The University Of Sheffield.

Exploring factors related to and predictors of dropout in Improving Access to Psychological Therapies (IAPT) services: a systematic review and secondary analysis of the PRaCTICED data.

Jessica Furlong-Silva

A thesis submitted in partial fulfilment of the requirements for the award of Doctor of Clinical Psychology at the University of Sheffield. The results, discussions and conclusions presented herein are identical to those in the University Library version. This electronic version of the thesis has been edited solely to ensure conformance with copyright legislation and all excisions are noted in the text. The final, awarded and examined version is available for consultation via the University Library

University of Sheffield
Faculty of Science
Clinical Psychology Unit, Department of Psychology

Submission date: June 2020

Declaration

I declare that this thesis has been submitted for the Doctorate in Clinical Psychology at the University of Sheffield. It has not been submitted for any other degree or any other institution. The thesis is an original piece of work and all other work mentioned is referenced accordingly.

Structure and Word Counts

Literature Review

Excluding references and tables: 6518

Including references and tables: 9513

Research Report

Excluding references and tables: 7078

Including references and tables: 9678

Total word count

Excluding references and tables: 13,596

Including references and tables: 19,191

Including references, tables and overall abstract: 19,619

Overall Abstract

It is well known that psychotherapy is beneficial to patients struggling with mental health difficulties. A barrier to this is patient dropout; the phenomenon of patients dropping out prematurely from therapy. Research has found that this leads to worse outcomes for those that dropout prematurely. Dropout has been studied within the literature for individual therapies and across services, however, there continues to be gaps in knowledge. Particularly as there are issues with the definition of dropout, as this varies across services and between therapists. Improving Access to Psychological Therapies (IAPT) is a national primary care service in England that began in 2008, as in other services worldwide IAPT has difficulties with high rates of dropout and patients reattending the service after dropping out.

Research into IAPT dropout is fairly new as the service has only been running since 2008. Therefore, this work aims to explore and define dropout within IAPT services by examining the literature. It also aims to examine the percentage and predictors of patient dropout within IAPT.

Part I is a systematic literature review that combined the results of 12 studies looking at or discussing patient dropout in IAPT services. Findings show that the average rate of dropout is 31% and the most common definition of dropout is patient non-attendance any time after the initial assessment without prior agreement between therapist and patient of ending therapy. Several factors were found to be associated with patient dropout across patient factors: psychological distress, health difficulties, alcoholism, deprivation and unemployment. Therapist factors: poor relationship with therapist, less effective therapists had higher levels of dropout. Service factors: long waiting lists, poor communication, location, invitation methods, pathways and dissatisfaction with the service.

Part II is a secondary analysis of the PRaCTICED trial data set, it was a non-inferiority trial that compared cognitive behavioural therapy (CBT) and person-centred experiential therapy (PCET) outcomes in patients with depression accessing IAPT services. A preliminary analysis and a multilevel logistic regression analysis were completed on the dataset to look for predictors of patient dropout on patient and therapist variables. There were 332 patients and 34 therapists used for the multilevel analysis. Findings found several predictors for patient dropout, including age, deprivation, resilience, number or sessions and treatment type.

These findings together increase the understanding of patient dropout within IAPT services and allow for these factors and predictors to be considered by services and therapists when working with patients. Future research should focus on looking at both patient, therapist and service level factors to get a richer understanding of all the potential predictors that may be leading to patient dropout.

Acknowledgements

"Some beautiful paths cannot be discovered without getting lost"- Erol Ozan

At times I felt lost during this process, but it was at those times that I learnt the most. I wanted to take this space to acknowledge all those people who supported me to find the right path.

I would like to thank my thesis supervisors for being the calm in the metaphorical research storm. For always giving me clear advice and support during the times when things felt unmanageable. I want to particularly thank Dave Saxon, for always helping me to understand and even enjoy the learning and process of multilevel modelling. I would also like to thank my cohort, even though we have had so much to contend with along the way, we pushed through and I am so proud of us.

My parents, Chris and Jose, my brother, Julio, and my partner, Charles, have been through this journey with me and given me space to discuss, reflect on and excitedly explain what my thesis entails. A special thank you to my Mum and Dad, for always being a secure base for me to come home to when things got hard.

My friends, for being at the end of the phone and a plan away from having some of the best times of my life even during the toughest times. I would like to specially mention Nickie and Gina, I am so thankful and proud to be part of your lives.

I want to also offer a space to acknowledge and thank all my placement supervisors and clients throughout the whole course. Without you I would not be the clinical psychologist that I am today.

List of Contents

Section I

Literature Review

Factors associated with patient dropout in Improving Access to Psychological Therapies (IAPT) services: a systematic review of the literature

Abstract

Objectives

Improving access to Psychological Therapies (IAPT) is a primary care service in England that offers therapy work for patients with common mental health conditions. An ongoing issue, as with all therapies, is that there are high levels of dropout that affect patient outcomes, waiting lists and funding. This systematic review aims to explore the factors relating to dropout and to operationalise a definition of dropout within IAPT services.

Method

A systematic review of IAPT literature was completed. Scopus, PsycINFO and MEDLINE databases were searched to extract titles, abstracts and full papers in November 2019. Several inclusion and exclusion criteria were applied to ensure only appropriate papers were included.

Results

A total of 12 papers were included in the review. There was an average dropout rate across the papers of 31% and the definition of dropout most commonly used was when a patient stops attending at any point after the assessment session. There were factors associated with dropout across patient factors: psychological distress, health difficulties, alcoholism, deprivation and unemployment. Therapist factors: poor relationship with therapist, less effective therapists had higher levels of dropout. Service factors: long waiting lists, poor communication, location, invitation methods, pathways and dissatisfaction with the service.

Conclusions

It is important for services to consider the identified factors in clinical practice and to be aware of when patients may be at risk of dropping out. However, further research that looks at how these factors interact by looking at patient, therapist and service factors together is required.

Practitioner Points

1. IAPT services and workers should consider factors such as increased distress, risk or severity of depression and anxiety as factors that may increase the likelihood a patient may dropout.
2. IAPT services and therapists may consider effectiveness of therapist practice as a potential factor of increasing dropout. Utilising training, appropriate supervision and patient feedback techniques may be helpful.
3. IAPT services and funders may consider factors relating to services that increase dropout, such as communication, waiting lists and type of services that are offered.
4. Further research is needed to reduce methodological flaws within the current IAPT literature on dropout. Particularly by considering each level of the IAPT structure.

Keywords: IAPT, Primary care, Dropout

Introduction

Psychotherapy has been found to have positive outcomes for mental health disorders and is superior to clients receiving no treatment (Griner & Smith, 2006; Leichsenring, Rabung, & Leibing, 2004; Solomonov & Barber, 2017). The well-established and well-researched therapies (i.e. CBT or psychodynamic) all appear to have moderate effect sizes (d=0.4-0.6) which suggests they are effective treatment options (Beutler, 2009; Lambert & Ogles, 2004; Shedler, 2010). Psychotherapy has also been found to be effective across many populations, ages and problems (APA, 2012). The positive outcomes related to psychotherapy have also been found to last longer and reduce the likelihood for further treatment compared to pharmacological treatments for mental health disorders, as clients are given tools and skills to reduce relapse (Hollon, Stewart & Strunk, 2006; Shedler, 2010).

Despite the benefits of psychotherapy there are consistent difficulties across all therapy modalities with patient dropout (Renk, 2002; Roos & Werbart, 2013; Roe, Dekel, Harel, & Fennig, 2006). Dropout is a phenomenon in which patients without warning stop attending psychotherapy. The problem with this is that dropout has been found to minimise the benefit of therapy (Lopes, Gonçalves, Sinai & Machado, 2018; Saxon, Firth & Barkham, 2017), patients can have a negative outcome (Lampropoulos, 2010) and it increases cost to services (Swift, Greenberg, Whipple & Kominiak, 2012). Therefore, attempting to reduce dropout rate is beneficial and researching the reasons for patient dropout is vital.

However, one of the difficulties of researching dropout is that there are several definitions of patient dropout. Different services and research studies operationalise these different definitions in different ways. Several studies have found that the definition of dropout used in studies moderates the dropout rate found (Swift & Greenberg, 2012; Binnie & Boden, 2015). There have been disagreements at which point a patient can be defined as a dropout. The most common definition is when a patient ends therapy before improvement in

symptoms or before completing a full manualised therapy intervention (Swift, Callahan, & Levine, 2009; Swift & Greenberg, 2012). However, the argument against this is that different people may need different amounts of sessions and may terminate when they feel they have gained as much benefit as possible (Barkham et al., 2006). There are several suggested definitions such as non-attendance of one appointment, therapist judgement or after a certain number of sessions. An agreed definition of dropout may help to further understand patient dropout.

Despite this problem previous research and reviews have attempted to understand the reasons why patients dropout of therapy. There is some evidence to suggest that a proportion of patients who end their treatment early do so because they feel they have reached their goals (Bados, Balaguer, & Saldana, 2007). This suggests that it may be important not to assume that the patient has ended therapy prematurely just because they have ended therapy sooner than the therapist or service expected. However, many patients dropout early for negative reasons and these have consequences to patients, therapists and services (Lopes, Gonçalves, Sinai & Machado, 2018).

Many studies have focused on patient factors relating to dropout. Certain patient characteristics have been linked to dropout, such as being from an ethnic minority background (Barrett, Chua, Crits-Christoph, Gibbons & Thompson, 2008; Cooper & Conklin, 2015), age, in that younger patients are more likely to dropout than older patients (Barrett et al, 2008), deprivation (Hamilton, Moore, Crane & Payne, 2011, Westmacott & Hunsley, 2010), identifying as a sexual minority (Anderson, Bautista & Hope, 2019) or being male and having a lower education level (Zimmerman, Rubel, Page & Lutz, 2017). However, these findings have been inconsistent across studies, for example some studies have found being female increases dropout (Rohrer, Angstman & Pecina, 2013) and there is limited understanding on the combined impacts on characteristics such as ethnicity and poverty

(Barrett et al., 2008). Other patient factors found relating to dropout are severity of psychological symptoms (Fernandez, Salem, Swift, & Ramtahal, 2015), such as high levels of depression, anxiety and risk. Comorbid psychological disorders (such as personality disorder) or substance abuse have also found to be related to dropout (Cooper & Conklin, 2015; Macnair & Corazzini, 1994; Wampers et al., 2018).

A smaller body of research has focused on therapist factors and service factors, but these findings are also inconsistent across studies. For example, Cooper & Conklin (2015) found that longer length of treatment increases dropout. Whereas Fernandez et al. (2015) found that shorter treatments increases the chance of dropout. Some studies suggest that dropout variance can be attributed to therapists; including therapeutic alliance and the transference relationship (Anderson, Bautista & Hope, 2019; Xiao, Castonguay, Janis, Youn, Hayes, & Locke, 2017). Other studies have found that reduced dropout can be attributed to the skill of the therapist and therapist adherence to the model (Philips, Karlsson, Nygren, Rother-Schirren & Werbart, 2018). Some service factors have been found such as the format and setting in which therapy is offered (Fernandez et al, 2015).

This review focuses on patient dropout within England's primary care service, Improving Access to Psychological Therapies (IAPT). IAPT was established in 2008. It was created as a programme to make talking therapies accessible to those suffering from mental health problems, commonly anxiety and depression. It is characterised by three things; evidence-based therapies, outcome monitoring and therapist supervision (NHS, 2019). This ambitious programme was the first of its kind in the world and whilst it has been found to be a positive addition to the NHS, the issue of dropout greatly impacts the effectiveness of the service. First appointment non-attendance rates have been found to be between 42% and 48% (Murphy, Mansell, Craven, Menary & McEvoy, 2013; Richards & Borglin, 2011). Two studies have attempted to look at dropout rates after the first appointment. The percentage of

dropout was suggested to be between 17% and 19.9% (Cooper & Conklin, 2015; Gersh et al., 2017). There is a need to better understand patient dropout in IAPT services to attempt to improve completion of therapy with the aim to increase recovery rates.

Therefore, the aim of this literature review is to assess the literature that includes information on why patients dropout of IAPT, to assess the quality of the research in this area and to see where there may be gaps in knowledge and offer recommendations for future research to help improve IAPT services where possible.

Method

Search Strategy

A systematic literature search was completed on SCOPUS, PsycINFO and MEDLINE databases between October and November 2019. The search terms used were split into two categories representing the population (IAPT) and terms to describe dropout. These two categories were combined using the Boolean search term "AND" (see table 1). Ten main search terms categories were used in total across all databases, PsycINFO and MEDLINE used additional search terms under these main categories using medical subject headings (MESH) terms. These search terms were found through initial scoping searches of the literature that found key words and patterns that were commonly used.

The studies found in the search were included or excluded via the title initially, then the abstract. Once duplicates were removed from the database searches, full-text articles were screened using the inclusion and exclusion criteria to assess whether they were eligible to be included in the review. The eligible articles were then subject to forward and backward reference searching. The search process is found in figure one.

Table 1. Summary of Search Terms

Main Search Term (Across all databases)	MeSH Terms (PsycINFO)	MeSH Terms (Medline)	Combinations	
"Improving access to psychological services" **"Improving access to psychological therapies"** **IAPT**				
Primary Care	Primary care, primary health care	Primary health care	OR	
Primary mental health	Mental health services, primary mental health	Mental health services		AND
Attrition				
Dropout	Treatment dropouts, dropout	Treatment dropouts		
Drop-out **Non-completion** **Non-attendance**			OR	

Inclusion Criteria

The following inclusion criteria were applied to the literature:

I. Studies must include an analysis of patient dropout that explains factors that may increase or decrease attrition

II. Studies must be based in IAPT primary care services in England
III. Studies must be focusing on adults aged 18-65
IV. Studies must be available in English

Exclusion Criteria

The following exclusion criteria were applied to the search process:

I. Studies that mention low dropout as a result of their intervention but do not have a control group comparator to assess if the intervention may be a factor in reducing attrition.
II. Studies that were completed in primary care prior to IAPT starting, i.e. 2008.
III. Studies based in secondary or tertiary mental health services
IV. Studies based outside of England
V. Studies looking at children in IAPT up to the age of 18

Quality Appraisal

After the criterion was applied the included studies were then quality assessed using a variety of quality appraisal checklists. These checklists were chosen based on the study's design methodology to allow for a valid assessment. They are well researched, easily accessible and easy to understand.

Two critical appraisal skills program (CASP) checklists were used, one for randomised control trials and one for qualitative design (CASP, 2018). CASP checklists were created as part of the NHS to help develop an evidence-based approach to health care research (CASP, 2017). Both checklists consider three broad issues: Are the results valid? What are the results? And will the results help locally? They are to be used to help the researcher think about issues relating to bias, quality and study limitations in a systematic way.

Two National Heart and Lung Institute (NIH) assessment tools were used, one for observational cohort and cross-sectional studies and one for case series design (NIH, 2017). NIH quality appraisal tools were developed by NIH and research triangle institute international (NIH, 2017). They were designed to assist researchers to focus on key concepts that assess potential flaws in the design. For questions that yield a "no", researchers are urged to consider the potential bias as a result of that flaw.

Each study was scored using the checklist that corresponded to the design and given a number out of 10 (CASP qualitative checklist), 11 (CASP RCT checklist), 14 (NIH Observational cohort and cross-sectional checklist) and 8 (NIH case series checklist). For the NIH observational cohort and cross-sectional checklist, some questions were not applicable depending on the study design, therefore, these questions were taken off the total number of questions and readjusted for scoring accordingly. The studies were then assessed as low, medium or high quality from these scores. To see a breakdown of cut off scores for each checklist see quality assessment tables for each checklist in appendix 2.

To ensure rating reliability, a secondary researcher (Trainee Clinical Psychologist) with the necessary trained skills to complete quality assessment, assessed a proportion of the papers. Twenty percent of papers (3 papers) were rated and scoring was compared. The secondary researcher received one randomised control trial, one cross-sectional design and one cohort study to assess. Cohen's kappa coefficient (Cohen, 1960) was run to determine inter-rater reliability. This specified a moderate agreement between both researchers (K= 0.509, p= 0.001). The sensitivity was 87% and the specificity was 62.5%. Variations in ratings were as a result of different interpretations of items on the checklists. Disagreements were resolved through discussions.

Data Coding and Extraction

Key information was extracted from the studies included in the review from a coding scheme (see appendix 1) developed by the researcher. The key information elicited included: author, publication year, country, demographics (e.g. gender), methods, measures, analysis used (statistical or qualitative), dropout percentage, dropout definition, outcome and conclusions. A database was created with this information, which was then interpreted and synthesised by the researcher.

Statistical analysis of the data was considered inappropriate due to the diversity in the methodology and that some studies were not primarily studying dropout.

Results

The database search found 2313 results; 775 in SCOPUS, 624 in PsycINFO and 914 in MEDLINE. Titles and abstracts were screened for eligibility which found 65 relevant papers across the databases; 25 in SCOPUS, 21 in PsycINFO and 19 in MEDLINE. Duplicates were then removed which left 34 full-text articles in which the inclusion and exclusion criteria was applied. A total of 12 met criteria to be included in the review (see figure 1). Quality appraisal was completed for all papers included in the review; this is presented in the summary tables (see tables 2 & 3).

Study Characteristics

The 12 studies included in the review had a total of 14,613 participants, 14,557 were patients accessing IAPT and 56 were psychological wellbeing practitioners. The sample sizes ranged from 14- 6111. The included studies had a variety of methodologies, including randomised control trials, cross-sectional designs, cohort studies, case series and qualitative designs. For a full list of methods and characteristics see tables 2 and 3.

Most papers focus on IAPT services for depression and anxiety; however one study focuses on an IAPT service for people suffering with psychosis (Fornells-Ambrojo et al., 2017). Six out of the twelve paper's primary focus was dropout factors in IAPT services. The rest of the studies had a different primary focus but included an analysis of dropout.

