced.

Participant S mentioned his experience of sharing the traumatic memories as:

> **"That was a major thing. Talking to them, they actually talked normally. They were like me. They talked like me and they talked about the same experiences as me. I realised I'm not alone, I'm not just the one person out there."**

Participant T said:

> **"You don't talk about what's going on. You know everybody is the same. That's why you don't talk about it. If you do want to talk about it, you know the bloke next to you, you just go over and have a fag with him, have a chat with him about shit."**

He also stated the benefit of being able to talk about the trauma in association with it being a peer specifically;

> **"He was someone who was still going through it. It's easier because you relate to him, instead of talking to somebody that gets paid for listening to you."**

Participant B also shared the perception of being able to talk as a positive of the study:

> **"I found the fact that I could interact with some people, and have the ability to take it as far as I wanted to, very, very beneficial for me. I felt very good about it. I found other people were doing it. I discussed some of them at times. I was very careful about it, because I know the vicarious trauma I have suffered at times**

> **was quite horrendous. I don't want to openly discuss it with people. I found also talking to other individuals to actually listen and hear them, what they were saying. There was a person there who knew there was something wrong but didn't have a full idea. There were some of us there who actually helped him, got him to understand that a lot of what he was doing was part of his trauma."**

Participant J stated:

> **"You say, "Oh yes, I was in a contact like that and blah, blah, blah." You, sort of, talk about it and it does make you feel better. I came away from that trip and I felt so much better."**

She also shared:

> **"I'm saying I've got no problem now with standing up in front of people and saying, "I have PTSD, and this is what it is. This is how it's affected me."**

Another sub-scale of the effects of the study was the effect of being outdoors, Biophilia (Kellert & Wilson, 1995; Wilson, 1984). Once again this had a high frequency of quotes referring to the perception of benefitting from being in a green space near water.

Participant S felt:

> "**Obviously waking up in the morning at 5:00am and looking over the lake at that perfect scenery. I hadn't seen anything like that for so many years. I always concentrated on the bad. I didn't realise people actually smiled and said, "Good morning." All I had seen was bad. Waking up and seeing that was good."**

Also S stated;

> **“One of the fellas we spoke to before said that he hadn’t slept or felt safe in 20 years. Being two days at that fishing lake was the first time he’d slept in 20 years.”**

For participant T his feelings were linked to his time in the military too:

> **“I love it. Getting back to nature and all that. The best sleep I’ll ever have is when I’m sitting in the bivvy and it’s raining. I fucking love it. It’s absolutely brilliant. It’s so soothing. It just reminds me, that the best sleep I ever had was when I was in the army. Sleeping outside in holes and under waterproof blankets. It was brilliant.”**

T also said;

> **“I feel at home outside. When I go fishing, that’s why I like night fishing with yourselves. It’s just, one it’s a right good crack. But two, I can forget about everything and just sleep.”**

Participant T felt;

> **“All these rich blokes go for a massage. I just go camping. It does exactly the same thing. It relaxes everything. It eases you. You’re doing what you want to do. You have a good night’s kip. You get all cosy in your own little bivvy. It’s brilliant. There’s not a lot more… I’ve always had a dream that I wanted to go and live in a forest. I don’t know why but I still want to do it now. Get everything, sell everything. Get my Bergen and just bugger off. Go and be a hobo in a forest.”**

For participant B, he held similar thoughts around being in green areas:

> **“I found the peace and tranquillity beneficial. I think it’s a sense of being outdoors and not having to meet other people’s expectations and goals.”**

For participant J her thoughts were simple:

> **“It’s like fishing isn’t it? You go there and you’re peaceful.”**

Whilst participant S stated with regards to being able to relax during the intervention;

> **“That was a major thing. I’d never been able to do it. If I sat down to think, I’d think, I could be doing this, could be doing that. Or, what’s that person doing, what’s this person…? I didn’t have that.”**

This quote alludes to experiencing restoration by expressing an ability to mentally relax that the participant was previously unable to achieve, however participants B and J made direct reference to feeling restored through a lowering of cognitive activity. Participant B said;

> **“Like fishing isn’t it? You go there and you’re peaceful. You think about nothing and you go outside and being outdoors.”**

Participant J clearly mentioned a restful thought pattern when she stated;

> **“It was really nice just to sit there again and look at a lake and think of absolutely nothing.”**

Later in her interview participant J again referred to a peaceful experience:

> **“Yes, I don’t think of anything. I’ll be sitting in here worried about- because there’s a bill over there or the dishes need cleaning and I haven’t got time to do it and I have to go and pick something up. When you go out you just forget about it**

> **and think, "I can forget about that for a minute." That's what fishing does but for a full day. If you've got questions in your head you, sort of, answer them."**

She then said:

> **"I'm in a different mind-set; it's weird how it can take over. I didn't think in your mind that it could open that door and your mind could feel like that."**

Finally participant J said;

> **"It gives you space and because you're there for say all day all night, it's just peaceful. You can just answer questions, you think about stuff and you, sort of, work them out for yourself. I can forget about everything"**

Through their comments made during interview we can hypothesise that statements like **"think of absolutely nothing"** and **"I can forget about everything"** suggest that there is a restorative element to the P.O.E.T intervention being experienced by the participants.