Figure 1. Prisma Diagram

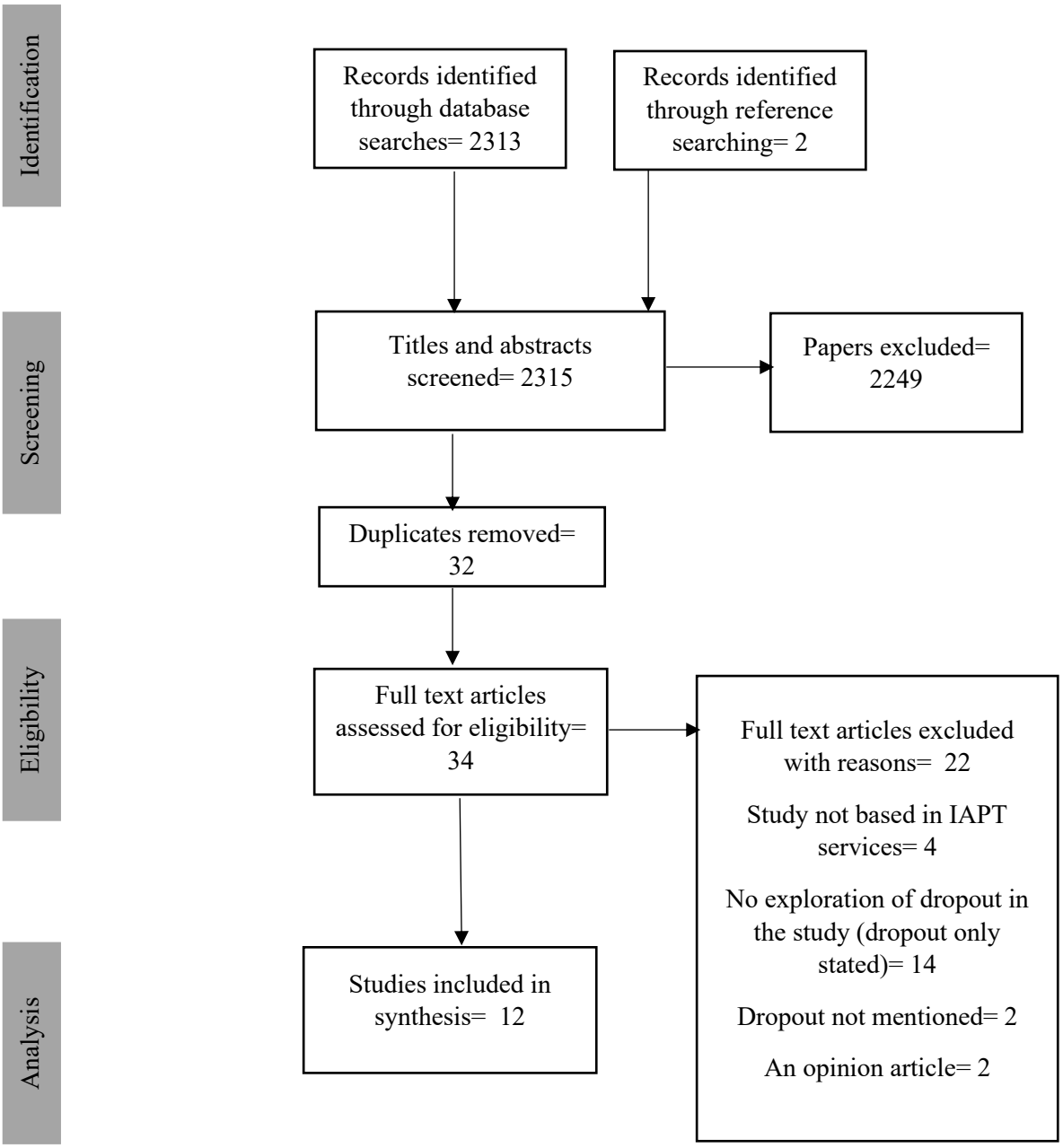


Table 2. Summary of quantitative studies in the review

Authors	Design	Population	Sample Size	Measures Used	Method	Main Finding	Quality
Avishai, Oldham, Kellet & Sheeran, 2018	RCT	86 IAPT Patients from a poor sociodemographic area	86 (40 intervention, 46 in control)	Questionnaire on views of attendance, the intervention participants also received an implementation intention (if-then plan)	IAPT patients referred to a stress control course were sent questionnaires regarding attendance. Participants were randomised into intervention or control groups, those who received intervention also received an implementation intention that involved an if-then plan for participants to follow. Attendance of the course was then analysed.	Those in the implementation intention arm attended more sessions and had higher rates of course completion than the control arm (35% compared to 11%).	High
Binnie & Boden, 2016	Mixed methods cross-sectional design	201 IAPT Patients, Main problem:87 Patients with depression ,114 Patients with anxiety	201 (61 of which dropped out)	Index of multiple deprivation, PHQ-9, GAD-7	Guidelines and reporting systems of dropout were reviewed in a specific IAPT service. Then completers of IAPT CBT were compared to dropouts to assess factors associated with dropout	Inaccurate dropout recording was found in this IAPT service, 8.9% dropped out. Factors associated with dropout were level of depression, level of anxiety, risk and deprivation scores. Reasons given for non-attendance were forgetting, being ill, other priorities or dissatisfaction with the service.	High

Buckman, Naismith, Saunders, Morrison, Linke & Leibowitz, 2018	Quasi-experimental cohort study	3643 IAPT Patients	3643 used in the sample (out of 5330 in the audit period)	Alcohol Use Disorders Identification Test-Consumption (AUDIT-C), PHQ-9, GAD-7, IAPT Phobias scale & Work and social adjustment scale.	All patients who accessed an IAPT service within a year period were asked to complete an alcohol use questionnaire prior to treatment. Those who completed it were included in the study. Then patients received TAU including normal IAPT measures. Levels of dropout and clinical outcome was measured against alcohol-use.	Higher scores (8 or above) on the AUDIT-C had higher rates of dropout than those with lower scores. There were no differences regarding clinical outcomes.	High
Chan & Adams, 2014	Secondary analysis of a cohort study	100 IAPT Patients	100 used in the anaylsis (out of 15,082)	PHQ-9 & GAD-7	A secondary analysis was completed of IAPT cohort data using a sub-sample of the data. Dropout rates and clinical outcomes were compared between high and low intensity treatments.	No differences were found regarding dropout and clinical outcomes between high and low intensity groups.	High
Delgadillo & Groom, 2017	RCT	98 IAPT Patients	98 (49 in intervention, 49 in control)	PHQ-9, GAD-7, Work and social adjustment scale, Acceptability scale for TDS intervention	Patients attended 3 Psychoeducational seminars before beginning CBT. Dropout and clinical progress was compared to a matched sample of treatment as usual.	Psychoeducational seminars reduced CBT dropout rate by 19% in the intervention compared to the control. No differences were found in symptom reduction.	High

Di Bona, Saxon, Barkham, Dent-brown & Parry, 2014	Secondary analysis of a cohort study	363 IAPT Patients	363	PHQ-9, GAD-7, CORE-OM & Index of multiple deprivation (IMD)	Secondary statistical analysis of cohort study, IAPT service data was matched with participant's self-report socio-demographic and clinical data. Logistic regression was used to identify participant factors for non-attendance.	Clinical characteristics were more predictive of IAPT dropout than socio-demographic variables. These were risk to self, severity of distress and illness duration. Site of IAPT service was also found to be a factor in dropout.	High
Firth, Barkham, Kellet & Saxon, 2015	Secondary analysis of a cohort study	6111 IAPT Patients and 56 Psychological wellbeing practitioners	6167	PHQ-9, GAD-7, WSAS, Index of multiple deprivation	Routine outcome data in an IAPT service was collected and multilevel modelling was completed to determine therapist effect on outcomes. Therapists were grouped by below average, average and above average on patient outcomes.	Dropout was detrimental to outcome. Unemployment and deprivation increased dropout. Therapist effects accounted for 6-7% of outcome variance which was moderated by symptom severity, treatment duration and dropout. More effective therapists achieved greater improvements.	High
Fornells-Ambrojo et al., 2017	Mixed Case series	281 IAPT Patients with Psychosis	363 (response rate to questionnaire reduced at mid therapy and end of therapy time points).	Choice of outcome in CT, WEMWBS, WSAS, Psychotic symptom rating scales, EQ5D, CORE-10, Feedback about measures (FAM).	Participants completed routine outcome measures at baseline, mid therapy and end of therapy. As well as one sessional measure. Qualitative and quantitative feedback using the FAM was completed at time point.	Participants found routine outcome monitoring helpful and dropout rates were not affected using outcome monitoring batteries. Factors associated with those who found it unhelpful were younger in age and had poorer general outcomes.	High

Pennington & Hodgson, 2012	Non-intervention Cross-sectional design	521 IAPT Patients	521 (36% did not attend, n=188)	None	Patient initial attendance data was taken for 3 months across a city wide IAPT service. Each service used different invitation types; Appointment letters, a phone call or a phone call with a reminder. Non-attendance rates were then calculated across each invitation type.	Phone call invitations with a reminder phone call yielded the least dropout (5% did not attend) and therefore concluded to be the most beneficial invitation method. Letter invitations had 13% non-attendance and phone call invitations had 17% non-attendance.	Medium
Steen, Hemmings, Foster, Bedford & Gorbing, 2019	Naturalistic observational cohort study	2967 IAPT patients	2967 IAPT patients (259 in pathway A1, 1195 in pathway A2 and 1513 in pathway B	PHQ-9 and GAD-7	Naturalistic observation of assessment pathways for two IAPT providers over 12 months; pathway A1 using therapeutic consultation prior to assessment/ treatment, the other two pathways A2 and B utilised a short intake assessment period before assessment/treatment.	Attrition rates were higher in the assessment only pathway compared to the therapeutic consultation pathway. In pathway B, over half did not complete more than a single session and more declined treatment. When included data from pathway A2, this non-completion rate reduced which suggests service differences.	Medium

Table 3. Summary of qualitative studies in the review

Authors	Design	Population	Sample Size	Method	Finding	Quality
Marshall et al., 2016	Qualitative- Iterative qualitative analysis using data mapping	14 IAPT patients	14	Semi-structured Interviews with patients that had never attended or only attended one session at IAPT. The researchers aimed to assess the service-related factors in dropout	Five key themes emerged that led to dropout; long waiting lists with lack of contact from services, poor relationships between GP services and IAPT, expectations around assessment/treatment were not met and patients felt let down, inflexibility of service (communication, appointments, treatment choice and practitioner choice) and finally relationship between patient and therapist (i.e. not being listened too).	Medium
Rachael, Blackhall, Jones & Law, 2010	Qualitative- Thematic Analysis	90 IAPT Patients (42 dropped out)	90	A qualitative questionnaire was given to patients attending a psychoeducational group that could be responded to by both attenders and non-completers. The researchers analysed themes in the questionnaires to assess reasons for dropout and whether psychoeducational groups are acceptable in IAPT.	Themes around non-completion were mainly; personal reasons (25 patients) which included difficulties with travel and other commitments, health reasons (17 patients) which included both physical and mental health and dissatisfaction with the course (14 patients) which included not suitable for needs, uncomfortable in group and the course delivery. Several themes were found for completers i.e. course content.	Medium

Quality assessment

All studies included in the review were found to be of medium to high quality (see Tables 2 and 3). As a result, they will all be included in the synthesis. See appendix 2 for all quality assessment tables.

Cohort and cross-sectional studies

Two studies were cross-sectional designs and 5 studies were cohort studies. Three of the six cohort studies were a secondary analysis of cohort data. The quality of the reporting was high except for two studies which were acceptable (Pennington & Hodgson, 2012; Steen et al. 2019). Pennington and Hodgson (2012) was the only study that gave insufficient detail regarding patient characteristics. External validity of the studies appeared high, as all participants in each study were recruited from the same population (IAPT) and participation rates were all at least 50% of the available population in that IAPT service during that time period. Only one study failed to do this by only using a small subsection of the available dataset, which is likely to increase the chance of a biased sample (Chan & Adams, 2014).

The risk of confounding was moderate. It was unclear as to whether studies measured and adjusted for potential confounding variables in the statistical analysis. Only three out of seven studies clearly adjusted for confounding variables.

As these papers were naturalistic and observational, they allowed for observation of treatment as usual within IAPT services and provide a real-world view of dropout within services. However, this means that the studies were often unable to control for confounding variables and the sample size was not controlled which means that power calculations were unable to be made. Binnie & Boden (2016) used a mixed method cross-sectional design which enabled further qualitative information to be gathered alongside the quantitative findings.

Case Series

There was only one case series study (Fornells- Ambrojo et al., 2017) which was assessed as high quality. There appeared to be good internal and external validity, as the participants being studied appeared representative of the population. The reporting was high quality with outcome measures, interventions and participant characteristics clearly defined. It is recommended that samples in case series designs should be complete and consecutive to increase reliability (Dekkers, Eggers, Altman & Vandenbroucke, 2012). This study succeeded in reporting this which reduces likelihood of bias in the sampling procedure. It was unclear from the reporting of the study as to whether the length of follow up was adequate to ascertain an effect. The study also incorporated a qualitative element, to assess the patients view on using measures. Whilst this added richness to the data and more information, mixed method design can increase design complexity. However, in this case, the qualitative data complimented the findings.

Randomised Control Trials

There were two randomised control trials, and the quality was assessed as high for both studies. External validity was high for both studies as the patient characteristics were demonstrated in detail. Participants appeared representative of the source population, however Avisha et al. (2018) failed to give information regarding whether the groups were similar at the start of the trial. Without this information it is unknown as to whether confounding variables were accounted for which may increase risk of bias.

Internal validity was moderate for Delgadillo & Groom (2017) and high for Avisha et al. (2018). Delgadillo & Groom (2017) were unable to blind those involved in the research which may increase the risk of selection bias. Whereas Avisha et al. (2018) were able to blind

both participants and researchers. Both studies reported non-compliance with interventions and accounted for all participants at the end of the trial.

The treatment effects in both studies were moderate, Avisha et al. (2018) did not report how precise the estimate of the treatment effect was, therefore the reader cannot tell if the results may be at risk of sampling error.

Qualitative Research

Two qualitative studies were included, one used iterative qualitative analysis using data mapping (Marshall et al., 2016) and one used thematic analysis (Rachael et al., 2010). Both studies were assessed as medium quality, the reporting was acceptable for each study.

External validity was relatively low for both studies. It was unclear as to whether the recruitment strategy was appropriate in one study (Marshall et al., 2016), neither study addressed the relationship between the researcher and participants, and it was unclear as to whether ethical issues had been considered. This increases the risk that bias may have occurred in the recruitment process or during the analysis process.

Despite the issues with some of the research process, the findings of each study were felt to be moderately valuable and offer important contributions to the research field in question.

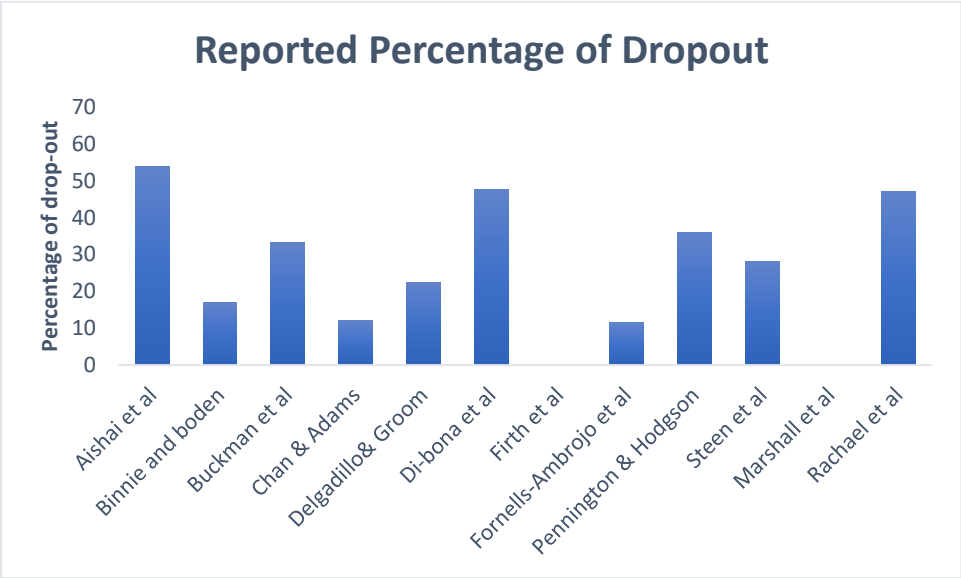
Main findings

Dropout percentage and definitions within the literature

The dropout levels were extracted from the papers to give an overall view of the number of patients that dropout of IAPT services. The average dropout level across all papers was 31%. See figure 2 for individual dropout rates within each paper. All but one paper defined dropout as non-attendance of sessions after assessment. Fornells-Ambrojo et al.

(2017) split dropout into two definitions; non-attendance was classed as not attending after the assessment session and dropout was classed as not attending during therapy work.

Figure 2. Reported percentage of dropout across papers



N.B. Missing data is due to a lack of reporting dropout rate within the paper

The main factors associated with dropout have been collated and discussed below. See figure 3 for a visual view of these factors.

Patient Factors associated with dropout

Several studies focused on patient characteristics. Two studies (Binnie & Boden, 2016; Di-bona et al., 2014) found that psychological symptoms such as higher levels of distress, depression, anxiety or risk were associated with patients dropping out of IAPT services. Di-bona et al.'s (2014) results also found that the duration of the psychological issues affected dropout, in that the longer the patient had been ill the more likely they were to end therapy. Another study suggested that increased health difficulties, both physical and mental, were also linked to likelihood of dropout (Rachael et al., 2010). Alcoholism and excessive alcohol intake were found to increase the likelihood of patient dropout (Buckman et al., 2018).

Two studies found that deprivation and poverty were linked to patients dropping out of IAPT services (Binnie & Boden, 2016; Firth et al., 2015). Linked to this, issues with travelling (Rachael et al., 2010) and unemployment (Firth et al., 2015) were found to be a factor in patient dropout.

Factors that were not found to be significant within the studies were socio-demographic characteristics such as age or gender (Binnie & Boden, 2015; Di-Bona et al., 2014).

Therapist Factors associated with dropout

Only two studies focused on therapist factors that increased patient dropout. These were that patients felt they had a poor relationship with their therapist which led them to leaving therapy prematurely (Marshal et al., 2016). Firth et al. (2015) found that therapist effects accounted for between 6 and 7% of patient dropout. Therapists that were more effective had less patients end therapy prematurely. Therapist factors, such as years of experience, were not looked at within this study.

Service Factors associated with dropout

Ten studies focused specifically on IAPT services and service methods. These studies found certain service methods that increased or reduced dropout.

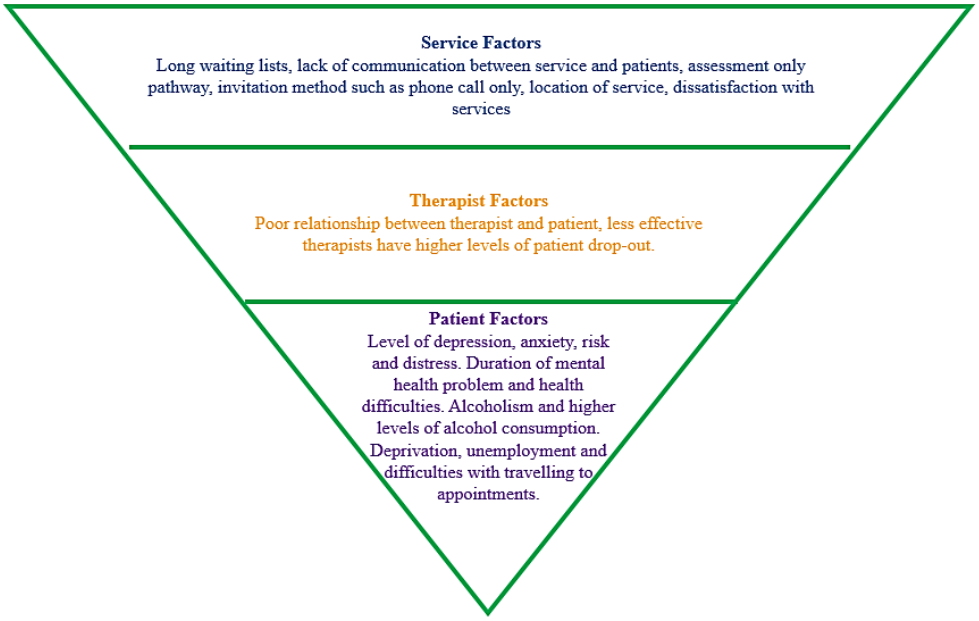
Service issues that increased the level of patient dropout (or were stated as a reason for dropout) were long waiting lists, lack of contact from the IAPT service whilst waiting and poor relationship between GP service and IAPT service which led to reduced communication (Marshal et al., 2016). The location of the IAPT service and ease of access to the site was stated as a reason for patient dropout (Di Bona et al., 2014). Pennington and Hodgson (2012) looked at IAPT service appointment invitation methods to assess if this affected attendance. A phone call and a reminder had the lowest level of dropout whereas phone call alone had the

highest level of dropout. Similarly, Steen et al. (2019) looked at different IAPT assessment pathways. Dropout rates were higher in an assessment only pathway compared to a pathway that incorporated a therapeutic consultation for clients prior to assessment. Two studies found that patients felt dissatisfied with the service they received from IAPT which led them to discontinuing their therapy or group work (Binnie & Boden, 2016; Rachael et al., 2010).