5.4 Discussion

When examining the participants responses with regards to early life experience, due to both the small sample size and the dichotomy of the responses to the interview prompts, it is difficult to make a direct link between childhood development, attachment and a propensity to be more susceptible to PTSD after trauma or indeed for us to surmise that this was a reason for joining the military. However there does seem to be a strong link between family members who served and this was being mentioned by the participants as one of the reasons for joining the military. It appears that this positive perception of the career in the forces is a strong driver behind the decision to commit to the armed forces. Further exploration of this strong family link to military and its effect on military personnel's willingness to seek help and an increased sense of stigma are discussed in chapter 6.

Ghafoori, Hierholzer, Howespian and Boardman, in their paper from 2008, analysed 102 interviews of military veterans. Their findings suggest that veterans with current PTSD had lower secure attachment and higher insecure attachment compared to those without PTSD. Similarly, previous research has found a negative correlation between secure attachment and all subscales of current and lifetime Harvard Trauma Questionnaire, suggesting that secure attachment may have a protective effect on the development of PTSD (O'Connor & Elklit, 2008). These findings are in accordance with a study of former male political prisoners in which secure attachment was found to be protective in relation to development of PTSD following physical torture (Kanninen, Punamäki, & Qouta, 2003). These studies would suggest that the military bonds/attachments discussed are an important element in the individual’s propensity to cope with traumatic memories and to subsequently manage the PTSD symptomology. So with all four participants clearly stating an awareness of the sense of a military bond, and how this differs from being a civilian, there was also a set of sentiments shared by all four contributors with regards to the breaking of these bonds (Rozynko & Dondershine, 1991) and the difficulty transitioning into civilian life styles (Morin, 2011; Thompson et al., 2011). The participant’s statements suggest some considerable challenges experienced making the transition to civilian life as reported in previous publications (Ahern et al., 2015; Herman & Yarwood, 2014; Morin, 2011). Whilst all four of the participants expressed difficulty leaving the army and transitioning to civilian roles, it is not possible for us to state this is always the case for all military veterans (Morin, 2011) as our sample comes from a biased diagnosed group. A limitation of this qualitative work is that both the interview schedule and interviewer failed to explore the individual’s support networks at the time of PTSD onset in greater depth, this may have added some awareness for future restructuring of the transition from military to civilian life. All four of the interviewees had experienced traumatic events whilst serving. For three of the four this was the direct reason for them leaving the roles they were in. For the fourth veteran, participant J, although it is impossible to state a definitive link between her trauma exposure and her subsequently leaving the army, it is likely that it may have been a contributory factor. Coping with PTSD symptoms and taking these challenges into an already perplexing transition may amplify the difficulty of this change and increase the sense of the broken military bond.

All four participants were quite vigorous in expressing the sense of stigma they felt in the military with regards to seeking help for mental health in line with previous literature (Greene-Shortridge, Britt, & Castro, 2007; Hoge et al., 2004; Nash, Silva, & Litz, 2009; Pietrzak, Johnson, Goldstein, Malley, & Southwick, 2009; Vogt, 2011). This barrier to recovery, alongside the documented poor engagement by military veterans in formal therapy (DeViva et al., 2016; Harpaz-Rotem, Rosenheck, Pietrzak, & Southwick, 2014; Milliken, Auchterlonie, & Hoge, 2007), makes the provision of an alternative solution to ease the symptoms experienced when suffering from PTSD more pressing. This could potentially be seen as one of the major strengths of POET both as a vehicle to reduce symptomology but also as a soft conduit into more formal therapy through signposting other services.

In the theme whereby the participants expressed their own experience of struggling with mental health issues, there were several sub-themes that emerged. The first and most prevalent theme was the sense of isolation felt by the participants as they struggled to come to terms with the symptoms they were experiencing. Thoits (2011) argues that the social psychological mechanisms that should explain physical health outcomes are substantially the same as those that should account for mental health outcomes and that the same theoretical mechanisms that should mediate the effects of social ties on health and well-being (e.g., sense of mattering, self-esteem, mastery, belonging, social influence) also help to explain how types of support from different network sources produce stress-buffering effects (Thoits, 2011). Therefore the sense of isolation expressed by the participants may indicate that they were struggling with their mental health. Once again POET's format, attempting to reconnect the military broken bonds and increasing the participant's social support can be seen as a strength.

Regarding the "green exercise" element of POET it became evident that exposure to the outdoors, green spaces, had a positive benefit on the participant's perception of their well-being. The final sub-theme expands on this theory looking into the possibility of the hypofrontality hypothesis (Dietrich, 2006; Dietrich & Sparling, 2004). This premise proposes that directed attention is related to prefrontal cortex activation and that physical activity leads to prefrontal cortex restoration (Daffner et al., 2000; Dietrich, 2006; Dietrich & Sparling, 2004; Miller & Cohen, 2001; Rogerson & Barton, 2015). Rogerson and Barton (2015) posit that the combination of physical activity and contact with nature is likely to enhance the level of restoration. They hypothesise that prefrontal cortex activation is associated with processes of directed attention. Exercise facilitates prefrontal cortex restoration via transient hypofrontality, that is, decreases in prefrontal cortex activity that occur in conjunction with increased motor cortex activity (Rogerson & Barton, 2015). During exercise, this decreased prefrontal cortex activity may be detrimental to cognitive performance. However, following prolonged opportunity for prefrontal cortex restoration, transient hypofrontality improves post-exercise executive functioning and cognitive performance.