Some studies adapted the service offered to see if it would improve outcomes and levels of dropout. Delgadillo & Groom (2017) used a psychoeducational seminar about CBT prior to CBT therapy starting with patients and these were matched with controls that completed treatment as usual (i.e. just CBT). The introduction of a seminar reduced dropout rate by 19%. Avishai et al. (2018) sent questionnaires and an implementation intention for patients to use prior to therapy starting, this was found to reduce the likelihood of dropout compared to treatment as usual controls.

Other studies looked at IAPT processes or services offered to see if there was increased dropout. No differences were found in dropout levels between high intensity and low intensity therapy work (Chan & Adams, 2014) and Fornells-Ambrojo et al. (2017) found that the use of a battery of outcome monitoring did not increase dropout in those experiencing psychosis within IAPT psychosis services. Therefore, using outcome monitoring appears to be an acceptable tool for measuring change in services.

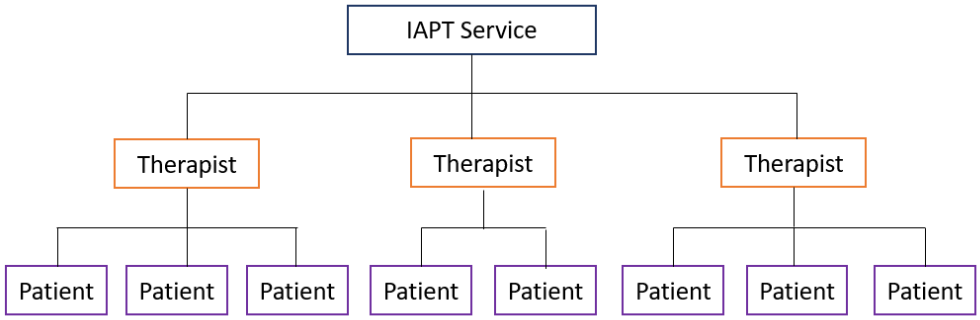
Figure 3. Collated factors for dropout found across studies



Critique

All the papers included within the review make important contributions to the research and continued development of IAPT services, particularly in moving towards understanding dropout. However, a major flaw of the research is that most of the studies only investigate one group of factors, such as patient factors. The impact of the groups of factors that are not considered (i.e. therapists or service) may change the results found. There is an increased risk of both type 1 and type 2 errors when all groups of factors are not considered. More pertinently, there may be interactions between the group factors that increase or decrease the likelihood of dropout. For example, site of IAPT service may be a contributing service factor in areas in which patients are more deprived. Therefore, both patient and service factors may be interacting to increase risk of patient dropout. IAPT is a nested structure, in that patients are seen by therapists which work within the services (see figure 4). Therefore, to further understand dropout there needs to be an analysis that takes into account this nested structure through higher level statistical analysis such as multi-level modelling. Firth et al. (2015) is the only study that used a multi-level modelling analysis to specifically focus on therapist effect on outcomes.

Figure 4. Nested IAPT Structure



The largest body of studies are cohort studies, and all the cohort studies within this review are observational. Cohort studies have an increased likelihood of the presence of confounding variables, which can cause an over or under-estimation of the true association. There is potential for unknown confounders which links to the above regarding nested structures. The studies did not impose restriction to people who could participate within the study, as data was taken over a time period within an IAPT service without adding inclusion or exclusion criteria. Whilst this may increase generalisability it also increases the risk of confounding variables. Only two of the studies attempted to adjust for confounding variables (Di Bona et al., 2014; Firth et al., 2015).

There were six studies with the primary aim of looking at patient dropout within IAPT services. This means that half of the studies looked at dropout as a secondary analysis rather than the main aim of the study. This means that despite dropout being a consistent difficulty within IAPT services there have been few studies that focus on why dropout occurs.

Discussion

This systematic review aimed to investigate factors associated with patient dropout within IAPT services and to assess definitions of dropout within IAPT. A total of 12 papers were examined in the review. Quality appraisal guided by quality assessments related to

study design indicated that quality ranged from medium to high. Service factors relating to why patients dropout was studied most, with ten studies including an analysis of service factors. Secondly, patient factors relating to dropout was looked at by six studies. Therapist factors appears to be under-studied within the current literature on IAPT dropout, with only two of the studies taking therapist factors of patient dropout into account. Most of the studies included were cohort studies. Many of the studies included measures used in every day IAPT services that are well known and validated measures. The measures used mostly related to depression, anxiety and risk. No measures were used in relation to risk of dropout, currently there appears to be no specific measure to assess whether a patient may be at risk of terminating therapy early unlike for example, in education backgrounds where there is a tool for assessing potential student dropout (Parada, 2000). There is currently no model that suggests risk factors for potential dropout, despite dropout being a longstanding issue within psychological therapies, as well as heavily researched across modalities e.g. CBT (Fernandez, Ephrem, Salem, Swift & Ramtahal, 2015), and disorders, e.g. depression (Schindler, Hiller & Witthoft, 2012). This is particularly surprising in IAPT services in which outcome measures are often taken to ensure research can be completed to continue to improve the service.

The dropout rate for IAPT services was high, with the mean dropout rate of 31% across all studies. This is a similar rate to studies utilising non-IAPT services (Barrett, Chua, Crits-Christoph, Gibbons, Casiano & Thompson, 2008). As seen in figure 2, studies that were experimental in design had higher levels of dropout which is often seen in experimental designs (Dumville, Torgerson & Hewitt, 2006). Cohort and cross-sectional designs had less reported dropout, as they were naturalistic and observational in nature which may offer a more realistic picture of attrition rates within IAPT services. Nevertheless, attrition rate is high within IAPT and needs further research.

The main definition of dropout that was operationalised within these papers was the patient no longer attending after the initial session, often one missed session being classed as dropped out. The only paper that operationalised two different definitions was Fornells-Ambrojo et al (2017), they defined non-attendance as dropping out after the assessment session and they classed dropout as dropping out during therapy work. This suggests that although there continue to be debate around definitions of dropout across different services, IAPT appears to have a more consistent definition that is used. This definition is service determined, patients may not feel they have dropped out and may end therapy early when they have gained as much benefit as they believe is possible (Barkham et al., 2006). Therapists' definitions may also differ from this prescribed definition, as they may feel that patients have shown an improvement in symptoms and therefore ended therapy at the right time point or they may make their own judgements as to whether a patient has dropped out and to give them more chances to attend therapy before being classed as dropped out (Swift et al., 2009).

The reviewed papers suggest that there are a variety of factors that are linked to patients terminating therapy early. These factors were broad and spanned across 1) patient factors such as psychological symptoms that seem to increase the patients' likelihood of dropout; 2) Therapist factors; and 3) service factors such as difficulties in the service or factors associated with the service offered that lead to patients dropping out of therapy.

Consistent with previous research on patient dropout, psychological symptoms were found to be a significant factor, particularly anxiety, risk and depression (Di Bona et al., 2014). Two papers found that deprivation was also a significant factor of premature ending, which has been found across different therapy modalities and psychological services (Hamilton, Moore, Crane & Payne, 2011, Westmacott & Hunsley, 2010). However, unlike other research, demographic variables such as age, ethnic minority and education level were

not found to be a dropout factor in IAPT. This may be a result of the focus of the studies rather than these factors not playing a role in dropout. However, one study did include these as a focus and found that sociodemographic variables were not associated with patient dropout (Di bona et al., 2014). Alcohol intake was found to increase likelihood of dropout in IAPT services (Buckman et al., 2019), which has been consistently found in previous studies on patient dropout from psychological therapies (Macnair & Corazzini, 1994).

As found in previous research, Marshall et al. (2016) found that the therapeutic relationship was important and that those with poorer relationships were more likely to dropout. Whereas Firth et al. (2015) found less effective IAPT therapists had higher levels of patient attrition, which was also found in other studies looking at dropout in psychological therapy (Philips et al., 2018). Relatively few of the studies within the review focused on therapist factors that may impact on dropout from IAPT services. Further research on therapist factors may help to have a clearer picture on dropout in IAPT. Research looking at links between therapist adherence to the model and dropout may be helpful, past research in IAPT found despite therapists being rated as adherent some parts of the CBT model being used were consistently overlooked (Buszewicz et al., 2017). Model adherence has been found as a factor in dropout in previous research outside of IAPT services (Philips et al., 2018).

Many of the studies within this review found that IAPT services contribute to patients dropping out of treatment; previously there has been limited research into service factors. This may be because IAPT consistently evaluate their services for service quality and funding purposes (Gyani, Shafran, Layard & Clark, 2013). Fernandez et al. (2015) found the setting in which the therapy is offered is important, this was mirrored in the findings in this review as location was deemed as a factor in dropout (Di Bona et al., 2014).

Interestingly, the studies that assessed service factors also looked at pathways and methods of invitation to appointments. Reviewing pathways and service access has been found to be important to ensure patients are receiving quality care, that they are continually growing with the problems within the population, that they are affordable and that the service is accessible to all populations (Brown, Ferner, Wingrove, Aschan, Hatch & Hotopf, 2014). Dissatisfaction with service, long waiting lists and lack of communication were all factors that were associated with dropout, these findings are, therefore, also related to pathways and service structure. This means that these studies combined offer important insight for IAPT services to continue to improve and redesign their services, to reduce attrition and improve quality. Studies that looked at ways to improve dropout in IAPT services may offer important contributions to this process (Delgadillo & Groom, 2017; Avisha et al., 2018).

There were no differences in dropout levels between high or low intensity IAPT therapy and the continued use of sessional outcome monitoring was not found to affect dropout (Chan & Adams, 2014; Fornells-Ambrojo et al., 2017). Research findings that suggest improvements to retention and no change in dropout across IAPT services are equally important, one paper suggests that there are issues with the way research on dropout is conducted. They suggest that focusing on factors that increase retention in services, therapy modalities or therapists is more beneficial to improving dropout than attempting to focus on understanding why patients dropout (Cooper, Kline, Baier & Feeny, 2018). However, it is argued that by only focusing on retention of patients, there may be gaps in understanding and that a mixture of research in both attrition and retention would be beneficial.

Limitations

The findings of this systematic review need to be interpreted with a degree of caution as it is not without limitations. Firstly, due to the lack of papers within this area and the large

variation in design methodology (i.e. quantitative and qualitative) and focus of the study (i.e. some focusing on outcome rather than dropout), a meta-analysis was not undertaken. This leaves the current review open to criticism of bias and subjectivity. The use of a second reviewer for quality assessment was an attempt to reduce bias but the conclusions and interpretation of study findings are vulnerable to a degree of subjectivity. Future reviews can reduce researcher bias further by having multiple researchers during each step of the review process.

Another limitation is the use of multiple quality assessment tools. Whilst the tools are just a guide to help with a more rigorous quality assessment and to attempt to reduce bias with structured questions, the use of multiple quality assessments reduce the consistency in assessment across papers. This was to ensure that the tools used were consistent with the study design being assessed and to reduce the need to discount questions that were not applicable to the study, which is more likely in quality assessment tools that can be used across designs.

A further limitation is that the results of the review should be taken with a degree of caution due to the small number of papers. All papers that were available that discussed factors of dropout within adult IAPT services were included in the review, unfortunately this evidence base is still small and further research is needed before conclusions can be drawn as to what the main risk factors are for why patients stop attending.

Clinical Implications

Despite these limitations the current review is an important contribution to IAPT literature, as it offers insight into the factors that are causing the high levels of attrition within this countrywide service. It is important for services and therapists within these services to acknowledge the factors that contribute to patient dropout. Particularly acknowledging that

IAPT is a nested structure and that patient, therapist and service factors are likely to interact and overlap to increase the chance of dropout. Such as patient deprivation may interact with service location, as for example, if the service location is difficult to get to via public transport, regular attendance may be further exacerbated if patients have limited access to other forms of transport. Awareness of these factors, may help to improve retention by acknowledging patient difficulties, being aware of risk factors for dropout (such as deprivation, gender, ethnicity, distress level), therapists reviewing their own practice and utilising supervision and services assessing their own pathways.

Recommendations for Further Research

The main recommendation for future research is that dropout could be studied within the nested structure. Future research should assess dropout factors by looking at how patients, therapist and service level factors interact to be able to adequately understand attrition. This may allow for a model to be created that would work towards predicting dropout within IAPT when risk factors are presented and allow for continued therapist and service development. This may be completed through the use of multilevel modelling.

A second recommendation is that there should also be a consideration of patient retention within the research. By researching what keeps patients attending IAPT would allow for services to increase these factors and work towards improvements within the service.

Finally, much of the current research in IAPT was excluded from this review due to only mentioning the level of dropout rather than statistically exploring what factors may have led to it. Future research could attempt to further explore dropout rates within such research.

Conclusion

This systematic review has been the first review looking at the factors associated with patient dropout in adult IAPT services within the UK. IAPT's definition of dropout was considered and found to generally be dropout following assessment or non-attendance of one session. The mean dropout rate across papers was high, with 31% of patients dropping out. Several factors were found to be related to dropout, including patient demographics (deprivation) and level of psychological distress, therapist factors such as effectiveness, and service factors such as poor communication or long waiting lists. Some of these findings support prior research on patient dropout from psychotherapy, however there are conflicting findings on reasons for dropout across different services. This review is an important contribution to England's IAPT service, to aid in further understanding dropout and next steps in trying to reduce dropout. However, further research is required to expand these findings and address methodological flaws, particularly by trying to look at the relationship between factors within the nested structure to see which factors are truly relevant in patient dropout.

References

American Psychological Association (APA). (2012). Recognition of Psychotherapy Effectiveness. *Psychotherapy (Chicago, Ill.), 50*, 102. https://doi.org/10.1037/a0030276

Avishai, A., Oldham, M., Kellett, S., & Sheeran, P. (2018). Sustaining attendance at a mental health service: A randomized controlled trial. *Journal of Consulting and Clinical Psychology, 86,* 1056-1060. https://doi.org/10.1037/ccp0000341

Bados, A., Balaguer, G., & Saldana, C. (2007). The efficacy of cognitive-behavioral therapy and the problem of drop-out. *Journal of Clinical Psychology, 63*, 585– 59. https://doi.org/10.1002/jclp.20368

Barkham, M., Connell, J., Stiles, W. B., Miles, J. N. V., Margison, F., Evans, C., & Mellor-Clark, J. (2006). Dose-effect relations and responsive regulation of treatment duration: The good enough level. *Journal of Consulting and Clinical Psychology, 74*, 160–167. https://doi.org/10.1037/0022-006X.74.1.160

Barrett, M.S.; Chua, W.; Crits-Christoph, P.; Gibbons, M.; Casiano, D. & Thompson, D. (2008). "Early withdrawal from mental health treatment: implications for psychotherapy practice". *Psychotherapy: Theory, Research, Practice, Training, 45*, 247–267. https://doi.org/10.1037/0033-3204.45.2.247

Beutler, L.E. (2009). Making science matter in clinical practice: Redefining psychotherapy. *Clinical Psychology: Science and Practice, 16*, 301-317. https://doi.org/10.1111/j.1468-2850.2009.01168.x

Binnie, J., & Boden, Z. (2016). Non-attendance at psychological therapy appointments. *Mental Health Review Journal, 21*, 231-248. https://doi.org/10.1108/MHRJ-12-2015-0038

Brown, J.S.L., Ferner, H., Wingrove, J., Aschan, L., Hatch, S. L. & Hotopf, M. (2014). How equitable are psychological therapy services in South East London now? A comparison of referrals to a new psychological therapy service with participants in a psychiatric morbidity survey in the same London borough. *Social Psychiatry and Psychiatric Epidemiology, 49*, 1893–1902, https://doi.org/10.1007/s00127-014-0900-6

Buckman, J. E. J., Naismith, I., Saunders, R., Morrison, T., Linke, S., Leibowitz, J., & Pilling, S. (2018). The impact of alcohol use on dropout and psychological treatment outcomes in Improving Access to Psychological Therapies Services: An audit. *Behavioural and Cognitive Psychotherapy*, 26, 1–15. https://doi.org/10.1017/S1352465817000819

Buszewicz, M., Cape, J., Serfaty, M., Shafran, R., Kabir, T., Tyrer, P., ... & Nazareth, I. (2017). Cognitive behavioural therapy subgroup, cognitive behavioural therapy measures of competence and adherence, training and supervision of high-intensity therapists, and validation of tapes. In Pilot of a randomised controlled trial of the selective serotonin reuptake inhibitor sertraline versus cognitive behavioural therapy for anxiety symptoms in people with generalised anxiety disorder who have failed to respond to low-intensity psychological treatments as defined by the National Institute for Health and Care Excellence guidelines. *Health Technology Assessment, 21,* 1-38. https://doi.org/10.3310/hta21450

Critical Appraisal Skills Programme (2018). *CASP Randomised Controlled Trial Checklist*. Retrieved from http://www.casp-uk.net/casp-tools-checklists. Accessed on 25/01/2020

Critical Appraisal Skills Programme (2018). *CASP Qualitative Checklist*. Retrieved from http://www.casp-uk.net/casp-tools-checklists. Accessed: 25/01/2020

Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and*

Psychological Measurement, 20, 37-46. https://doi.org/10.1177/001316446002000104

Cooper, A. A. & Conklin, L. R. (2015). Dropout from individual psychotherapy for major depression: A meta-analysis of randomized clinical trials. *Clinical Psychology Review, 40,* 57-65. https://doi.org/10.1016/j.cpr.2015.05.001

Cooper, A. A., Kline, A. C., Baier, A. L. & Feeny, N. C. (2018). Rethinking research on prediction and prevention of psychotherapy dropout: A mechanism-oriented approach. *Behaviour Modification, 14*, 1-24. https://doi.org/10.1177/0145445518792251

Chan, S. W. Y., & Adams, M. (2014). Service use, dropout rate and clinical outcomes: A comparison between high and low intensity treatments in an IAPT service. *Behavioural and Cognitive Psychotherapy, 42*, 747-759. https://doi.org/10.1017/S1352465813000544

Dekkers, O. M., Egger, M., Altman, D. G., Vandenbroucke, J. P. (2012). Distinguishing case series from cohort studies. *Annals of Internal Medicine, 156*, 37-40. https://doi.org/10.7326/0003-4819-156-1-201201030-00006

Delgadillo, J., & Groom, M. (2017). Using psychoeducation and role induction to improve completion rates in cognitive behavioural therapy. *Behavioural and Cognitive Psychotherapy, 45*, 170-184. https://doi.org/10.1017/S1352465816000643

Di Bona, L., Saxon, D., Barkham, M., Dent-Brown, K., & Parry, G. (2014). Predictors of patient non-attendance at improving access to psychological therapy services demonstration sites. *Journal of Affective Disorders, 169*, 157-164. https://doi.org/10.1016/j.jad.2014.08.005

Dumville, J. C., Torgerson, D.J. & Hewitt, C.E. (2006). Reporting attrition in randomised

control trials. *British Medical Journal, 332,* 969-971. https://doi.org/10.1136/bmj.332.7547.969

Fernandez, E., Salem, D., Swift, J. K., & Ramtahal, N. (2015). Meta-analysis of dropout from cognitive behavioral therapy: Magnitude, timing, and moderators. *Journal of Consulting and Clinical Psychology*, *83*, 1108. https://doi.org/10.1037/ccp0000044

Firth, N., Barkham, M., Kellett, S., & Saxon, D. (2015). Therapist effects and moderators of effectiveness and efficiency in psychological wellbeing practitioners: A multilevel modelling analysis. *Behaviour Research and Therapy, 69*, 54-62. https://doi.org/10.1016/j.brat.2015.04.001

Fornells-Ambrojo, M., Johns, L., Onwumere, J., Garety, P., Milosh, C., Iredale, C., . . . Jolley, S. (2017). Experiences of outcome monitoring in service users with psychosis: Findings from an improving access to psychological therapies for people with severe mental illness (IAPT-SMI) demonstration site. *British Journal of Clinical Psychology, 56*, 253-272. https://doi.org/10.1111/bjc.12136

Gersh, E., Hallford, D. J., Rice, S. M., Kazantzis, N., Gersh, H., Gersh, B., & McCarty, C. A. (2017). Systematic review and meta-analysis of dropout rates in individual psychotherapy for generalized anxiety disorder. *Journal of anxiety disorders*, *52*, 25-33. https://10.1016/j.janxdis.2017.10.001.