In sum the interviews carried out for the purposes of this PhD research indicates that there are several potential benefits to the P.O.E.T. intervention. Throughout the transcription and subsequent analysis there were several common themes held by all the participants. There was a shared recollection of a sense of stigma in reporting mental health when in the military replicating previous academic findings (Dickstein, Vogt, Handa, & Litz, 2010;

Greene-Shortridge et al., 2007; Hoge et al., 2004; Nash et al., 2009; Pietrzak et al., 2009; Vogt, 2011). There was also a collective sense of isolation described by the participants; this was linked to a perceived lack of social support, which has been purported to be a strong factor in poor mental health. Kawachi and Berkmen (2001) in their targeted review state that the association between social ties and mental health is securely established. Kessler and McLeod (1985) state that there is compelling evidence that support is significantly associated with well-being and with the absence of psychological distress. The inference that we can take from the statements of isolation is that the participants were quarantining themselves by staying indoors and not engaging in green areas as much as before. As discussed in earlier chapters the importance of green exercise, with regards to psychological well-being is a well-established premise (Annerstedt & Währborg, 2011; Barton & Pretty, 2010; Gladwell, Brown, Wood, Sandercock, & Barton, 2013; Kellert & Wilson, 1995; Pretty et al., 2007; Wilson, 1984). There is also much research hypothesising about the restorative nature of green exercise (Berman, Jonides, & Kaplan, 2008; Faber Taylor & Kuo, 2009; Kaplan, 1995) some of which has been specifically on military veterans (Caddick, Smith, & Phoenix, 2015; Dustin, Bricker, Arave, Wall, & West, 2011; Duvall & Kaplan, 2013).

One of the other main fundamentals in the P.O.E.T design is that of initiating a sense of social support through peer interaction. Peer support for military veterans has been cited as an important resource and increases individuals' perception of well-being (Bennett, Van Puymbroeck, Piatt, & Rydell, 2014; Hundt et al., 2015; Westwood et al., 2010). During the P.O.E.T interventions, peer support was actively encouraged through not only the interaction of the participants together but also through the role of the peer mentors that attended the studies. We propose that the P.O.E.T intervention attempts to address some of the issues highlighted by the participants in a unique blend of components. To counter the sense of isolation and the sense of worthlessness due to the fact that the participants find interaction difficult, we have incorporated the peer element to the process. This element of increased support and the subsequent lowering of emotional barriers mean that the participants not only feel safe enough to share the narrative of their trauma but are able to shake of the sense of stigma and engage in this narrative amongst peers as opposed to mental health professionals. This ability to discuss the trauma with others and therefore expose themselves to the traumatic memory would have a beneficial effect by fostering habituation and extinction or may even give rise to a rethinking previous interpretations of events (Bradley, Greene, Russ, Dutra, & Westen, 2005). This self-exposure to the traumatic memory is key to cognitively creating a change of the perception of the trauma and also begins habituation which will reduce symptomology (Bradley et al., 2005). During P.O.E.T both the element of peer support and exposure to trauma occur in a green space.

In Japan there has been a high growth in the activity of ‘Forest Bathing’. Forest bathing comprises of short leisurely visits to a forest field, “Shinrin-Yoku” in Japanese, to relax and breathe in the phytoncides derived from the trees. Phytoncides are a substance emitted by plants and trees and generally create the aroma of the forest. Phytoncides are produced to help plants and trees protect themselves from harmful insects and germs. The practisers of “Shinrin-Yoku” in Japan feel this is akin to natural aromatherapy (Li, 2012). There are many reported benefits from forest bathing from increased human natural killer (NK) cellular activity, number of NK cells and the intracellular levels of anti-cancer proteins suggesting a preventative effect on cancers (Li et al., 2010; Qing Li et al., 2008; Qing Li et al., 2008; Li et al., 2007), decreased heart rate, blood pressure and sympathetic nerve activity suggesting a preventative effect on hypertension (Lee et al., 2014; Li & Kawada, 2011; Park, Tsunetsugu, Kasetani, Kagawa, & Miyazaki, 2010; Tsunetsugu, Park, & Miyazaki, 2010) and a decreased risk of psychosocial stress-related diseases (Morita et al., 2007). Therefore we can hypothesise that the green exercise element of P.O.E.T will have a beneficial impact on the participants. With the interviewees testifying that these beneficial elements were missing from their lives whilst they were experiencing their mental health struggles, the format of the P.O.E.T intervention attempts to install them into their experience. We hypothesise that the well-being generated by the restorative experience of being outdoors helps to facilitate the efficacy of the peer support and the self-exposure to trauma memories. The psychometric scores recorded pre and post intervention alongside the qualitative interviews indicate that the participants are experiencing significant improvement in symptoms. With the information collated we have been able to hypothesise a psychological model (Figure 5.2) of what is happening throughout the P.O.E.T experience, whilst linking these changes to existing theories. The model shows the original group before the intervention as struggling due to broken military bonds, stigma around mental health, a sense of being isolated and demonstrating a reluctance to discuss the trauma. From engaging with the model I hypothesise that a mix of positive elements are encountered (group bonding, narrative of trauma, exposure to green spaces, a sense of mastery and immersive attention). These positive elements have a positive effect on augmenting recovery momentum, increasing socialisation, produce an increased level of behavioural activation and reduce PTSD symptomology as well as improving psychological well-being.

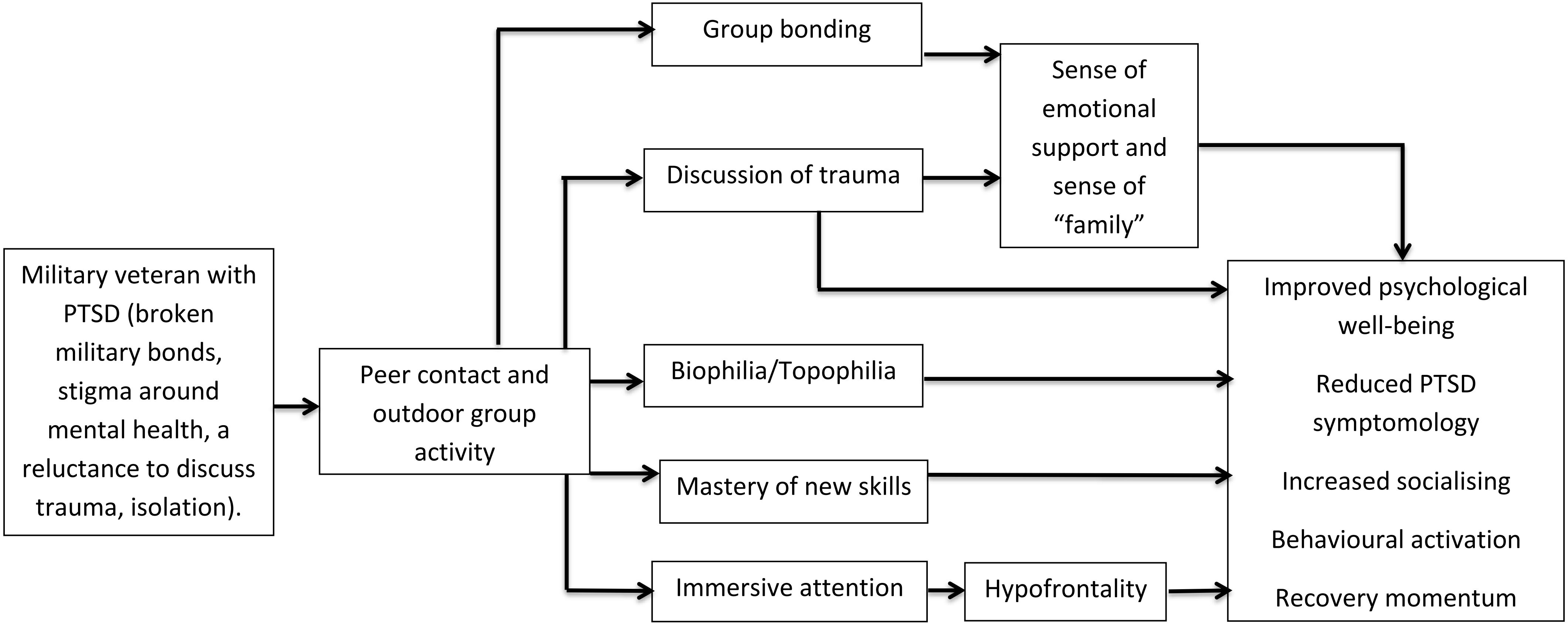

Figure 5.2 - Proposed model for Peer Outdoor Exposure Therapy (POET).

CHAPTER VI

6.1 An abstract of the thesis

This chapter is a summation and discussion of the previous chapters, including a summary of key findings, interpretation of these findings and the ways that they extend current literature, implications for practice, stengths and limitations of the reseach and suggestions for future research.

6.1.1 Abstract of chapter two - Predictors of referral, attendance and engagement rates in an Improving Access to Psychological Therapies service.

The initial goals for the government, when setting up the IAPT service, was to provide more psychotherapy to the general population by increasing the provision of evidence-based treatments for common mental health conditions such as anxiety and depression. This provision was to be delivered by primary care organisations in line with the National Institute for Health and Care excellence (NICE) guidelines. One of the major drivers behind the development for these services was to increase access for all. Within this chapter I looked at patient characteristics, G.P. characteristics, practice characteristics and access to the IAPT services with regards to the areas of referral, attendance and engagement. These analyses were to assess the accessibility and utilisation of the service across differing groups. My analysis of the large dataset provided by the North East Essex IAPT service (Health in Mind) found a number of key findings across the different areas explored.