Griner, D., & Smith, T. B. (2006). Culturally adapted mental health intervention: A meta-analytic review. *Psychotherapy: Theory, Research, Practice, Training, 43,* 531-548. https://doi.org/10.1037/0033-3204.43.4.531

Gyani, A., Shafran, R., Layard, R. & Clark, D. M. (2013). Enhancing recovery rates: Lessons from year one of IAPT. *Behaviour Research and Therapy, 51,* 597-606. https://doi.org/10.1016/j.brat.2013.06.004

Hamilton, S.; Moore, A.M.; Crane, D.R.; Payne, S.H. (2011). Psychotherapy dropouts: Differences by modality, license, and DSM-IV diagnosis. *Journal of Marital and Family Therapy, 37,* 333–343. https://doi.org/10.1111/j.1752-0606.2010.00204.x

Hollon, S.D., Stewart, M.O., & Strunk, D. (2006). Enduring effects for cognitive behavior therapy in the treatment of depression and anxiety. *Annual Review of Psychology, 57,* 285-315. https://doi.org/10.1146/annurev.psych.57.102904.190044

Lambert, M. J., & Ogles, B. M. (2004). The efficacy and effectiveness of psychotherapy. In M. J. Lambert (Ed*.), Bergin and Garfield's handbook of psychotherapy and behavior change* (5th ed., pp. 139 - 193). New York: Wiley.

Lampropoulos, G. K. (2010). Type of counseling termination and trainee therapist-client agreement about change. *Counselling Psychology Quarterly, 23*, 111-120. https://doi.org/10.1080/09515071003721552

Leichsenring, F., Rabung, S., & Leibing, E. (2004). The efficacy of short-term psychodynamic psychotherapy in specific psychiatric disorders: A meta-analysis. *Archives of General Psychiatry, 61*, 1208-1216. https://doi.org/10.1001/archpsyc.61.12.1208

Lopes, R. T., Gonçalves, M. M., Sinai, D., & Machado, P. P. (2018). Clinical outcomes of psychotherapy dropouts: Does dropping out of psychotherapy necessarily mean failure? *Revista Brasileira de Psiquiatria*, *40*, 123–127. https://doi.org/10.1590/1516-4446-2017-2267

MacNair, R. R., & Corazzini, J. G. (1994). Client factors influencing group therapy dropout. *Psychotherapy: Theory, Research, Practice, Training, 31*, 352–362. https://doi.org/10.1037/h0090226

Marshall, D., Quinn, C., Child, S., Shenton, D., Pooler, J., Forber, S., & Byng, R. (2016).

What IAPT services can learn from those who do not attend. *Journal of Mental Health, 25*, 410-415. https://doi.org/10.3109/09638237.2015.110105

Murphy E, Mansell W, Craven S, Menary J, McEvoy P. (2013). Pilot study of an investigation of psychological factors associated with first appointment nonattendance in a low-intensity service. *Behavioural and Cognitive Psychotherapy, 41*, 458–69. https://doi.org/10.1017/S1352465812000811

National Heart and Lung Institute. (2017). Background: Development and Use of Study Quality Assessment Tools. *Department of Health and Human Services.* Retrieved from https://www.nhlbi.nih.gov/node/80102, accessed on 25/01/2020

National Heart and Lung Institute. (2017). Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies. *Department of Health and Human Services.* Retrieved from https://www.nhlbi.nih.gov/health-topics/study-quality-assessment-tools, accessed on 25/01/2020

National Heart and Lung Institute. (2017). Quality Assessment Tool for Case Series Studies. *Department of Health and Human Services.* Retrieved from https://www.nhlbi.nih.gov/health-topics/study-quality-assessment-tools, accessed on 25/01/2020

National Health Service (NHS). (2019). *The Improving Access to Psychological Therapies Manual*. Retrieved from https://www.england.nhs.uk/wp-content/uploads/2019/12/iapt-manual-v3.pdf

Parada, R. H. (2000). *Adolescent Peer Relations Instrument: A theoretical and empirical basis for the measurement of participant roles in bullying and victimization of adolescence: An interim test manual and a research monograph: A test manual*. Penrith South, DC, Australia: Publication Unit, Self-concept Enhancement and Learning Facilitation (SELF) Research Centre, University of Western Sydney

Pennington, D. & Hodgson, J. (2012) Non-attendance and invitation methods within a CBT service. *Mental Health Review Journal*, *17*, 145-151. https://doi.org/10.1108/13619321211287256

Rachael, T., Blackhall, L., Jones, C., & Law, A. (2010). Is it acceptable to patients to have supported self-help interventions delivered through psycho-educational groups? A qualitative study on the reasons stated for dropout. *The Journal of Mental Health Training, Education and Practice, 5*, 36-42. https://doi.org/10.5042/jmhtep.2010.0364

Renk, K. (2002). Reasons for therapy termination in a university psychology clinic. *Journal of Clinical Psychology, 58*, 1173-1181. https://doi.org/10.1002/jclp.10075

Richards, D.A, Borglin G. (2011). Implementation of psychological therapies for anxiety and depression in routine practice: Two year prospective cohort study. *Journal of Affective Disorders*, *133*, 51–60. https://doi.org/10.1016/j.jad.2011.03.024

Roe, D., Dekel, R., Harel, G., & Fennig, S. (2006). Patients' reasons for terminating psychotherapy: A quantitative and qualitative inquiry. *Psychology and Psychotherapy: Theory, Research and Practice, 79*, 529-538. https://doi.org/10.1348/147608305X90412

Rohrer, J. E., Angstman, K. B., & Pecina, J. L. (2013). Application of a case-control design to the analysis of dropouts from integrated behavioural health care. *Quality in Primary Care*, *21*, 33–37.

Roos, J., & Werbart, A. (2013). Therapist and relationship factors influencing dropout from individual psychotherapy: A literature review. *Psychotherapy Research, 23*, 394–418. https://doi.org/10.1080/10503307.2013.775528

Saxon, D., Firth, N., & Barkham, M. (2017). The relationship between therapist effects and therapy delivery factors: Therapy modality, dosage, and non-completion. *Administration*

and Policy in Mental Health and Mental Health Services Research, *44*, 705–715. https://doi.org/10.1007/s10488-016-0750-5

Schindler, A., Hiller, W., & Witthöft, M. (2013). What predicts outcome, response, and dropout in CBT of depressive adults? A naturalistic study. *Behavioural and Cognitive Psychotherapy*, *41*, 365-370. https://doi.org/10.1017/S1352465812001063

Shedler, J. (2010). The efficacy of psychodynamic psychotherapy. *American Psychologist*, *65*, 98-109. https://doi.org/10.1037/a0018378

Solomonov, N., & Barber, J. P. (2016). What we know, what we do not know, and where are we heading? Efficacy and acceptability of psychological interventions for depression. *Epidemiology and Psychiatric Sciences*, *25*, 301–308. https://doi.org/10.1017/S2045796015000815

Steen, S., Hemmings, A., Foster, J., Bedford, J., & Gorbing, S. (2019). A naturalistic pilot study assessing the impact of assessment pathways and intake methods within improving access to psychological therapies services. *Counselling and Psychotherapy Research, 19*, 431-440. https://doi.org/10.1002/capr.12242

Swift, J.K., & Greenberg, R.P. (2012). Premature discontinuation in adult psychotherapy: A meta-analysis. *Journal of Consulting and Clinical Psychology, 80*, 547–559. https://doi.org/10.1037/a0028226

Swift, J. K., Greenberg, R. P., Whipple, J. L., & Kominiak, N. (2012). Practice recommendations for reducing premature termination in therapy. *Professional Psychology: Research and Practice, 43*, 379–387. https://doi.org/10.1037/a0028291

Westmacott, R. & Hunsley, J. (2010). Reasons for terminating psychotherapy: a general population study. *Journal of Clinical Psychology, 66*, 965-977. https://doi.org/10.1002/jclp.20702

Appendix 1

	Information taken from final sample
1	Authors
2	Publication Year
3	Country
4	Database found
5	Study Design
6	Exclusion and inclusion criteria
7	Sample Size
8	Diagnosis
9	Age
10	Gender
11	Inclusion of control group
12	Measures used
13	Statistical method
14	Findings

Appendix 2

Quality Assessment for Randomised control trials- CASP (2018)

Author	Clear focused issue?	Were patients randomised to treatment?	Were patients accounted for at the end of the trial?	Were patients, workers and researchers "blind" to treatment?	Were the groups similar at the start of trial?	Were the groups treated equally (aside from experiment condition)?	How large was the treatment effect?	How precise was the estimate of the treatment effect?	Can the results be applied to the local population?	Were all clinically important outcomes considered?	Are the benefits worth the harms and costs?	Outcome
Avishai, Oldham, Kellet & Sheeran, 2018	Yes	Yes	Yes	Yes	Can't tell	yes	moderate	Can't tell	Yes	yes	yes	8- High
Delgadillo & Groom, 2017	Yes	Yes	Yes	no	Yes	yes	moderate	moderate	Yes	yes	Can't tell	7- High

N.B. Yes= Criteria Met. No= Criteria not met. Can't tell= Unable to tell if criteria is met from the study write up

If 7 or more of the criteria has been met and the research is valuable the study is assessed as high quality. If between 4 and 7 of the criteria has been met and the research is moderately valuable the study is assessed as medium quality. If 4 or less of the criteria has been met and the research is not valuable the study is assessed as low quality.

Quality Assessment for Qualitative research- CASP (2018)

Author	Clear statement of aims?	Is the method appropriate?	Was the design appropriate to assess the aim?	Was the recruitment strategy appropriate?	Did data collection address research issue?	Relationship between researcher and participant considered?	Ethical issues considered?	Was data analysis rigorous?	Clear statement of findings?	How valuable is the research?	Outcome
Marshall et al., 2016	Yes	Yes	Yes	Can't tell	yes	No	no	Yes	Yes	Moderately Valuable	6-Medium
Rachael, Blackhall, Jones & Law, 2010	Yes	Yes	Can't tell	Yes	Can't tell	No	Can't tell	Can't tell	Yes	Moderately Valuable	4-Medium

N.B. Yes= Criteria Met. No= Criteria not met. Can't tell= Unable to tell if the criteria is met from the study write up

If 7 or more of the criteria has been met and the research is valuable the study is assessed as high quality. If between 4 and 7 of the criteria has been met and the research is moderately valuable the study is assessed as medium quality. If only 4 or less of the criteria has been met and the research is not valuable the study is assessed as low quality.

Quality Assessment for cohort and cross-sectional studies- NIH quality assessment tool for observational cohort and cross-sectional studies (2017)

Author	Was the study question stated?	Was the study population defined?	Was the participation rate at least 50%?	Were subjects recruiter from similar populations and criteria applied?	Was the sample size justification provided?	Were exposure of interest measured prior to outcomes?	Was the timeframe sufficient to see an association between exposure and outcome?	Did the study examine different levels of exposure related to outcome?	Were the independent variables clearly defined and implemented?	Was the exposure assessed more than once over time?	Were outcome measures clearly defined and valid?	Were the outcome assessorts blind to the exposure status of participants?	Was loss to follow-up after baseline 20% or less?	Were key potential confounding variable measured and adjusted statistically on outcomes?	Outcome
Binnie & Boden, 2016	Yes	Yes	Yes	Yes	No	No	Yes	NA	Yes	NA	Yes	NA	Yes	Can't Tell	8/11-High
Buckman et al., 2018	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	NA	Yes	Yes	11/13-High

Chan & Adams, 2014	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	N/A	No	Can't Tell	10/13-High
Di Bona et al., 2014	Yes	Yes	Yes	Yes	No	No	Yes	N/A	Yes	Yes	Yes	N/A	No	Yes	9/12-High
Firth et al., 2015	Yes	Yes	Yes	Yes	No	Yes	Yes	yes	Yes	Yes	Yes	N/A	Yes	Yes	12/13-high
Pennington & Hodgson, 2012	Yes	No	Yes	Yes	No	No	Can't tell	yes	Yes	Yes	Yes	N/A	N	Can't tell	7/12-Medium
Steen et al., 2019	Yes	Yes	Yes	Yes	No	No	Can't Tell	N/A	Yes	Yes	Yes	N/A	N	Can't tell	7/12-Medium

N.B. Yes= Criteria Met. No= Criteria not met. Can't tell= Unable to tell if criteria is met from the study write up

If 9 or more of the criteria has been met and the research is valuable the study is assessed as high quality. If between 5 and 8 of the criteria has been met and the research is moderately valuable the study is assessed as medium quality. If 4 or less of the criteria has been met and the research is not valuable the study is assessed as low quality.

Quality assessment for case series studies- NIH Quality assessment tool for case series (2017)

Author	Was the study objective clearly stated?	Was the study population clearly and fully described?	Were the cases consecutive?	Were the subjects comparable?	Was the intervention clearly described?	Were the outcome measures clearly defined?	Was the length of follow up adequate?	Were the statistical measures well described?	Outcome?
Fornells-Ambrojo et al., 2017	Yes	Yes	Yes	Yes	No	Yes	Can't tell	Yes	6/8- High

N.B. Yes= Criteria Met. No= Criteria not met. Can't tell= Unable to tell if criteria is met from the study write up

If 6 or more of the criteria has been met and the research is valuable the study is assessed as high quality. If between 4 and 6 of the criteria has been met and the research is moderately valuable the study is assessed as medium quality. If 3 or less of the criteria has been met and the research is not valuable the study is assessed as low quality.

Part II

Research Report

Predictive factors of dropout in Improving Access to Psychological Therapies (IAPT) services for patients with depression; a secondary analysis of the PRaCTICED data set

Abstract

Objectives

In England's improving access to psychological therapies (IAPT) services high rates of dropout are recorded. The reasons patients dropout within IAPT has rarely been studied. This study aimed to find the predictive factors of dropout in an IAPT service for patients with depression. It was hypothesised from previous literature that deprivation, psychological factors and therapist effects would be predictive factors.

Method

A secondary analysis was completed on the PRaCTICED trial that compared CBT and PCET outcomes in an IAPT service, several outcome measures were used within this trial. There were 338 patients and 48 therapists included within the analysis, initial descriptive statistics were taken. T-tests, chi-square with non-parametric equivalents were completed as a preliminary analysis. A multilevel modelling analysis was completed using logistic regression for binary outcomes to consider the nested structure.

Results

Age, deprivation, resilience, number of sessions and type of treatment were found to be predictors of patient dropout in IAPT services. There was no significant therapist effect found within the model, but the data suggests some variation between therapists.

Conclusions

Deprivation and age have previously been found in studies as predictors of dropout. However, resilience and comparing treatment for dropout is rarely studied within IAPT. Psychological distress was not significant; however, the preliminary analysis found some differences in distress between those that completed therapy compared to those that did not.

These findings should be cautiously considered due its limitations and it is suggested that future studies complete a three-level analysis considering service level factors, with the aim of creating a predictive model that can be used in clinical settings.

Practitioner Points

1) Younger age groups and higher deprivation are patient demographic characteristics that seem to increase dropout. Clinicians may wish to consider how they could adapt clinical practice to address this.
2) Higher psychological distress does appear to have some impact on dropout as found in the preliminary analysis. Considerations around readiness for therapy and other forms of support may be important in clinical practice.
3) CBT had higher levels of dropout compared to PCET. Future research may want to compare therapies and assess whether patient choice increases retention.
4) Lower levels of resilience led to higher levels of drop out. Future research may wish to look at introducing resilience-based work to see if this improves retention.
5) Future research should have a larger sample size that includes service level variables to allow for all possible predictors and interactions between variables to be appropriately assessed.

Keywords: IAPT, Depression, Predictors, Dropout

Introduction

Psychotherapy for mental health disorders like depression has consistently shown positive outcomes and is found to be superior to no-treatment or control conditions (Griner & Smith, 2006; Leichsenring, Rabung, & Leibing, 2004; Solomonov & Barber, 2017; Shadish, Matt, Navarro, & Phillips, 2000). The well-established psychotherapies (e.g. cognitive behavioural therapy) have all shown moderate effect sizes (d=0.4-0.6) suggesting that they are successful treatment options (Lambert & Ogles, 2004). Premature ending of therapy has been found to reduce or minimise the benefit of psychotherapy (Lopes, Gonçalves, Sinai & Machado, 2018; Saxon, Firth & Barkham, 2017), with patient dropout being the most common form of premature ending (Renk, 2002; Roe, Dekel, Harel, & Fennig, 2006). It is suggested that the earlier a patient drops out the worse their outcomes are (Swift & Greenberg, 2012). This is also the case for England's primary care service, Improving Access to Psychological therapies (IAPT), which began in 2008 and is the service that this study is focused on (Richards & Borglin, 2011).

Defining dropout

Dropout has been poorly defined within the literature, with disagreements at which point a patient can be defined as a dropout. A common definition is that therapy dropout is when a patient ends therapy before improvement in symptoms or before completing a full manualised therapy intervention (Swift, Callahan, & Levine, 2009; Swift & Greenberg, 2012). It has been argued, however, that different patients require different doses of therapy and may end therapy prematurely when they believe they have gained as much benefit as possible (Barkham et al., 2006). Several methods have been proposed to operationalise dropout including; after the assessment phase, after a certain number of sessions (e.g. 4), non-completion of an agreed number of sessions, non-attendance of one appointment, therapist

judgement and clinically significant change. Clinically significant change is argued to be the best fit (Hatchett & Park, 2003; Swift et al., 2009).

As a result, primary care IAPT services do not have a nationally agreed definition of dropout, which results in some services defining dropout as after first session whereas other defining dropout during intervention stages (Gyani, Alex, Shafran, Roz, Layard, Richard, Clark & David, 2011). Prior to this study, a systematic review was completed which found the most commonly used definition of dropout in IAPT literature. The definition used across all papers but one was anyone who stopped attending at any point after the initial assessment (Furlong-Silva & Hardy, 2020). Therefore, this is the definition we will be using within this study.

Factors associated with dropout

In England, IAPT have been found to have first appointment non-attendance rates between 42% and 48% (Murphy et al., 2013; Richards & Borglin, 2011). The systematic review produced prior to this research study found that the average dropout rate across IAPT studies was 31% (Furlong-Silva & Hardy, 2020). Those who dropout have been found to have slower improvement rates than those who complete therapy (Lopez et al., 2018). Therefore, understanding the factors involved in patient dropout is imperative.

The largest body of research has focused on patient factors associated with dropout. Psychological factors such as higher levels of depression, anxiety and risk have consistently been found to increase patient dropout (Binnie & Boden, 2016; Di Bona et al., 2014; Fernandez et al, 2016; Vindel et al., 2012). Several other patient factors have been found to increase drop out. These are alcohol dependence, higher levels of deprivation and being young or female (Buckman et al., 2018; Binnie & Boden, 2016; Rohrer, Angstman & Pecina, 2013).

Less research has focused on therapist factors. Some studies found that the type or intensity of therapy appears to have little impact on the amount of patient dropout (Chan & Adam, 2014; Swift & Greenberg, 2014), but that the format offered (i.e. online) and less sessions appeared to be a moderator in dropout (Fernandez et al., 2016). A meta-analysis found that there were no significant differences in dropout between trainee therapists and qualified therapists when delivering CBT (Fernandez et al., 2016). Within IAPT, Marshal et al. (2016) found that a poor therapeutic relationship led to increased rates of dropout and Firth et al. (2015) found that therapists that were more effective had lower levels of patient dropout.

A lot of studies within IAPT look at service factors that may be related to dropout, this is due to IAPT consistently evaluating their services for quality and funding purposes (Gyani, Shafran, Layard & Clark, 2013). These studies have found that some service factors are a significant factor in dropout, such as the site in which the therapy is offered (Di bona et al., 2014), poor communication of session times (Pennington & Hodgson, 2012), lack of communication to patients and other services (Marshal et al., 2016), dissatisfaction with the service (Binnie & Boden, 2016; Rachael et al., 2010) and issues with pathways (Steen et al., 2019).

The current literature offers some insight into the patient, therapist and service factors in dropout of therapy. However, these studies are limited by the design methodology and statistical analysis, most of the above studies are either randomised control trials, cohort studies or meta-analyses. The problem with looking at factors in dropout, is that the factors are likely to be within a nested structure (patients nested in therapists who are nested in services). With different factors being accounted for or split between patient, therapist and services. To assess this appropriately multilevel modelling is needed to account for the nested structure, with more than just one level (i.e. patients) being studied at a time.

Aims

The proposed study will:

1) Look at the predictive factors of patient dropout within IAPT, including patient and therapist factors with the aim of attempting to assess factors associated with dropout using the PRaCTICED trial data. Service factors could not be assessed.

Initial hypotheses

- As per the literature it is predicted that severity of depression and risk will be predictors of patient dropout
- It is hypothesised that deprivation will be a predictor of patient dropout
- It is hypothesised that there will be an effect on patient dropout from therapist factors

Method

Design

A secondary analysis of IAPT data collected from the "pragmatic non-inferiority randomised trial of the clinical and cost effectiveness of counselling for depression versus cognitive-behaviour therapy (PRaCTICED)" (Saxon et al., 2017) was completed using a multi-level modelling approach to take into account patient and therapist factors that influence patient dropout. The definition of dropout will be dropout after initial assessment as per the literature review completed (Furlong-Silva & Hardy, 2020). The results of the analysis will be used to inform IAPT which factors may be associated with patient dropout.

PRaCTICED Trial Overview

The trial is a randomised control trial of person-centred experiential therapy (PCET) versus cognitive behaviour therapy (CBT) that ended in March 2019. The data collected throughout the trial was used in this study (Saxon et al., 2017).

Setting and services

The PRaCTICED trial took place in Sheffield, with a population of 575,400 (Sheffield city council, 2018) which has average demographics in comparison to other cities across the UK (Saxon et al., 2017). Sheffield's IAPT service was set up by Sheffield Health and Social Care Trust (SHSC) in 2009. The service primarily offers CBT. However, during the trial, the service offered both CBT and PCET. Counsellors and therapists offered up to 20 sessions of one-to-one therapy.

Therapists

The Sheffield IAPT service consists of approximately 30 counsellors and 35 high-intensity CBT therapists. All trial counsellors (N = 18) received PCET training prior to taking on trial patients. PCET is a form of person-centred therapy and in the IAPT service it is usually called counselling for depression (King, Marston & Bower, 2014). All CBT therapists (N= 27) are trained in Beckian CBT for depression (Beck, 2011). Both PCET counsellors and CBT therapists received top-up training during the trial and received ongoing supervision throughout. The trial data included 48 therapists in total, eighteen therapists used PCET and 30 used CBT. This number was further reduced to 34 for analysis as therapists with only one client were removed. See table 3 for therapist demographic variables.

Participants

Participants were recruited from Sheffield IAPT services. Patients were assessed for eligibility and consented to participate over two stages, those who did not meet criteria for the trial received treatment as usual. Patients took part in the trial if they met the following inclusion criteria:

- Aged 18 or over with a diagnosis of major depression
- Assessed as requiring stepped up care within the Sheffield IAPT service

- Were willing to be randomised to either CBT or PCET

Patients were excluded if they met the following exclusion criteria:

- Presence of long-term health condition or illness of organic origin i.e. dementia
- Presence of other mental health conditions, such as psychosis or personality disorder
- Current alcohol or drug dependency
- Elevated risk of suicide

Initially 510 patients were screened, assessed as suitable and randomised (255 per therapy), however following the initial stage of recruitment 198 did not attend the initial assessment session. This left 352 patients in the study. However, this sample size was further reduced for the statistical analysis to 338, as 14 therapists who only saw one patient were removed to reduce skewed data (some therapists had many patients and some only had one). Demographic variables were taken, including age, gender, deprivation score, ethnicity and employment status. Psychological variables were also assessed, including depression, anxiety, risk, diagnosis and medication use. See table 1 and 2 for patient demographic variables, see appendix 1 to compare demographic variables of the full data set.

Sample Size

The predicted number of patients needed in the trial to test for non-inferiority was 550 (275 per therapy) as this was the amount calculated to be needed to test the trial effectively at the one-sided, 2.5% significance level with a power of 90% (Saxon et al, 2017). This was the power calculated for the initial trial study. The power for this study is discussed below.

There is currently no consensus for power calculations for binary multilevel logistic regression, as there are often issues with a priori sample size calculations (Maas & Hox, 2005). Therefore, for this study a power calculation has been conducted for a single-level logistic regression at the patient level to be the minimum amount required for the study. The

power calculated considered potential patient predictors of dropout and percentage of predicted dropout based on the literature review completed prior to this study (Furlong-Silva & Hardy, 2020). The predicted dropout has been calculated to be 31% (which was the mean dropout rate found within the literature). There will be 11 testable predictors of dropout arising from the literature and the data available: level of depression, level of anxiety, level of risk, resilience, gender, ethnicity, employment, deprivation, age, type of treatment and number of sessions. Based on the work of Peduzzi, Concato, Kemper, Holford and Feinstein (1996) the minimum sample size needed for this study is 355 using 11 covariates and 31% proportion (11*10/0.31).

Therefore, 355 is the minimum requirement for sample size in this study. The study therefore is underpowered, meaning there will be larger confidence intervals. Most papers suggest at least 1000 participants at level one and at least 50 at level two for MLM (Schiefele, Lutz, Barkham, Rubel, Böhnke, Delgadillo, Kopta, Schulte, Saxon, Nielsen & Lambert, 2017), whereas the current study has 338 patients and 34 therapists. However, as this is based on trial data it will include richer data than in generic service data which may lead to a better understanding of patient dropout and measures that can be used to obtain this information. Most trials have lower participant numbers (Richards, Ekers, McMillan, Taylor, Byford & Warren, 2016) than the trial used for this study, as MLM is rarely used on trial data there is no specific guidelines on power.

Procedure and Measures

Patients taking part in the PRaCTICED trial completed a number of measures at assessment. Following a clinical assessment interview, patients were randomised to either PCET or CBT conditions. Several measures were completed throughout the process of therapy. The following measures, assessments and information were collected at the intake

assessment interview (see appendix 2 for all measures, except the BDI, CD-RISC and MINI which have been removed for copyright reasons):

- **Patient Health Questionnaire 9 (PHQ- 9)** is an assessment tool to facilitate the recognition of depression in patients, it has been adopted as a standard measure for depression screening across many health care systems (Kroenke et al., 2010). The questionnaire can be repeated over time to monitor changes. Internal reliability has been repeatedly assessed as having a Cronbach's α of around 0.86 and an excellent test-retest reliability (Kroenke, Spitzer & Williams, 2001). Scores of 5, 10, 15, and 20 represent cut off points for mild, moderate, moderately severe and severe depression.
- **Generalised Anxiety Disorder 7 (GAD-7)** is an assessment tool to assess and diagnose generalised anxiety disorder. The questionnaire has been found to have good validity and reliability, a cut off point of 10 for GAD has been found to have excellent sensitivity (89%) and specificity (82%) and increasing scores on the scale are associated with higher functional impairment (Spitzer et al., 2006).
- The **Clinical Interview Schedule revised (CIS-R)** is a computerised diagnostic interview to increase standardisation and to allow trained interviewers to diagnose psychiatric issues (Lewis et al., 1992). The CIS-R has been found to have excellent specificity (0.97) but lower sensitivity (0.49). However, it has been found to be a viable and valid instrument for detection of common mental health disorders (Subramaniam et al., 2006).
- The **Mini International Neuropsychiatric Interview questionnaire (MINI)** is widely used to identify suspected alcohol or drug abuse and dependence in clinical and research settings, which has been found to have equal validity and reliability to structured clinical interviews (Sheehan et al., 1998).

- The **Beck Depression Inventory (BDI)** is a self-report rating assessment that measures symptoms of depression (Beck et al., 1961). The BDI has been found to have high validity and reliability, internal consistency has been found to have alpha coefficients of 0.86 (Beck et al., 1988).
- The **Clinical Outcomes in Routine Evaluation- Outcome measure (CORE-OM)** is a 34-question psychological distress measure, which looks at wellbeing, symptoms, functioning and risk (Barkham et al., 1998). The measure has good internal and test-retest reliability (0.75-0.95) with good convergent reliability and sensitivity to change (Evans et al., 2018).
- The **Work and Social Adjustment Scale (WSAS)** is a 5-item self-report measure that provides the impact of a disorder from the patient's point of view. The scale has good internal consistency with a Cronbach's alpha from 0.7 to 0.94, and good test-retest reliability (0.73). The instrument has been found to be both reliable, valid and sensitive to change (Mundt, Marks, Shear & Greist, 2002).
- **EQ-5D-5L** is a five-level assessment scale that measures quality of life and health status that originates from a 3 level (EQ-5D-3L) assessment scale (EuroQol, 1990). It is split into health state description and evaluation. The EQ-5D-5L has improved validity and reliability than the 3-level scale, with improved sensitivity and reduced ceiling effect (Van hout et al., 2016).
- The **Quality of life scale (QOLS)** is a 16-item assessment tool that assesses the quality of life of patients in 5 domains; physical wellbeing, relationships, social activities, personal development/ fulfilment and recreation. QOLS has been found to be internally consistent ($\alpha = 0.82$ to 0.92), with high test-retest reliability ($r = 0.78$ to $r = 0$ .84) and is assessed to have good validity (Burkhardt & Anderson, 2003).

- The **Connor-Davidson Resilience Scale (CD-RISC)** is a resilience assessment tool made up of 25 items each on a 5-point scale, higher scores mean greater resilience. The scale has good internal consistency with a Cronbach's alpha of 0.89 and test-retest reliability of 0.87 with a good level of convergent validity (Connor & Davidson, 2003).
- The **Client Satisfaction Questionnaire (CSQ)** is a questionnaire to assess satisfaction with healthcare services. The questionnaire has high internal consistency (0.91), good validity and reliability (Attkisson & Zwick, 1982).
- Demographic information was also collected

The PHQ-9 and GAD-7 are collected during each session.

Analysis

The main analysis was an exploratory MLM regression using MLwiN software (Rasbash, Charlton, Browne, Healy, & Cameron, 2009). All other analyses were conducted using SPSS v.16.0 software (SPSS Inc, 2007). Initially demographic information was collated, and correlations were completed to see if there were any initial relationships between dropout and all other variables. The data was tested for normal distribution and t-tests or non-parametric equivalents were used. Missing data percentages were computed in SPSS. All demographic information, psychological outcome measures and process variables were included in the analysis due to prior research finding those variables important for patient outcomes, and therefore may impact on dropout as explored within the dropout literature.

The MLM analyses was completed using Iterative Generalised Least Squares (IGLS) modelling algorithms in MLwiN software (Rasbash et al., 2009). Explanatory variables were added incrementally to the model, allowing intercepts and slopes to vary as appropriate, using

a step-wise approach. Starting with an unconditional (no predictors) model, then adding predictors on blocks, starting with the patient predictors and moving towards therapist predictors. This is so we could see how the predictors changed (become more or less important) when higher level predictors were added to the model (Sommet & Morselli, 2017).

Patient dropout was the dichotomous variable placed into the model. Explanatory variables from the PRaCTICED data set were then input into the model. All continuous variables were grand mean centred. At level one, patient demographic variables were entered into the model (age, gender, deprivation, employment status, ethnicity) followed by outcome measures (PHQ-9, GAD-7, CORE-OM, BDI, EQ-5D-5L WSAS, CD-RISC) and finally process variables were added (number of sessions).

Next the therapists were input into the model at level two, the model was then run to see if there was a therapist effect. Therapist demographic, experience and process variables were then input into the model (therapy type, therapist experience, gender, age). All explanatory variables at level one and two were tested to see whether they significantly predict patient dropout. This was be done by dividing derived coefficients by their standard error values, any values greater than 1.96 were considered significant at the 5% level. Following this, backward elimination of non-significant variables was completed until the model with the significant variables remained. Finally, interactions between significant variables were tested.

Missing data is accounted for in MLwiN software using a full maximum likelihood approach (FIML). This means that missing values are not replaced or imputed but are handled within the analysis of the model. Therefore, all available information is used to estimate the model.

Ethical approval

As NHS ethical approval was gained to complete the PRaCTICED trial and due to IAPT guideline regulations and consent (participants consent for their data to be used for research purposes), the data set was anonymised and eligible to be used within the research team involved at the University of Sheffield. This research gained ethical approval through the University of Sheffield ethics committee (see appendix 3).

Results

Preliminary investigations of the participant data

Demographic and clinical characteristics were taken for participants who completed therapy and dropped out. These are displayed in table 1 and 2. The data from the measures were tested for normal distribution (see appendix 4), missing values were computed and then independent samples t-tests or non-parametric Mann-Whitney U tests were completed for each measure comparing means of participants who completed therapy versus those who dropped out. The same was done with the categorical data using chi-square tests. This was to initially investigate whether there was any statistical difference between those who dropped out and those who completed therapy on each of the potential explanatory variables.

Independent samples T-test found that those who dropped out had lower resilience scores on the CD-RISC (completed therapy mean= 40.09 SD= 13.36, dropped out mean= 36.11 SD= 11.3), $t(334)= 2.7$, $p= .01$. Depression scores on the BDI were found to be significantly higher in those that dropped out (completed therapy mean= 36.20 SD= 8.62, dropped out mean= 38.24 SD= 8.27), $t(336)= -2.04$, $p= .042$. Distress scores were found to be significantly higher on the CORE-OM in those that dropped out (completed therapy mean= 21.87 SD= 4.81, dropped out mean= 23.36 SD= 3.98), $t(236.57)= -2.97$, $p= .01$. An independent samples Mann-Whitney U test found that those who dropped out had less

sessions than those who completed therapy (completed therapy medium= 12, dropped out medium= 4), U= 3814, p<0.001.

Chi-Square tests found a weak significant association between age category and whether participants completed or dropped out, X^2 (4, N= 338) = 12.53, p=.014. With higher levels of dropout within the age category 17-29 than expected (43 instead of an expected 29.8) and lower levels of dropout in the age category 50-59 (15 instead of 21.5). A weak significant association was found between deprivation and whether participants completed or dropped out, X^2 (4, N= 337) = 19.44, p=.001. With higher levels of dropout in the most deprived category than expected (48 instead of 33.9). All other measures (PHQ-9, GAD-7, WSAS, CORE-Risk, EQ-5D-5L) and demographic variables (gender, employment, ethnicity, medication, diagnosis and treatment preference) did not suggest any significant associations with dropout.

The overall percentage of missing data for patient level variables was 3.2%. None of the significant variables had high levels of missing data; deprivation and CORE-OM had 1 missing value and CD_RISC had 2 missing values. No other significant variables had missing data.

Table 1.

Demographic and therapy type characteristics of completed vs dropped out participants

	Completed (*N*= 234, 69%) (including percentage of total)	**Dropped out (***N*= 104, 31%) (including percentage of total)
Gender	Male: 97 (42%)	Male: 43 (41%)
	Female: 137 (58%)	Female: 61 (59%)
Age	17-29:54 (23%)	17-29: 43 (41%)
	30-39:63 (27%)	30-39:22 (21%)
	40-49: 47 (20%)	40-49: 18 (17%)
	50-59: 55 (24%)	50-59: 15 (14%)
	60+: 15 (6%)	60+: 6 (6%)
Ethnicity	White British: 205 (88%)	White British: 89 (86%)
	Black/ Mixed white and black/ Caribbean: 6 (3%)	Black/ Mixed white and black/ Caribbean: 3 (3%)
	Asian/ Pakistani: 6 (3%)	Asian/ Pakistani: 2 (2%)
	Mixed Other/other: 7 (3%)	Mixed Other: 5 (5%)
Employment Status	Employed: 161 (69%)	Employed: 64 (62%)
	Unemployed: 39 (17%)	Unemployed: 25 (24%)
Deprivation	High deprivation: 76 (33%)	High deprivation: 59 (57%)
	Average: 45 (19%)	Average: 18 (17%)
	Least deprived: 112 (48%)	Least deprived: 27 (26%)
Diagnosis from CIS-R	Agoraphobia: 3 (1%)	Agoraphobia:3 (3%)
	GAD: 143 (61%)	GAD: 66 (63%)
	MA & DD: 63 (27%)	MA & DD: 19 (18%)
	PD: 10 (4%)	PD: 7 (7%)
	SP: 15 (6%)	SP:9 (9%)
Treatment Preference	PCET: 82 (35%)	PCET: 31 (30%)
	CBT: 43 (18%)	CBT: 20 (19%)
	No Preference: 109 (47%)	No Preference: 53 (51%)
Treatment Received	CBT: 104 (45%)	CBT: 58 (56%)
	PCET: 130 (55%)	PCET: 46 (44%)

Abbreviations for Table 1: Generalised Anxiety Disorder (GAD), Mixed Anxiety and Depressive disorder (MA & DD), Panic Disorder (PD), Specific Phobias (SP), Cognitive Behavioural Therapy (CBT), Person Centred Experiential Therapy (PCET).

Table 2.

Clinical Characteristics of completed vs. dropped out participants

	Completed Therapy *N*=234		**Dropped out** *N*=104		**Analysis** (comparing completed and dropout)	
	Mean	**SD.**	**Mean**	**SD.**	**t-test**	**Mann Whitney-U**
Sessions	12.47	5.60	5.61	4.22		P<0.000
Wait (days)	157.90	62.75	159.05	60.91	p=.88	
PHQ-9 Score	16.98	5.08	17.66	4.84		p=.39
GAD-7 Score	12.91	4.74	12.93	4.71	p=.98	
Risk Score	5.04	5.28	6.23	5.65	p=.62	
BDI Score	36.20	8.62	38.24	8.27	p=.42	
WSAS Score	22.98	7.74	23.95	6.99	p=.35	
EQ_5D_5L Health score	37.58	15.26	36.27	15.27	p=.47	
CORE-OM	21.87	4.81	23.36	3.98	p=.01	
CD_RISC Score	40.09	13.36	36.11	11.30	p=.01	

Abbreviations for Table 2: Standard Deviation (SD), see Procedures and Measures section for full name and explanation of each outcome measure.