6.1.1.1 Predictors of referrals. When I analysed referral rates across gender, and compared to regional rates, the HIM service was engaging well with women and demonstrated a higher referral rate (63.8%) to the rate of women across the region (51.9%). Conversely for men the service was not engaging at the regional level with just 36.2% referring to the service as opposed to 48.1%, which is the regional rate of men. This suggests that during the period the data was collected, the HIM service was failing to engage male service users at an equitable rate to female service users. Existing research suggests that not only are men reluctant in seeking help for mental health problems (Mahalik, Good, & Englar-Carlson, 2003) but that they also seek help less frequently then women (Rickwood & Braithwaite, 1994) even when experiencing equivalent levels of distress (Deane & Todd, 1996). However, the remit of IAPT is to improve access to all. Therefore, the results suggest that more proactive attempts to engage men in to the service are required.

When considering how to engage more men into their services, IAPT professionals will need to try to understand the perceived reluctance of some men to engage in therapy. Within the theory of planned behaviour (Ajzen, 2011) it is posited that intentions are predicted by attitudes towards the behaviour, perceived behavioural expectations of others and perceived barriers to action. Deane, Skogstad, and Williams (1996) suggest that one aspect of perceived behavioural expectations of others, the perceived social pressure to engage or not engage in a behaviour, is a significant predictor of help-seeking intentions. It therefore appears that the influence of significant others in men's lives plays a crucial role in encouraging help for psychological distress. Cusack, Deane, Wilson, and Ciarrochi (2004) carried out semi-structured interviews with seventy-three men accessing therapy. They found that ninety-six percent reported that their decision to enter therapy was influenced by others, with GPs and intimate partners being the most influential. For better engagement levels of the male population further research into how these decision influencers may be targeted and helped to encourage men to seek assistance would be beneficial.

The results of my analysis also found;

1. That the higher the number of patients reporting long-term mental health problems, the higher the recorded number of referrals to the IAPT service. This could be an indication that the service was engaging those that required the

service the most and would intimate that this would be alleviating the burden of this patient group from GP surgeries.

2. GP referrals dropped when the nearest venue for the therapy on offer was greater than 2.5 miles from the surgery; however this association was not found when analysing self-referrals. It could be suggested that this might be due to a higher level of awareness of therapy venues from the GPs influencing the decision to refer, with patients perhaps not realising they would need to travel for the intervention. Another possibility might be that the patients are aware of the need to travel but are happy to do so to get the treatment they feel they require. For IAPT services to increase access rates further, training of GPs with regards to not factoring in geographical factors into their decisions to refer would increase access figures.
3. Self-referral rates were seen to drop as age increased, with a negative association found when looking at self-referral and 65+ year's age category. This is a problem for the IAPT access targets. With an ageing population and the need to achieve equitable access to all, further research into how to engage this client group is imperative going forward. Research should focus not only on the thought processes and belief systems of the over 65 year old patients but also into GPs perception of the willingness of the older clients to engage with the service. Exploration of the use of group therapy for this age group may demonstrate an increased willingness to engage and should be investigated.

Further areas that require exploration include the effect socio-economic living standards has on both self-referral rates (perception of entitlement to help by patient) as well as GP perception of the willingness to engage by patients in particular socio-economic demographics. Exploration as to GPs reaction to the frequency of presentation of poor mental health symptomology by a patient, and whether this influences referral decisions, is an area that should also be further researched.

Since its original incarnation, the North East Essex IAPT service have opened up online portals making self-referral to the service easier for those with internet access. With the increasing pressure on GPs, and patient appointment times at a premium, the self-referral option does increase access to therapy as was set out to achieve by the government in the initial formation of IAPT. Further increasing awareness of the facility to self-refer will benefit IAPT service access figures positively in the future. Increasing awareness of this referral path across social media platforms and NHS services will help increase access figures.

6.1.1.2 Predictors of non-attendance (DNA). The findings demonstrated that being male and in one of the younger categories was seen to be associated with higher levels of DNA. Although these findings are replicated in previous literature, future exploration into how to engage these groups and get them to access therapy is imperative going forward if IAPT services wish to achieve equitable access figures between sexes and age groups. Other predictors of non-attendance identified include;

- Returning patients (re-referrals), who had a higher % of DNA than new to the service patients.
- There was a lower rate of DNA for people that had self-referred.
- Distance from venue, contrary to previous research (Lee, Earnest, Chen, & Krishnan, 2005) where DNA rates were higher when the patient lived further away from the therapy venue, the analysis found that the DNA rate was higher when they were closer to the venue.
- The lower the percentage of patients that would recommend the practice correlated with a higher DNA rate and higher levels of deprivation lead to a higher DNA rate.

- Finally the longer the wait for decision to treat led to a higher DNA rate.

Since the early days of IAPT, the issue of DNA has become more urgent (the dataset analysed in this project covered the formative years). With the introduction of payment by results (PBR) in 2018, services are mindful of the importance of hitting access targets alongside recovery targets. Therefore the “cost” of non-attended appointments has been a topic for discussion. Recent protocols have been applied to the current patients whereby if they do not attend twice the patient’s case will be closed to the service. This is an area that needs further investigation along with the effect that such measures may have on the therapeutic relationship between patient and therapist.