Preliminary investigations of the therapist data

Demographic data available for therapists are displayed in table 3 (see appendix 5 to compare to original therapist demographic data). The data was tested for normal distribution (see appendix 4) and then non-parametric Mann-Whitney U tests were completed for each measure comparing means of therapist data to those who completed therapy versus those who dropped out. The same was done with the categorical data using chi-square tests. This was to initially investigate whether there was any statistical difference between those who dropped out and those who completed therapy on each of the therapist variables.

A weak significant association was found between treatment received and whether participants completed or dropped out, X^2 (1, N= 338) = 3.70, p=.05, with less participants dropping out of PCET than expected (46 dropped out instead of the expected 54.2). A chi-square test found a weak significant difference between dropout and therapist gender, X^2 (1, N= 338) = 4.15, p=.04, with higher levels of dropout from male therapists than expected (38 instead of an expected 30.2). No further significant differences between therapist variables and dropout were found.

The overall percentage of missing data for therapist variables was 0.3%. The only variable with missing data was years worked in job, which was not included as it was not significant.

Table 3.

Therapist demographic data

	Frequency *N*= 34	**Mean**	**SD.**	**Analysis**
Gender	Male: 5 (15%) Female: 29 (85%)			Chi-Square, p=.04
Age	30-39: 12 (35%) 40-49: 4 (12%) 50-59:10 (29%) 60+: 8 (24%)			Chi-Square, p=.45
Days per week worked	1-2.5 days: 7 (21%) 3-5 days: 27 (79%)	3.66	1.24	Mann-Whitney, p=.51
Years worked in job	2-10 years:20 (59%) 10.5-29 years: 13 (38%)	12.24	6.34	Mann-Whitney, p=.11
Years worked in this role	2-10: 25 (74%) 10.5-19: 9 (26%)	9.07	4.14	Mann-Whitney, p=.39
Therapy offered	CBT: 20 (59%) PCET: 14 (41%)			Chi-Square, p=.05
Number of Patients	CBT: 162 (48%)	8.1	5.27	
	PCET: 176 (52%)	12.57	14.27	
Amount of Dropout	CBT: 58 (56%)	2.9	2.69	
	PCET:46 (44%)	3.29	4.07	

Abbreviations for Table 3: Standard Deviation (SD), Cognitive Behavioural Therapy (CBT), Person Centred Experiential Therapy (PCET),

Single-level logistic regression for patient level data

An initial binary logistic regression was completed at level one with participant data to further test the associations found in the preliminary exploration of the data. This is the primary step towards multilevel logistic regression to take into account therapist variation. Table 4 shows the predictors of patient dropout identified by the model, including their odds ratios, derived co-efficients and standard errors.

Normal distribution was tested by checking the distribution of the residuals in the model at level one. There were three participants that were outside of normality, these were removed from the model to allow this assumption of normality to be met within the model. See appendix 6 to view both Q-Q plots with and without the three outliers. The removal of these participants did not change the estimates of the model.

Gender, employment and diagnosis were all insignificant. All age groups were initially added into the model (17-29, 30-39, 40-49, 50-59, 60+), 17-29 age group was entered as the reference category. Age group's 30-39, 40-49 and 50-59 were significant, all other age groups were non-significant. Therefore, 30-59 were merged into one group and 17-29 and 60+ were merged. This yielded a significant result, which suggests that participants ages 30-59 are less likely to dropout than those who are aged 17-29 or 60+ (n=332, OR=2.02).

All five deprivation categories (most deprived, deprived, average, not deprived, least deprived) were initially added to the model, most deprived was entered as the reference category. Least deprived was significant, all other categories were non-significant. Therefore, deprivation was collapsed into least deprived and all other deprivation categories. This yielded a significant result, as those who are least deprived are less likely to dropout than any other deprivation category (n=332, OR=3.71).

Psychological measures were input into the model, depression, distress, anxiety and risk were non-significant and therefore removed. Resilience tested by the CD_RISC was the only measure that yielded a significant result, with those scoring higher on resilience being less likely to dropout than those with lower scores (n=332, OR=0.95). As resilience is a continuous variable it was tested to see whether there was a curvilinear relationship. There was found to be a significant curvilinear relationship, as resilience scores increased it was found that this even further decreased the likelihood of dropout (n=332, OR= 0.99).

Process variables were then input into the model, waiting time and treatment preference were not significant. Number of sessions was input into the model and this yielded a significant result. It was found that those who had more sessions are less likely to dropout than those who had less sessions (n=332, OR=0.69). As this is a continuous variable it was tested to see whether there was a curvilinear relationship. There was found to be a significant curvilinear relationship, those with highest numbers of sessions had a slightly increased chance of dropout (n=332, OR= 1.02). This suggests that a small number of patients had many sessions before dropping out, which is evident from looking at the range of sessions for those who dropped out (min=1, max=20).

Multilevel logistic regression for therapist level data

Therapists were then entered into the model at the second level. The β_{0j} statistic was significant at both single and multilevel, which suggests that this data should be multilevel. Prior to inputting any therapist variables there appeared to be some varying impact on dropout from individual therapists, however this was non-significant (n=34, OR=1.28). Treatment type was added into the model (PCET as the reference category), as it is both a therapist and patient level variable, this yielded a significant result. The results suggest that

patients who received CBT are more likely to dropout than those who received PCET (n=332, OR= 3.69).

Treatment type reduced the therapist effect (derived co-efficient= 0.00, S.E.= 0.00), which suggests an interaction between treatment type and therapist effect. There were two therapists in PCET treatment arm who had over 40 participants which may have skewed the results. To test this any therapists who had over 20 participants were removed, the model was then run with the smaller number of participants (n=227) and therapists (n=31). This did not change the significance of therapist impact on dropout and adding in treatment type still led to there being no therapist effect at all. These results therefore likely suggests that more data is needed but may also suggest that treatment type may have a larger impact on dropout than the individual therapist. No other therapist variables were significant predictors of dropout.

Figure 1 shows the therapist intercept residuals produced by the model, 95% confidence intervals were not able to be produced due to the small sample. From this we can see that there is variation between individual therapists on patient dropout, from lower levels of dropout to higher levels of dropout, from left to right. The plot shows that most therapists had dropout outcomes similar to the average therapist (shown via the dashed line where the residual is 0). Some therapists to the left of the plot have less dropout than average and some to the right of the plot have more dropout than average. The graph does suggest some therapist variation despite being non-significant within the model. See appendix 7 for MLwin output of the model.

Figure 1. Caterpillar plot of ranked therapist residuals

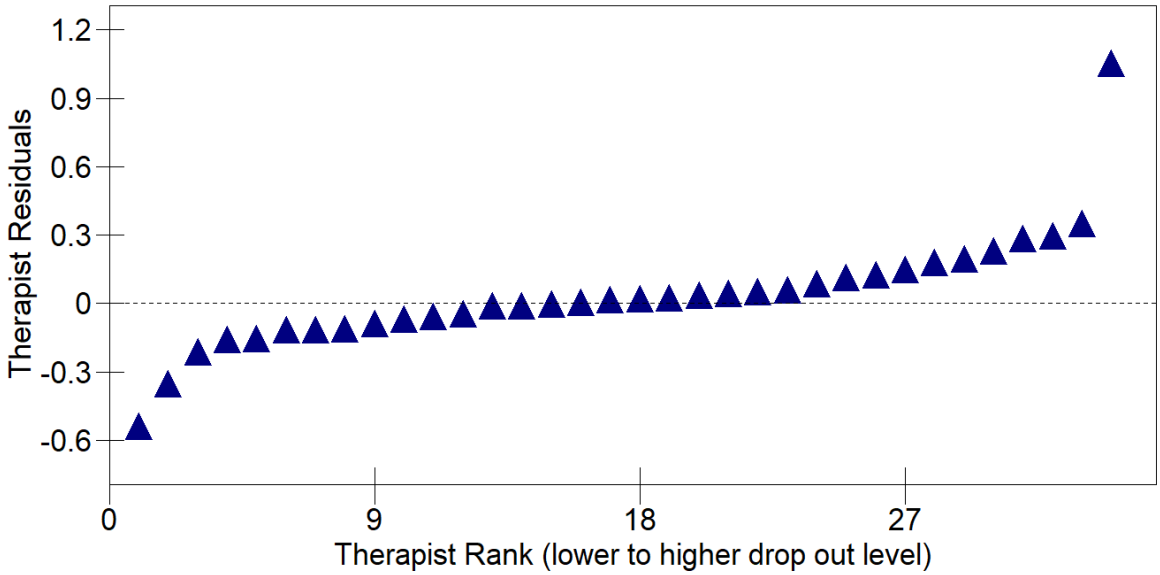


Table 4.

Odds Ratios for each predictive variable with their 95% Confidence Intervals (CI's) and the derived co-efficient and their standard errors (S.E)

Predictors (Reference category)	**Odds ratios (95% CI's)**	**Co-efficients (S.E)**
Age (30-59)	2.31 (1.17, 4.56)	0.84 (0.35)
Deprivation (Least Deprived)	3.71 (1.54, 8.97)	1.31 (0.45)
CD_RISC (Grand mean)	0.95 (0.70, 0.98)	-0.05 (0.02)
CD_RISC- Curved Linear relationship	0.997 (0.995, 0.999)	-0.003 (0.001)
Sessions (Grand mean)	0.69 (0.64, 0.76)	-0.36 (0.04)
Sessions- Curved Linear relationship	1.02 (1.00, 1.03)	0.02 (0.01)
Treatment (PCET)	3.69 (1.85, 7.36)	1.31 (0.35)

Discussion

This study aimed to create a model to find the predictive factors of dropout in IAPT for patients with depression. The findings suggest that some of the hypotheses that were created based on prior research have been partially confirmed from this secondary analysis of a trial dataset. There are also differences from prior research and potentially new interesting information that can be explored in future research.

The first hypothesis that was in line with prior research was not met, as the model found no predictors for dropout when inputting psychological factors or risk measures, although initial screening of the data suggested that there were some differences between those who dropped out and those that completed therapy. This finding contradicts Di Bona et al. (2014) who completed a logistic regression on IAPT patient level data with a similar number of participants and found that psychological distress was the greatest predictor of dropout. However, one reason for this may be due to Di Bona et al. having a higher level of dropout (47.7%) than this study (31%). Another reason for this may be that within the PRaCTICED population, the participants all had moderate to severe depression (average score was 17.32 on PHQ-9). Therefore, all participants had higher levels of depression which may be different to other populations with more variance or lower levels of depression, such as in Di Bona et al.'s study which has lower levels of depression (average score was 15 on PHQ-9).

However, small differences in average scores were found across psychological measures, with those who dropped out scoring slightly higher scores on depression scales (PHQ-9 difference of 0.68 and BDI difference of 2.04), the distress scale (CORE-OM difference of 1.49) and the risk scale (CORE-R difference of 1.49). Some of these differences were reflected in the initial statistical analysis, with BDI and CORE-OM showing a

significance towards higher scores in those that dropped out. This suggests that while they were not found as significant predictors in the model, there may be a trend towards those that dropout having higher levels of psychological distress. This is consistent with other research that suggests psychological severity is linked to dropout (Binnie & Boden, 2016).

The initial exploration of the data showed that there appeared to be a significant difference in resilience, in that those with lower resilience were more likely to dropout (CD_RISC showed a 3.98 mean difference between completed therapy and dropped out). Resilience was therefore included within the model and found to be a significant predictor of dropout within the data. There was also a curvilinear relationship found, which suggests that those with the highest levels of resilience had even less dropout than expected within the model, which further reinforces that high levels of resilience increase the likelihood of therapy completion. Resilience has been studied in regard to resilience following trauma (Harvey, 2008), coping with trauma (Peres, Moreira-Almeida, Nasello & Koenig, 2006), increasing resilience through therapy (Burton, Cooper, Feeny & Zoellner, 2015) or resilience in students at risk of dropout from school (Hartley, 2010) but rarely studied in regard to therapy dropout. Resilience has been suggested to be a defence mechanism that allows growth through adversity, and that a therapeutic target may be building resilience (Davydov, Stewart, Ritchie & Chaudieu, 2010). Low resilience has been suggested to be clinically significant in depression and anxiety disorders, a multinomial logistic regression found that patients with low resilience had severe trait anxiety and the suggested predictors of low resilience were low spirituality, low purpose in life and less frequent exercise (Min et al., 2013). The current finding may suggest a link between readiness for therapy and resilience, as those with lower resilience were more likely to prematurely end therapy. Future studies may want to further explore resilience in dropout.

The second hypothesis arising from previous literature was met, as deprivation was found to be a predictive factor for dropout within the model. When comparing dropout frequencies from table 2, the high deprivation category has the highest level of dropout (59 participants). Comparatively, in regard to percentage of numbers the lowest level of dropout is within the least deprived category with 27 participants. This accurately reflects prior research that suggests that deprivation is an important factor in patient dropout (Binnie & Boden, 2016). One study suggested that patients from deprived areas are less likely to opt into therapy and have high rates of dropout, they suggest that perhaps services need to develop to be able provide the psychological support necessary for those in more deprived areas (Grant, McMeekin, Jamieson, Fairfull, Miller & White, 2012). It is likely that patients who are more deprived are likely to have less stability and have less of their basic needs met. As depicted in Maslow's hierarchy of needs (1943) if basic physiological needs are not met progress can rarely be made. James (2016) found this to be the case, in that patients reported their main barriers to utilising treatment were basic needs not being met such as lack of food, fatigue and health complications. A future study may want to include service level factors into the model to assess whether location and deprivation interact as predictors.

Treatment type was found to have an impact on dropout. Preliminary statistics suggested that there appeared to be a higher percentage of dropout in CBT (36%- 58 patients) compared to PCET (26%- 46 patients). Treatment type was placed into the model and was found to be a significant predictor of dropout, suggesting that clients in the CBT arm of the study were more likely to dropout than those in the PCET arm. Treatment type reduced any therapist effect within the model which could suggest that treatment may have more of an impact than therapist variance in dropout. However, this needs further exploration in future studies due to the small sample size in this study. IAPT mostly utilise CBT or CBT informed interventions. This is due to CBT being the gold standard and recommended intervention for

many disorders, including depression (NICE, 2009). Whilst there is some movement in IAPT services to offering more choice of interventions or attempting to include psychoeducational components prior to interventions (Delgadillo & Groom, 2017), the dropout percentage is still high (Furlong-Silva & Hardy, 2020). Mayor (2016) found that a range of interventions and patient choice of psychological intervention has led to better retention and outcomes. Future studies may want to look at whether more patient choice regarding interventions may increase retention in IAPT services.

Number of sessions were predictive of dropout, suggesting that patients dropout early on in therapy. However, the data suggested that there was a curvilinear relationship in that there were some patients that still dropped out within the later stages of therapy. Swift & Greenberg (2012) suggest that patients who terminate earlier from therapy have worse outcomes than those who complete or dropout later. This suggests that retention until later stages of therapy is important. This may be due to engagement issues or therapist factors that lead to early dropout. A meta-analysis found that there is a moderately strong link between dropout and poor therapeutic alliance (Sharf, Primavera & Diener, 2010). Unfortunately, there were no significant therapist effect found after controlling for therapy type. This is likely due to small numbers, as figure 1 suggests that there is variation between therapists and dropout. Future studies may wish to include a therapist alliance measure or an engagement measure to assess whether alliance is a direct predictor of dropout within IAPT services.

Limitations

Whilst this study offers important contributions to the literature on drop on, the results of this study need to be taken with precaution in light of its limitations. A main limitation to be considered is the sample size for this level of statistical analysis, whilst there are still no current power calculations for completing multilevel modelling on trial data and less is

known about sample sizes for binary data, the sample size for this study means that the confidence intervals are large and confidence intervals around therapist variability could not be modelled. This is due to the small number of patients per therapist, which increases the likelihood of error and makes it harder for us to examine the effects. Another limitation regarding sample size is that there is high variability in regard to patients per therapist, in that some therapists only saw 2 patients compared to other therapists that saw over 40 patients. This means that a few individual therapists may be skewing the results and there is less chance of getting a clear picture of therapist effect on dropout, even though the model does attempt to take this discrepancy into account. There were initial attempts to rectify this by removing those with only one patient. There were two further attempts to rectify this by removing therapists (and their patients) that had less than five patients and the final attempt was removing therapists (and their patients) that had over 20 patients. This, however, did not make any differences to the model and reduced the sample size even further. Therefore, the sample for the final model was therapists that had two or more patients which was the best fit for the data.

Another limitation is that due to the sample size, a third level could not be added into model to consider service variables, including location of service. This would have considered the full nested structure of the IAPT service and offered increased understanding into the predictors of dropout within this IAPT service. Therefore, data from trials may not be the most suitable to use to consider higher level effects. Large samples of routine data may be more appropriate. However, routine data rarely provides higher level information such as therapist variables. Future research should consider aiming to look at the full nested structure.

Whilst this is not an exhaustive list of the limitations of this paper, a final limitation worth noting it that whilst using trial data allows for a richer data set with more data than usually found in national IAPT data sets, it means that the results may be less generalisable to

other IAPT services. However, it did allow for a dropout comparison between treatment types that may offer an important contribution to IAPT literature.

Clinical Implications

Despite the limitations, these findings can offer a contribution to clinical practice within the Sheffield IAPT service, as the predictive factors found within this study could be considered by individual therapists and the service to reduce dropout.

The findings suggest that higher levels of resilience may be a factor in completing therapy, therefore clinicians may want to assess patient resilience levels and target resilience within their work to increase retention. As dropout tends to occur in earlier sessions, therapists may wish to focus on engagement in the earlier sessions to attempt to reduce dropout. This may also be helpful when working with younger clients.

Due to deprivation being a predictive factor, services may wish to assess their pathways in areas of increased deprivation and to assess whether basic needs are met prior to commencing therapy. Services may also want to consider treatment type offered and patient choice of treatment, as this may lead to a decrease in drop out.

Conclusions

This study aimed to assess the predictors of dropout in IAPT services for patients with depression using trial data. Several predictors were found, including age, deprivation resilience, number of sessions and treatment type. Some of these predictors, including age and deprivation have been previously suggested within the literature as factors that relate to patient's terminating therapy early. Others such as resilience and treatment type are findings that may add to the knowledge around dropout within IAPT services. These findings need to be taken with caution considering its limitations, however it offers an important contribution to IAPT research and allows services and clinicians to consider these predictors when

working with patients. Future studies should aim to assess the full nested structure of IAPT to get a clearer picture with the hope to aim towards creating a predictive model that can be used clinically.

References

Attkisson, C. C., & Zwick, R. (1982). The Client Satisfaction Questionnaire: Psychometric properties and correlations with service utilization and psychotherapy outcome. *Evaluation and Program Planning*, *5*, 233-237. https://doi.org/10.1016/0149-7189(82)90074-x

Barkham, M., Connell, J., Stiles, W. B., Miles, J. N. V., Margison, F., Evans, C., & Mellor-Clark, J. (2006). Dose-effect relations and responsive regulation of treatment duration: The good enough level. *Journal of Consulting and Clinical Psychology, 74*, 160–167. https://doi.org/10.1037/0022-006X.74.1.160

Barkham, M., Evans, C., Margison, F., & McGrath, G. (1998). The rationale for developing and implementing core outcome batteries for routine use in service settings and psychotherapy outcome research. *Journal of Mental Health*, *7*, 35. https://doi.org/10.1080/09638239818328

Beck, J.S. (2011). *Cognitive behavior therapy.* Basics and beyond (2nd ed.), New York, The Guilford Press.

Beck, A.T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961) An inventory for measuring depression. *Archives of General Psychiatry*, *4,* 561-571. https://doi.org/10.1001/archpsyc.1961.01710120031004

Beck, A. T., Steer, R.A., & Garbin, M.G. (1988) Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review, 8,* 77-100. https://doi.org/10.1016/0272-7358(88)90050-5

Binnie, J., & Boden, Z. (2016). Non-attendance at psychological therapy appointments. *Mental Health Review Journal*, *21*, 231–248. https://doi.org/10.1108/MHRJ-12-2015-0038

Bona, L. D., Saxon, D., Barkham, M., Dent-Brown, K. & Parry, G. (2014). Predictors of

patient non-attendance at Improving Access to Psychological Therapy services demonstration sites. *Journal of Affective Disorders, 169*, 157-164. https://doi.org/10.1016/j.jad.2014.08.005

Buckman, J. E. J., Naismith, I., Saunders, R., Morrison, T., Linke, S., Leibowitz, J., & Pilling, S. (2018). The impact of alcohol use on drop-out and psychological treatment outcomes in Improving Access to Psychological Therapies Services: An audit. *Behavioural and Cognitive Psychotherapy*, *26*, 1–15. https://doi.org/10.1017/S1352465817000819

Burckhardt, C. S. & Anderson, K. L. (2003). The Quality of Life Scale (QOLS): Reliability, Validity, and Utilization. *Health and Quality of Life Outcomes*, *1*, 60. http://doi.org/10.1186/1477-7525-1-60

Burton, M.S., Cooper, A.A., Feeny, N.C. & Zoellner, L.A. The Enhancement of Natural Resilience in Trauma Interventions. *Journal of Contemporary Psychotherapy, 45,* 193-204. https://doi.org/10.1007/s10879-015-9302-7

Connor, K. M., & Davidson, J. R. (2003). Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). *Depression and anxiety*, *18*, 76-82. https://doi.org/10.1002/da.10113

Cooper, A. A., & Conklin, L. R. (2015). Dropout from individual psychotherapy for major depression: A meta-analysis of randomized clinical trials. *Clinical Psychology Review*, *40*, 57-65. https://doi.org/10.1016/j.cpr.2015.05.001

Chan, S. W. Y., & Adams, M. (2014). Service use, drop-out rate and clinical outcomes: A comparison between high and low intensity treatments in an IAPT service. *Behavioural*

and Cognitive Psychotherapy, *42*, 747–759. https://doi.org/10.1017/S1352465813000544

Davydov, D.M., Stewart, R., Ritchie, K. & Chaudieu, I. (2010). Resilience and mental health. *Clinical Psychology Review, 30,* 479-495. https://doi.org/10.1016/j.cpr.2010.03.003

Delgadillo, J., & Groom, M. (2017). Using psychoeducation and role induction to improve completion rates in cognitive behavioural therapy. *Behavioural and Cognitive Psychotherapy, 45*, 170-184. https://doi.org/10.1017/S1352465816000643

EuroQol Group. (1990). EuroQol--a new facility for the measurement of health-related quality of life. *Health Policy*, *16*, 199–208. https://doi.org/10.1016/0168-8510(90)90421-9

Evans, C., Connell, J., Barkham, M., Margison, F., McGrath, G., Mellor-Clark, J., & Audin, K. (2002). Towards a standardised brief outcome measure: Psychometric properties and utility of the CORE–OM. *The British Journal of Psychiatry*, *180*, 51-60. https://doi.org/10.1192/bjp.180.1.51

Fernandez, E., Salem, D., Swift, J. K., & Ramtahal, N. (2015). Meta-analysis of dropout from cognitive behavioral therapy: Magnitude, timing, and moderators. *Journal of Consulting and Clinical Psychology*, *83*, 1108–1122. https://doi.org/10.1037/ccp0000044

Flanagan, J.C. (1982) Measurement of the quality of life: Current state of the art. *Archives of Physical Medicine and Rehabilitation*, *63,* 56–59

Furlong-Silva, J. & Hardy, G. (2020). Factors associated with patient dropout in improving access to psychological therapies (IAPT) services: a systematic review of the literature. Unpublished manuscript, University of Sheffield.

Gersh, E., Hallford, D. J., Rice, S. M., Kazantzis, N., Gersh, H., Gersh, B., & McCarty, C. A. (2017). Systematic review and meta-analysis of dropout rates in individual psychotherapy for generalized anxiety disorder. *Journal of anxiety disorders*, *52*, 25-33. https://doi.org/10.1016/j.janxdis.2017.10.001

Grant, K., McMeekin, E., Jamieson, R., Fairfull, A., Miller, C., & White, J. (2012). Individual therapy attrition rates in a low-intensity service: a comparison of cognitive behavioural and person-centred therapies and the impact of deprivation. *Behavioural and Cognitive Psychotherapy, 40*, 245-249. https://doi.org/10.1017/S1352465811000476.

Griner, D., & Smith, T. B. (2006). Culturally adapted mental health intervention: A meta-analytic review. *Psychotherapy: Theory, Research, Practice, Training, 43,* 531-548. https://doi.org/10.1037/0033-3204.43.4.531

Gyani, Alex, Shafran, Roz, Layard, Richard, Clark & David (2013) Enhancing recovery rates in IAPT services: lessons from analysis of the year one data. Improving Access to Psychological Therapies, London, UK.

Hartley, M. T. (2010). Increasing Resilience: Strategies for Reducing Dropout Rates for College Students with Psychiatric Disabilities. *American Journal of Psychiatric Rehabilitation, 13,* 295-315. https://doi.org/10.1080/15487768.2010.523372.

Harvey, M.R. (2008). Towards an ecological understanding of resilience in trauma survivors. *Journal of Aggression, Maltreatment & Trauma, 14,* 9-32. https://doi.org/10.1300/J146v14n01_02

Hatchett, G. T., & Park, H. L. (2003). Comparison of four operational definitions of premature termination. *Psychotherapy: Theory, Research, Practice, Training, 40*, 226–231. https://doi.org/10.1037/0033-3204.40.3.226

James, K. (2016). Barriers to treatment and the connection to Maslow's hierarchy of needs. *Counselor Education Capstone, 18.*

King, M., Marston, L. & Bower, P. (2014). Comparison of non-directive counselling and cognitive behaviour therapy for patients presenting in general practice with an ICD-10 depressive episode: a randomized control trial. *Psychological Medicine*, *44,* 1835-1844. https://doi.org/10.1017/S0033291713002377

Kroenke K., Spitzer R. L., Williams J. B. W. (2001). The PHQ-9: Validity of a brief depression measure. *Journal of General Internal Medicine*, *16*, 606–613. https://doi.org/10.1046/j.1525-1497.2001.016009606.x.

Kroenke K., Spitzer R. L., Williams J. B. W., Lowe B. (2010). The patient health questionnaire somatic, anxiety, and depressive symptom scales: A systematic review. *General Hospital Psychiatry*, *32,* 345–359. https://doi.org/10.1016/j.genhosppsych.2010.03.006

Lambert, M. J., & Ogles, B. M. (2004). The efficacy and effectiveness of psychotherapy. In M. J. Lambert (Ed.), Bergin and Garfield's handbook of psychotherapy and behavior change (5th ed., pp. 139 - 193). New York: Wiley.

Leichsenring, F., Rabung, S., & Leibing, E. (2004). The efficacy of short-term psychodynamic psychotherapy in specific psychiatric disorders: A meta-analysis. *Archives of General Psychiatry, 61*, 1208-1216. https://doi.org/10.1001/archpsyc.61.12.1208

Lewis, G., Pelosi, A., Araya, R., & Dunn, G. (1992). Measuring psychiatric disorder in the community: A standardized assessment for use by lay interviewers. *Psychological Medicine*, 22, 465-486. https://doi.org/10.1017/S0033291700030415

Lopes, R. T., Gonçalves, M. M., Sinai, D., & Machado, P. P. (2018). Clinical outcomes of psychotherapy dropouts: Does dropping out of psychotherapy necessarily mean failure? *Revista Brasileira de Psiquiatria*, *40*, 123–127. https://doi.org/10.1590/1516-4446-2017-2267

Maas, C.J.M. & Hox, J.J. (2005). Sufficient sample size for multilevel modeling. *Methodology,* 1, 86-92. https://doi.org/10.1027/1614-1881.1.3.86.

Maslow, A.H. (1943). Conflict, frustration, and the theory of threat. *Journal of Abnormal Psychology, 38,* 81-86.

Mayor, s. (2016). Patients offered choices about psychological treatment have better outcomes, study shows. *British Medical Journal, 352,* 216. https://doi.org/10.1136/bmj.i216

Min, J. A., Jung, Y. E., Kim, D. J., Yim, H. W., Kim, J. J., Kim, T. S., ... & Chae, J. H. (2013). Characteristics associated with low resilience in patients with depression and/or anxiety disorders. *Quality of Life Research, 22*, 231-241. https://doi.org/10.1007/s11136-012-0153-3.

Mundt, J. C., Marks, I. M., Shear, M. K., & Greist, J. M. (2002). The Work and Social Adjustment Scale: a simple measure of impairment in functioning. *The British Journal of Psychiatry, 180,* 461-464. https://doi.org/10.1192/bjp.180.5.461

Murphy E, Mansell W, Craven S, Menary J, McEvoy P. (2013). Pilot study of an investigation of psychological factors associated with first appointment nonattendance in a low-intensity service. *Behavioural Cognitive Psychotherapy, 41*, 458–69. https://doi.org/10.1017/S1352465812000811

NICE. (2009). *Depression in adults: recognition and management. Clinical Guidance [CG90],* retrieved from: https://www.nice.org.uk/guidance/cg90

Peduzzi, P., Concato, J., Kemper, E., Holford, T. R., & Feinstein, A. R. (1996). A simulation

study of the number of events per variable in logistic regression analysis. *Journal of Clinical Epidemiology, 49,* 1373-1379. https://doi.org/10.1016/s0895-4356(96)00236-3

Pennington, D. & Hodgson, J. (2012) Non-attendance and invitation methods within a CBT service. *Mental Health Review Journal, 17,* 145-151. https://doi.org/10.1108/13619321211287256

Perez, J. F. P., Moreira-Almeida, A., Nasello, A.G. & Koenig, H.G. (2006). Spirituality and resilience in trauma victims. *Journal of Religious Health, 46,* 343-350. https://doi.org/10.1007/s10943-006-9103-0.

Rasbash, J., Charlton, C., Browne, W.J., Healy, M. and Cameron, B. (2009). *MLwiN Version 2.1*. Centre for Multilevel Modelling, University of Bristol. Retrieved from http://www.bristol.ac.uk/cmm/software/mlwin/

Renk, K. (2002). Reasons for therapy termination in a university psychology clinic. *Journal of Clinical Psychology, 58*, 1173-1181. https://doi.org/10.1002/jclp.10075

Richards DA, Borglin G. (2011). Implementation of psychological therapies for anxiety and depression in routine practice: Two year prospective cohort study. *Journal of Affective Disorders*, *133*, 51–60. http://doi.org/10.1016/j.jad.2011.03.024

Roe, D., Dekel, R., Harel, G., & Fennig, S. (2006). Patients' reasons for terminating psychotherapy: A quantitative and qualitative inquiry. *Psychology and Psychotherapy: Theory, Research and Practice, 79,* 529-538. http://doi.org/10.1348/147608305x90412

Rohrer, J. E., Angstman, K. B., & Pecina, J. L. (2013). Application of a case-control design to the analysis of drop-outs from integrated behavioural health care. *Quality in Primary Care*, *21*, 33–37.

Saxon, D., Ashley, K., Bishop-Edwards, L., Connell, J., Harrison, P., Ohlsen, S., Hardy, G. E., Kellett, S., Mukuria, C., Mank, T., Bower, P., Bradburn, M., Brazier, J., Elliott, R., Gabriel, L., King, M., Pilling, S., Shaw, S., Waller, G. & Barkham, M. (2017). A pragmatic randomised controlled trial assessing the non-inferiority of counselling for depression versus cognitive-behaviour therapy for patients in primary care meeting a diagnosis of moderate or severe depression (PRaCTICED): Study protocol for a randomised controlled trial. *Trials, 18*, 93. http://doi.org/10.1186/s13063-017-1834-6.

Saxon, D., Firth, N., & Barkham, M. (2017). The relationship between therapist effects and therapy delivery factors: Therapy modality, dosage, and non-completion. *Administration and Policy in Mental Health and Mental Health Services Research*, *44*, 705–715. https://doi.org/10.1007/s10488-016-0750-5

Shadish, W. R., Matt, G. E., Navarro, A. M., & Phillips, G. (2000). The effects of psychological therapies under clinically representative conditions: A meta analysis. *Psychological Bulletin, 126,* 512-529. https://doi.org/10.1037//0033-2909.126.4.512

Sharf, J., Primavera, L. H. & Diener, M. J. (2010). Dropout and therapeutic alliance: A meta-analysis of adult individual psychotherapy. *Psychotherapy, 47,* 637-645. https://doi.org/10.1037/a0021175.

Sheffield City Council (2018, January 17). Sheffield's Population. Retrieved 30 July, 2018 from https://www.sheffield.gov.uk/home/your-city-council/population-in-sheffield.html.

Sheehan, D.V., Lecrubier, Y., Sheehan, K.H., Amorim, P., Janavs, J., Weiller, E., Hergueta, T., Baker, R. & Dunbar, G.C. (1998). The Mini-International Neuropsychiatric Interview (M.I.N.I.): the development and validation of a structured diagnostic

psychiatric interview for DSM-IV and ICD-10. *Journal of Clinical Psychiatry, 59*, 22-33.

Snijders, T. A. (2005). Power and sample size in multilevel modeling. *Encyclopedia of Statistics in Behavioral Science, 3,* 1570-1573. https://doi.org/10.1002/0470013192.bsa492

Solomonov, N., & Barber, J. P. (2016). What we know, what we do not know, and where are we heading? Efficacy and acceptability of psychological interventions for depression. *Epidemiology and Psychiatric Sciences*, *25*, 301–308. https://doi.org/10.1017/S2045796015000815

Sommet, N. & Morselli, D. (2017). Keep calm and learn multilevel logistic modelling: A simplified three-step procedure using stata, R, Mplus and SPSS. *International Review of Social Psychology, 30*, 203-2018. https://doi.org/10.5334/irsp.90.

SPSS Inc. (2007). SPSS 16.0 for Windows (Release 16.0.1) [Software]. Retrieved from http://www.ibm.com/software/analytics/spss/

Spitzer RL, Kroenke K, Williams JBW, Löwe B. (2006). A brief measure for assessing generalized anxiety disorder: The GAD-7. *Archive of Internal Medicine, 166*, 1092–1097. https://doi.org/10.1001/archinte.166.10.1092

Subramaniam, K., Krishnaswamy, S., Jemain, A. A., Hamid, A., & Patel, V. (2006). The Clinical Interview Schedule-Revised (CIS-R)–Malay Version, Clinical Validation. *The Malaysian Journal of Medical Sciences, 13*, 58–62.

Swift, J. K., Callahan, J. L., & Levine, J. C. (2009). Using clinically significant change to identify premature termination. *Psychotherapy: Theory, Research, Practice, Training, 46,* 328–335. https://doi.org/10.1037/a0017003

Swift, J. K., & Greenberg, R. P. (2012). Premature discontinuation in adult psychotherapy: A meta-analysis. *Journal of Consulting and Clinical Psychology, 80*, 547–559. https://doi.org/10.1037/a0028226

Swift, J. K., & Greenberg, R. P. (2014). A Treatment by disorder meta-analysis of dropout from Psychotherapy. *Journal of Psychotherapy Integration*, *24*(3), 193–207. https://doi.org/10.1037/a0037512

Van Hout, B., Janssen, M. F., Feng, Y.S., Kohlmann, T., Busschbach, J., Golicki, D., Lloyd, A., Scalone, L. & Kind, P. (2012). Interim scoring for the EQ-5D-5L: mapping the EQ-5D-5L to EQ-5D-3L value sets. *Value in Health: The Journal of the International Society for Pharmacoeconomics and Outcomes Research*, 15, 708–715. https://doi.org/10.1016/j.jval.2012.02.008

Vindel, A. C., Salguero, J. M., Wood, C. M., Dongil, E., & Latorre, J. M. (2012). Depression in primary care: Prevalence, diagnosis and treatment. La depresión en atención Primaria: Prevalencia, diagnóstico y Tratamiento. *Papeles Del Psicologo*, *33*(1), 2–11.

Appendix 1

Original Data tables

Table 1.

Demographic and therapy type characteristics of completed vs dropped out participants

	Completed Therapy	**Dropped out**
	N= 240	*N*= 112
Gender	Male: 100	Male: 47
	Female: 140	Female: 65
Age	17-29:55	17-29: 46
	30-39:66	30-39:24
	40-49: 49	40-49: 19
	50-59: 55	50-59: 17
	60+: 15	60+: 6
Ethnicity	White British: 210	White British: 96
	White Irish: 1	Black/ Mixed white and black/ Caribbean: 3
	Black/ Mixed white and black/ Caribbean: 6	Asian/ Pakistani: 2
	Asian/ Pakistani: 6	Mixed Other: 5
	Mixed Other: 7	
Employment Status	Employed: 140	Employed: 58
	Unemployed: 21	Unemployed: 18
	Home maker: 5	Home maker: 4
	Disabled: 21	Disabled: 9
	Student: 12	Student: 5
	Retired:7	Retired:2
Deprivation	High deprivation: 80	High deprivation: 63
	Average: 45	Average: 19
	Least deprived: 115	Least deprived: 30
Medication	Prescribed: 134	Prescribed: 61
	Not taking: 91	Not taking: 44
	Unknown: 15	Unknown: 7

Diagnosis from CISR	Agoraphobia: 3	Agoraphobia:3
	GAD: 148	GAD: 72
	MA & DD: 64	MA & DD: 21
	PD: 10	PD: 7
	SP: 15	SP:9
Treatment Preference	PCET: 83	PCET: 33
	CBT: 46	CBT: 21
	No Preference: 111	No Preference: 58
Treatment Received	CBT: 108	CBT: 64
	PCET: 132	PCET: 48

Table 2.

Clinical Characteristics of completed vs. dropped out participants

	Completed Therapy *N*=240			**Dropped out** *N*=112		
	Mean	**SD.**	**Variance**	**Mean**	**SD.**	**Variance**
PHQ-9 Score	17	5.05	25.53	17.42	4.91	24.09
GAD-7 Score	12.96	4.72	22.29	12.90	4.61	21.21
Risk Score	5.06	5.25	27.59	6.10	5.64	31.81
BDI Score	36.20	8.55	73.20	38	8.17	66.76
WSAS Score	23.01	7.77	60.36	23.72	6.96	48.45
EQ_5_DL Health score	37.85	15.45	238.83	36.59	15.91	253.16
CORE-OM	21.87	4.79	23.02	23.22	4.07	16.57
CD_RISC Score	40.05	13.36	178.58	36.24	11.6	134.58

 Appendix 2- Measures (BDI, MINI and CD-RISC removed due to copyright)

PHQ- 9

	Over the last 2 weeks, how often have you been bothered by any of the following problems?	Not at all	Several days	More than half the days	Nearly every day
1	Little interest or pleasure in doing things	0	1	2	3
2	Feeling down, depressed, or hopeless	0	1	2	3
3	Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4	Feeling tired or having little energy	0	1	2	3
5	Poor appetite or overeating	0	1	2	3
6	Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3
7	Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8	Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9	Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

GAD-7

	Over the last 2 weeks, how often have you been bothered by any of the following problems?	Not at all	Several days	More than half the days	Nearly every day
1	Feeling nervous, anxious or on edge	0	1	2	3
2	Not being able to stop or control worrying	0	1	2	3
3	Worrying too much about different things	0	1	2	3
4	Trouble relaxing	0	1	2	3
5	Being so restless that it is hard to sit still	0	1	2	3
6	Becoming easily annoyed or irritable	0	1	2	3
7	Feeling afraid as if something awful might happen	0	1	2	3

Serenity Programme™ - serene.me.uk - Work and Social Adjustment Scale - WSAS

Work and Social Adjustment Scale (WSAS)

Identifier Date

People's problems sometimes affect their ability to do certain day-to-day tasks in their lives. To rate your problems look at each section and determine on the scale provided how much your problem impairs your ability to carry out the activity. This assessment is not intended to be a diagnosis. If you are concerned about your results in any way, please speak with a qualified health professional.