6.1.1.3 Predictors of Engagement. When analysing the data using the level of engagement as the dependant variable, the most predictive independent variable was that of age. The older the patient, the higher the level of engagement demonstrated when they entered the service. However the low referral rate indicates it is a challenge to engage this age group, this is an area that warrants further research. Exploration of strategies to improve access by this age group will benefit IAPT not only with regards to equitable access but also in terms of successful outcomes. Other indicators identified were;

- Deprivation, the more affluent the area in which the surgery was based, in the higher the level of engagement.
- Another factor influencing engagement was identified when looking at the PHQ-9 (depression scale): the higher level of depression recorded at first contact, the poorer the level of engagement with therapy. This is a pertinent discovery, as with the initialisation of the PBR tariff, will this mean that IAPT services in the future are more restrictive on who they take into their services and set more restrictive inclusion criteria? If they do adopt this stricter entry criteria, knowing that people with a more severe starting PHQ-9 score are less likely to engage, will this in fact

reduce accessibility to psychological services, counter to the original ethos for setting them up? In addition, future research might centre on any change in demographics of patients accessing IAPT services post PBR to ascertain whether the introduction of this payment measure has reduced accessibility to service.

- It was also found that people who were prescribed psychotropic medication but were not taking it, engaged at a lower level than the baseline category of patients that were not-prescribed medication.
- Self-referral patients engaged better too when compared to GP referrals. The length of time to decision to treat was also found to be significant with the larger gap between first contacts until the decision to treat associated with a higher level of engagement. Whilst this finding intuitively feels surprising, it can be proposed that not all people who were made to wait for a decision would enter the service, some may make a decision not to pursue therapy and therefore did not enter the service.

6.1.1.4 Strengths and limitations of this analysis. The strengths of this analysis include the large number of datasets in the analysis and the access to knowledge with regards to Health in Mind service demographics, for example, geographical venues for their provision. As the service was newly formed, this is the first in-depth external analysis of the results they achieved. However it should be stated that during the early months after formation, the data entry at times was poor with data missing and as such many of the recorded patients’ information was unable to be utilised in the statistical analysis. Another limitation of the analysis is that data was only obtainable for the first three years of the service. It was soon after this period that the tender for the service was lost to another NHS trust and access to the data was no longer possible. This prevents the exploration of whether there were any changes in the rates of referral and patterns that had been identified as the service matured. Finally, due to the nature of the data being anonymised, it was not possible to differentiate whether a data set was from somebody that was accessing the service for the second time or for someone returning for a third or more time.

6.1.1.5 Discussion of chapter two findings. The identification of significant predictors for referral, DNA and engagement will undoubtedly be of benefit for IAPT services. From the perspective of knowing what predicts desired outcomes, IAPT services will be enabled to encourage more service users that hold these traits which in turn will improve their access rates. Conversely, the awareness of the variables that predict negative effects on outcomes may have a detrimental effect on the equitable access targets. Further research is required to look at why these predictors have a negative association and what can be done to rectify this. Services may be more stringent on their exclusion criteria and this may lead to the accessing of the service being more difficult for some. There is a possibility that services will look to undertake an assessment session (this results in a level of remuneration) and then exclude some from therapy by utilising inflexible entry criteria. Further research will be needed to look at the demographics of patients who access the service post PBR to ascertain whether its introduction has had an effect on equitable access to all.

6.1.2 Abstract of chapter three - Evaluation of Outcomes in IAPT.

This chapter concerned the definition and measurement of a successful therapeutic intervention within an IAPT service. It also looked at alternative assessment tools for evaluating the success or not of the therapeutic interventions provided.

6.1.2.1 Results. Many of the significant predictors for engagement were mirrored in the successful outcomes when utilising the IAPT success criteria. Gender showed little variance in success rates, however, the ratio of women to men (almost two thirds of the patients were women) highlighted the previously mentioned disparity in access across gender. Age showed that the older the patient group, the higher the level of success achieved. However, as previously highlighted, access by the older age group was at a lower rate than others. When looking at deprivation I found that the more deprived an area that the patient’s surgery was based in, the lower the success rate. There were also lower access rates at the highly deprived areas, another area for future research to attempt to engage this patient group.

When I utilised Clinically Significant Change (CSC) criteria to assess outcomes, there were many similarities to the original criteria results. The only differences found were across the PHQ-9 and GAD-7 scales. When these predictors were compared to a baseline category of “moderate” they were not found to be significant. This may have been due to the restructuring of the dataset to compute CSC. For assessment under Reliable Index Change (RIC), the results once again mostly mirrored the IAPT assessment criteria results. There were two differences: (1) the category “not seeking work” was found to be significant against the baseline of “in work” and (2) for GAD-7, the predictor of “severe anxiety” was found to be significant again, after failing to be so under CSC. When I ran the analysis after excluding all the patients who started with a score that was “minimal”, the IAPT criteria recorded the least successful results with RIC being the most effective.

6.1.2.2 Strengths and limitations of this analysis. Many of the strengths and weaknesses of this analysis are shared by the analysis carried out in chapter two and are listed above. However, a strength of this study is the ability to reflect on these findings in light of the onset of PBR.

6.1.2.3 Discussion of chapter three findings. Since its inauguration, IAPT has used the same criteria for accessing outcomes. With the introduction of PBR I feel services will continue to assess patients for suitability for service, however now being mindful of the requirement of hitting their successful outcome quotas (50% of treatment cases to achieve success). This added dimension to assessment may lead to a more restrictive inclusion criteria and this in turn will be preventative towards the goal of increasing access, contrary to the original ethos of the service. It could be suggested that there is scope for IAPT to amend its success criteria, potentially this could be restructured simply on PHQ-9 and GAD-7 scores at entry to service. Arguably, the current system does not equitably assess all participants with its somewhat simplistic criteria. If IAPT wishes to remain accessible to a wide patient group, even those that record high initial scores at assessment, then the implementation of a new set of successful outcomes calculations may be required. One proposal is a strata system, whereby the entry scores are factored into the decision as to which success assessment criteria is used. Further research into identifying an optimum threshold, whereby all patients entering the service above the said threshold would be assessed using RIC and all below the standard assessment system, should be explored in the future. “Success” in therapeutic terms is about the recipient’s phenomenological experience of the intervention. It appears incongruent that IAPT’s assessment criteria supposes that somebody that may have moved from an initial PHQ-9 score of 27 to a closing score of 11 would experience this as a “failure”. Arguably this intervention could be seen as more of a success than moving another patient from an entry score of 10 to a closing score of 9. Qualitative interviews into patients experience of therapy and their experience of it being a “success” or “failure” is another area of research that could inform future decisions on assessment criteria.

Up to this point in the thesis the exploration had been into the provision of mental health care for common mental health disorders. The subsequent chapters concentrated on addressing the issues around a specific mental health disorder, PTSD, in a particular patient group, military veterans. The rationale behind this shift in focus was arrived at after consideration of the increasing pressure on NHS and the low engagement from certain service user groups. The purpose of this analysis was to explore the possibilities around alternative provision to the established formal therapeutic interventions and to increase levels of engagement.

6.1.3 Abstract of chapter four - Group Outdoor Experiences for Military Veterans Diagnosed with PTSD: Three Preliminary Uncontrolled Trials and a Randomised Controlled Trial (RCT) Exploring Peer Outdoor Exposure Therapy (POET)

This chapter explored three pilot studies followed by a randomly controlled trial to assess the efficacy of Peer Outdoor Exposure Therapy (POET). “Success” was assessed both statistically to look for significant change but also using CSC and RIC. The purpose of this research was to endeavour to create a new therapeutic intervention (POET) that uniquely incorporates the elements of exposure to trauma memories, peer support and green exercise in an attempt to produce a cost effective alternative to the currently offered support.

6.1.3.1 Results. Initial analysis of the pilot studies demonstrated that for all three of the interventions, there were significant improvements on not only the symptoms of PTSD but also on other sets of psychological symptoms (i.e. depression, anxiety, stress). Despite a small bounce back at the three-month period, the scores remained in recovery. Of the three pilot studies, angling was the most efficacious, so this is the interaction that was concentrated upon for the RCT. Analysis of the data from the RCT revealed that all five psychometric scores significantly improved at the two-week follow-up point and this held at the three month follow-up. Improvements were also found when analysing the scores looking at CSC and RIC at both two weeks post-intervention and at the three-month follow-up. POET as an intervention demonstrated a strong effect size for both PTSD symptoms (d = 1.33) and depressive symptomology (d = 1.50) comparing favourably to more formal therapies. The short qualitative interviews carried out highlighted the themes of peer support, narrative exposure and green exercise as perceived positive effects of the intervention.

6.1.3.2 Strengths and limitations of this analysis. One of the limitations of this analysis is the small number of participants assessed. Whilst statistically the numbers of participants can be seen as low it is challenging to recruit people to participate in these studies due to the nature of the disorder they are struggling with. Another limitation of this work is the use of self-reported scores. Despite this being the norm for assessing psychological difficulties there is inherently a potential problem when doing pre-post intervention scores. There may be an either explicit or implicit desire to please/reward the research assistant and this might have an effect on the participant's subjectivity of their symptomology. It could also be postulated that there is an element of self-selection for the studies. Some veterans expressed an initial interest in taking part in the research project when they became initially aware of the programme, only to withdraw once they were informed of the format of the intervention. Despite the aforementioned limitations, the research has many strengths too. Despite some previous studies looking into the benefits of group outdoor activities for mental health, mainly using qualitative research practices, none have utilised the rigorous format of a Randomly Controlled Trial (RCT). Also most previous papers assessed PTSD against the old DSM-4 criteria as opposed to the adjusted measures of the DSM-5. Another strength of the studies was the logistical facilitation of the trips. It should be noted that the trips were organised and carried out on a small budget, despite there being many cost elements to the studies themselves. All in all, the data presented in this chapter point to the potential usefulness of POET as a new treatment approach for PTSD in military veterans.

6.1.4 Abstract of chapter five - Qualitative Analysis of Four P.O.E.T Participants This chapter contains qualitative interviews conducted with four military veterans almost three years after their participation in a POET session. Thematic analysis was employed to analyse the interviews to identify themes and meanings behind each participants phenomenological experiences of both their PTSD and their thoughts about the intervention. A model of the psychological processes mediating the impact of POET on wellbeing was hypothesised.

6.1.4.1 Results. Through the coding process of the analysis, four main themes were identified and subsequently sub-themes were found within them. The first main theme was early life experiences. Within this category the sub-themes recognised were school years, attachment to significant others, perceived social support and military family. Another main theme was the military itself, with the interviewees expressing sub-themes of a sense of stigma around mental health, perceived lack of support and military bonds formed whilst serving. The next main theme was PTSD itself. The sub-themes identified here were those of the interviewee’s symptomology, a sense of isolation and a propensity to violence. The final theme identified was the interviewee’s perception of the intervention per se, with sub-themes of peer support, Biophilia (Wilson, 2017) exposure to trauma memory and hypofrontality (Dietreich, 2006).

6.1.4.2 Strengths and limitations of this analysis. Although all the surviving original participants were asked whether they would participate in the interviews, of the nine approached, only four were willing to take part, this may have therefore led to an unrepresentative sample. There were varying different reasons for the others’ refusal, with the main reluctance to participate being cited as the length of time required to carry out the interview. Another possible limitation was experimenter bias, in that I carried out the interviews myself and it is possible that the interviewee might have wished to “please” me in the content of their recollection of the study, as they were aware that I had facilitated the original trip. Despite the interviews taking on average just under one hour to complete, potentially longer discussions may have enhanced the results. Another potential limitation was the lack of an active “non-green” control group, further research should consider implementing such a group for comparison. A further potential difficulty may be the manualisation of POET as an intervention. With there being many variables to consider (weather, fish species, time of year, whether people catch fish etc) it is difficult to exactly replicate interventions on each occasion. Despite these issues POET can, and indeed should, be operationalised in its general form.

One of the strengths of this research was the fact that I was able to re-visit participants 33 months after the original intervention. This gave me the opportunity to see the long-term effects of the intervention and to receive feedback on how those effects had impacted on the interviewee's life through qualitative interviews. Another strength was the ability to tie this qualitative chapter with the previous RCT research. This facilitated the making of a more informed model of the intervention and again, supported the potential use of POET in this context.

6.1.5 Abstract of the thesis as a whole. Chapters two and three focused on identifying the predictors for referral, DNA and engagement within an IAPT service and then subsequently the "success" criteria for assessing effectiveness of the service. Arguably, the analyses performed will enable IAPT services to tailor their mental health service provision so that it may achieve more equitable access by all, a key goal when it was originally set up. By highlighting which groups are not fully represented by their referral numbers new research and initiatives to increase referrals from these groups may be possible. Similarly an increased understanding as to which demographic groups miss appointments more than others can prompt pre-emptive measures to prevent this in the form of such things as automated text or email reminders. Policy changes to dissuade non-attendance could be implemented whereby a certain number of missed appointments would mean discharge from service. My findings on success criteria may inform future assessment of service users by IAPT services. In light of the recent introduction of payment by results (PBR), an awareness of groups that are less likely to succeed in the therapy offered may lead to a narrowing of the patient group admitted for treatment. For example if services are aware that people scoring more highly on their psychometric scores at entry are less likely to achieve success are they still going to accept them into service? Will PBR impact negatively on the access figures if the original success assessment system is used for all? Or could a tiered system of assessment in fact increase access figures? The results from this thesis into this area will encourage debate on this subject.

When looking at the specific mental health provision for military veterans with PTSD the development of POET was an attempt to look for either an adjunct to formal therapy or a conduit into it. Despite the results obtained being impressive, when compared to formal therapy or psychotropic medication, it is too early to claim that POET alone is robust enough to combat the symptoms of PTSD in isolation. However, the results are encouraging enough to potentially justify using the intervention as part of a bigger programme of care. Further research is warranted into such areas as dosage (length of intervention), client groups and longevity of the remission from symptoms. The unique combination of previously researched elements that have been seen to improve mental well-being (peer support, exposure to trauma memory and green exercise) makes this work a potentially important advancement in available approaches to working with the disorder within this specific client group. The opportunities to help small groups of veterans, diagnosed with PTSD, in a comparatively short period of time (two days and one night in contrast to individuals in therapy for weekly sessions for up to twelve weeks) has the potential to be advantageous both clinically and economically. There is also the possibility that POET could be utilised as a “holding system” for patients on a waiting list for more formal therapy in existing mental health services. If utilised as an adjunct to already established treatment pathways this may not only alleviate the symptoms of those that attend but could act as a contact/assessment point whereby individual patient risk can be assessed and participants that were in need of more urgent attention could be signposted to the relevant services. In recent years NHS mental health services have looked to increase group therapy options to their service users as a way of easing waiting list pressure. Within the IAPT service that this thesis evaluated, in chapters two and three (Health in Mind), there has been the development of group interventions for service users with emotional intensity issues, long term physical health conditions and for mothers with perinatal mental health issues. POET could potentially be incorporated into a larger psycho-education and stabilisation programme for military veterans and civilian survivors of trauma alike with the assimilation of other classroom and outdoor elements too. This research and subsequent development of POET will potentially enhance options for treatment for military veterans with PTSD.

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