If you're retired or choose not to have a job for reasons unrelated to your problem, tick here

0	1	2	3	4	5	6	7	8
Not at all		Slightly		Definitely		Markedly		Very severely

1	Because of my [problem] my **ability to work** is impaired. '0' means 'not at all impaired' and '8' means very severely impaired to the point I can't work.
2	Because of my [problem] my **home management** (cleaning, tidying, shopping, cooking, looking after home or children, paying bills) is impaired.
3	Because of my [problem] my **social leisure activities** (with other people e.g. parties, bars, clubs, outings, visits, dating, home entertaining) are impaired.
4	Because of my [problem], my **private leisure activities** (done alone, such as reading, gardening, collecting, sewing, walking alone) are impaired.
5	Because of my [problem], my ability to form and maintain **close relationships** with others, including those I live with, is impaired.

Total WSAS score =

EQ-5D-5L

Figure 1: EQ-5D-5L (UK English sample version)

Under each heading, please tick the **ONE** box that best describes your health **TODAY**

MOBILITY

I have no problems in walking about ❑
I have slight problems in walking about ❑
I have moderate problems in walking about ❑
I have severe problems in walking about ❑
I am unable to walk about ❑

SELF-CARE

I have no problems washing or dressing myself ❑
I have slight problems washing or dressing myself ❑
I have moderate problems washing or dressing myself ❑
I have severe problems washing or dressing myself ❑
I am unable to wash or dress myself ❑

USUAL ACTIVITIES *(e.g. work, study, housework, family or leisure activities)*

I have no problems doing my usual activities ❑
I have slight problems doing my usual activities ❑
I have moderate problems doing my usual activities ❑
I have severe problems doing my usual activities ❑
I am unable to do my usual activities ❑

PAIN / DISCOMFORT

I have no pain or discomfort ❑
I have slight pain or discomfort ❑
I have moderate pain or discomfort ❑
I have severe pain or discomfort ❑
I have extreme pain or discomfort ❑

ANXIETY / DEPRESSION

I am not anxious or depressed ❑
I am slightly anxious or depressed ❑
I am moderately anxious or depressed ❑
I am severely anxious or depressed ❑
I am extremely anxious or depressed ❑

core
OUTCOME MEASURE

Site ID

letters only | numbers only

Client ID

Therapist ID | numbers only (1) | numbers only (2)

Sub codes

D D / M M / Y Y Y Y

Date form given

Age

Male ☐ **Female** ☐

Stage Completed

S Screening
R Referral
A Assessment
F First Therapy Session
P Pre-therapy (unspecified)
D During Therapy
L Last Therapy Session
X Follow up 1
Y Follow up 2

Stage

Episode

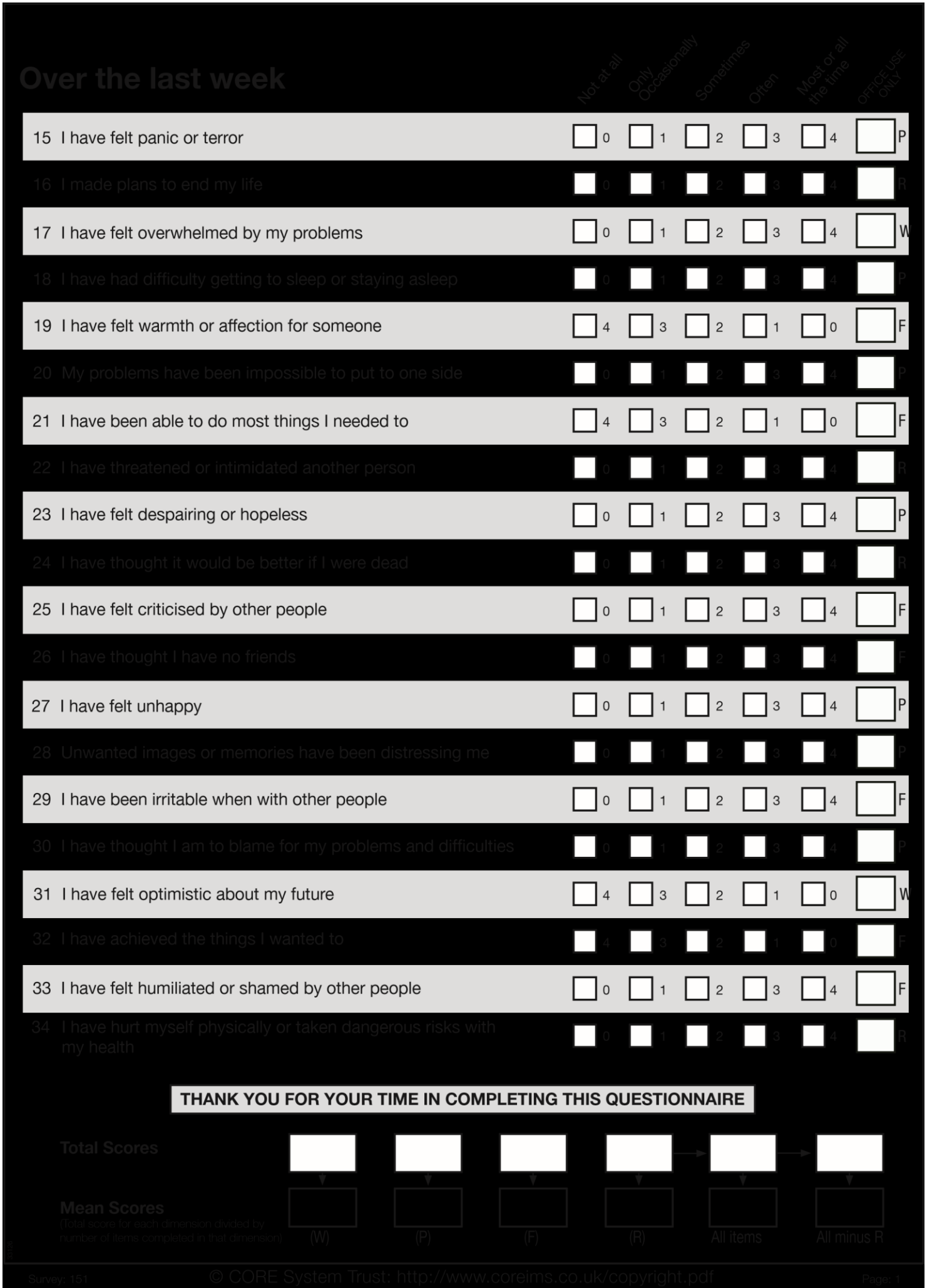
IMPORTANT - PLEASE READ THIS FIRST

This form has 34 statements about how you have been OVER THE LAST WEEK.
Please read each statement and think how often you felt that way last week.
Then tick the box which is closest to this.
Please use a dark pen (not pencil) and tick clearly within the boxes.

Over the last week

		Not at all	Only Occasionally	Sometimes	Often	Most or all the time	OFFICE USE ONLY
1	I have felt terribly alone and isolated	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ F
2	I have felt tense, anxious or nervous	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ P
3	I have felt I have someone to turn to for support when needed	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	☐ F
4	I have felt OK about myself	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	☐ W
5	I have felt totally lacking in energy and enthusiasm	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ P
6	I have been physically violent to others	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ R
7	I have felt able to cope when things go wrong	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	☐ F
8	I have been troubled by aches, pains or other physical problems	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ P
9	I have thought of hurting myself	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ R
10	Talking to people has felt too much for me	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ F
11	Tension and anxiety have prevented me doing important things	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ P
12	I have been happy with the things I have done	☐ 4	☐ 3	☐ 2	☐ 1	☐ 0	☐ F
13	I have been disturbed by unwanted thoughts and feelings	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ P
14	I have felt like crying	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ W

Please turn over



Over the last week

	Not at all	Only Occasionally	Sometimes	Often	Most or all the time	OFFICE USE ONLY
15 I have felt panic or terror	0	1	2	3	4	P
16 I made plans to end my life	0	1	2	3	4	R
17 I have felt overwhelmed by my problems	0	1	2	3	4	W
18 I have had difficulty getting to sleep or staying asleep	0	1	2	3	4	P
19 I have felt warmth or affection for someone	4	3	2	1	0	F
20 My problems have been impossible to put to one side	0	1	2	3	4	P
21 I have been able to do most things I needed to	4	3	2	1	0	F
22 I have threatened or intimidated another person	0	1	2	3	4	R
23 I have felt despairing or hopeless	0	1	2	3	4	P
24 I have thought it would be better if I were dead	0	1	2	3	4	R
25 I have felt criticised by other people	0	1	2	3	4	F
26 I have thought I have no friends	0	1	2	3	4	F
27 I have felt unhappy	0	1	2	3	4	P
28 Unwanted images or memories have been distressing me	0	1	2	3	4	P
29 I have been irritable when with other people	0	1	2	3	4	F
30 I have thought I am to blame for my problems and difficulties	0	1	2	3	4	P
31 I have felt optimistic about my future	4	3	2	1	0	W
32 I have achieved the things I wanted to	4	3	2	1	0	F
33 I have felt humiliated or shamed by other people	0	1	2	3	4	F
34 I have hurt myself physically or taken dangerous risks with my health	0	1	2	3	4	R

THANK YOU FOR YOUR TIME IN COMPLETING THIS QUESTIONNAIRE

	(W)	(P)	(F)	(R)	All items	All minus R
Total Scores						
Mean Scores (Total score for each dimension divided by number of items completed in that dimension)						

QUALITY OF LIFE SCALE (QOL)

Please read each item and circle the number that best describes how satisfied you are at this time. Please answer each item even if you do not currently participate in an activity or have a relationship. You can be satisfied or dissatisfied with not doing the activity or having the relationship.

		Delighted	Pleased	Mostly Satisfied	Mixed	Mostly Dissatisfied	Unhappy	Terrible
1.	Material comforts home, food, conveniences, financial security	7	6	5	4	3	2	1
2.	Health - being physically fit and vigorous . . .	7	6	5	4	3	2	1
3.	Relationships with parents, siblings & other relatives- communicating, visiting, helping . . .	7	6	5	4	3	2	1
4.	Having and rearing children	7	6	5	4	3	2	1
5.	Close relationships with spouse or significant other	7	6	5	4	3	2	1
6.	Close friends	7	6	5	4	3	2	1
7.	Helping and encouraging others, volunteering, giving advice	7	6	5	4	3	2	1
8.	Participating in organizations and public affairs	7	6	5	4	3	2	1
9.	Learning- attending school, improving understanding, getting additional knowledge . .	7	6	5	4	3	2	1
10.	Understanding yourself - knowing your assets and limitations - knowing what life is about . .	7	6	5	4	3	2	1
11.	Work - job or in home	. . 7	6	5	4	3	2	1
12.	Expressing yourself creatively	7	6	5	4	3	2	1

13. Socializing - meeting other people, doing things, parties, etc 7 6 5 4 3 2 1

14. Reading, listening to music, or observing entertainment 7 6 5 4 3 2 1

15. Participating in active recreation 7 6 5 4 3 2 1

16. Independence, doing for yourself 7 6 5 4 3 2 1

CLIENT SATISFACTION QUESTIONNAIRE (CSQ-8)

Purpose: To assess client satisfaction with treatment.

Scoring: The CSQ-8 is easily scored by summing the individual item scores to produce a range of 8 to 32, with high scores indicating greater satisfaction.

Description: The CSQ-8 is an 8-item, easily scored and administered measurement that is designed to measure client satisfaction with services. The items for the CSQ-8 were selected on the basis of ratings by mental health professionals of a number of items that could be related to client satisfaction and by subsequent factor analysis. The CSQ-8 is unidimensional, yielding a homogeneous estimate of general satisfaction with services.

The CSQ-8 has been extensively studied, and while it is not necessarily a measure of a client's perceptions of gain from treatment, or outcome, it does elicit the client's perspective on the value of services received. The CSQ-8 seems to operate about the same across all ethnic groups. This also is true for a version of the CSQ-8 that was translated into Spanish.

Primary Reference: Larsen, D.L., Attkisson, C.C., Hargreaves, W.A., and Nguyen, T.D. (1979). Assessment of client/patient satisfaction: Development of a general scale, *Evaluation and Program Planning*, 2, 197-207. Instrument reproduced with permission of C. Clifford Attkisson.

Availability: Dr. C. Clifford Attkisson, Professor of Medical Psychology, Department of Psychiatry, Box 33-c, University of California, San Francisco, CA 94143.

CLIENT SATISFACTION QUESTIONNAIRE

Please help us improve our program by answering some questions about the services you have received. We are interested in your honest opinions, whether they are positive or negative. *Please answer all of the questions.* We also welcome your comments and suggestions. Thank you very much; we really appreciate your help.

Circle your answer:

1. **How would you rate the quality of service you have received?**

4	3	2	1
Excellent	Good	Fair	Poor

2. **Did you get the kind of service you wanted?**

1	2	3	4
No, definitely	No, not really	Yes, generally	Yes, definitely

3. To what extent has our program met your needs?

4	3	2	1
Almost all of my needs have been met	Most of my needs have been met	Only a few of my needs have been met	None of my needs have been met

4. If a friend were in need of similar help, would you recommend our program to him or her?

1	2	3	4
No, definitely not	No, I don't think so	Yes, I think so	Yes, definitely

5. How satisfied are you with the amount of help you have received?

1	2	3	4
Quite dissatisfied	Indifferent or mildly Mostly satisfied	Very satisfied dissatisfied	

6. Have the services you received helped you to deal more effectively with your problems?

4	3	2	1
Yes, they helped a great deal	Yes, they helped	No, they really didn't help	No, they seemed to make things worse

7. In an overall, general sense, how satisfied are you with the service you have received?

4	3	2	1
Very satisfied		Indifferent or mildly Mostly satisfied dissatisfied	Quite dissatisfied

8. If you were to seek help again, would you come back to our program?

1	2	3	4

Appendix 3

Ethics approval

The University Of Sheffield.

Downloaded: 24/03/2020
Approved: 17/02/2019

Jessica Furlong Silva
Registration number: 170149293
Psychology
Programme: Doctorate of Clinical Psychology

Dear Jessica

PROJECT TITLE: Predictive factors of therapy drop-out in primary care for patients with depression; a secondary analysis of the PRaCTICED data.
APPLICATION: Reference Number 024253

On behalf of the University ethics reviewers who reviewed your project, I am pleased to inform you that on 17/02/2019 the above-named project was **approved** on ethics grounds, on the basis that you will adhere to the following documentation that you submitted for ethics review:

- University research ethics application form 024253 (form submission date: 01/02/2019); (expected project end date: 21/03/2020).

If during the course of the project you need to deviate significantly from the above-approved documentation please inform me since written approval will be required.

Your responsibilities in delivering this research project are set out at the end of this letter.

Yours sincerely

Jilly Gibson-Miller
Ethics Administrator
Psychology

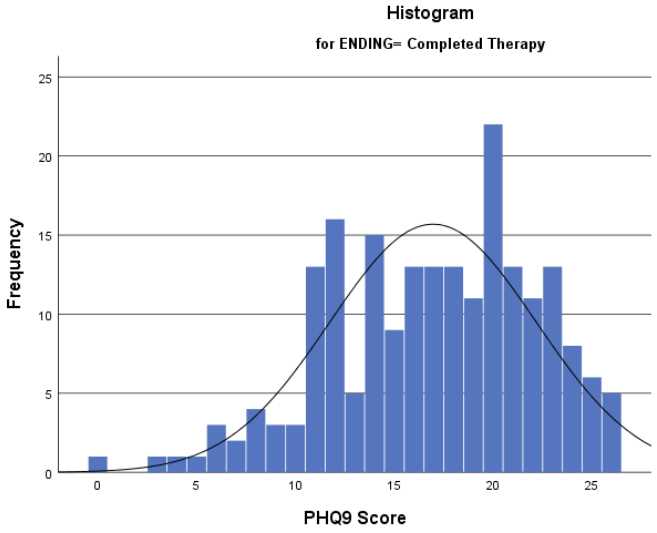
Please note the following responsibilities of the researcher in delivering the research project:

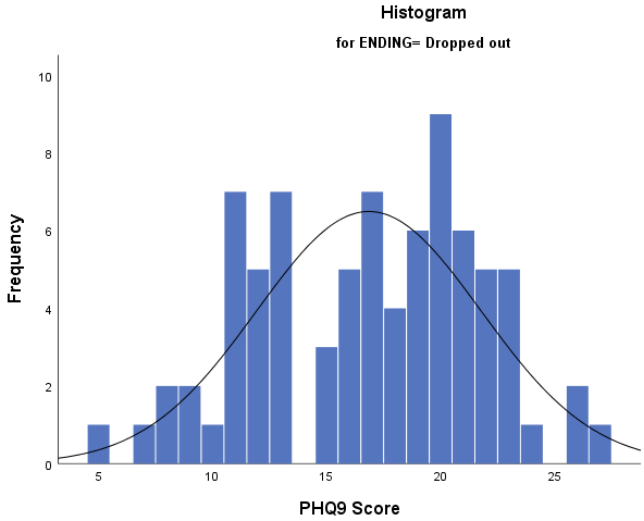
- The project must abide by the University's Research Ethics Policy: https://www.sheffield.ac.uk/rs/ethicsandintegrity/ethicspolicy/approval-procedure
- The project must abide by the University's Good Research & Innovation Practices Policy: https://www.sheffield.ac.uk/polopoly_fs/1.671066!/file/GRIPPolicy.pdf
- The researcher must inform their supervisor (in the case of a student) or Ethics Administrator (in the case of a member of staff) of any significant changes to the project or the approved documentation.
- The researcher must comply with the requirements of the law and relevant guidelines relating to security and confidentiality of personal data.
- The researcher is responsible for effectively managing the data collected both during and after the end of the project in line with best practice, and any relevant legislative, regulatory or contractual requirements.

Appendix 4

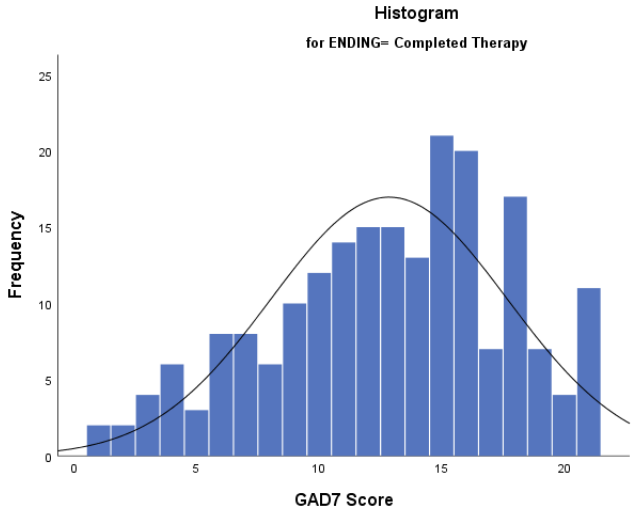
Distribution Graphs

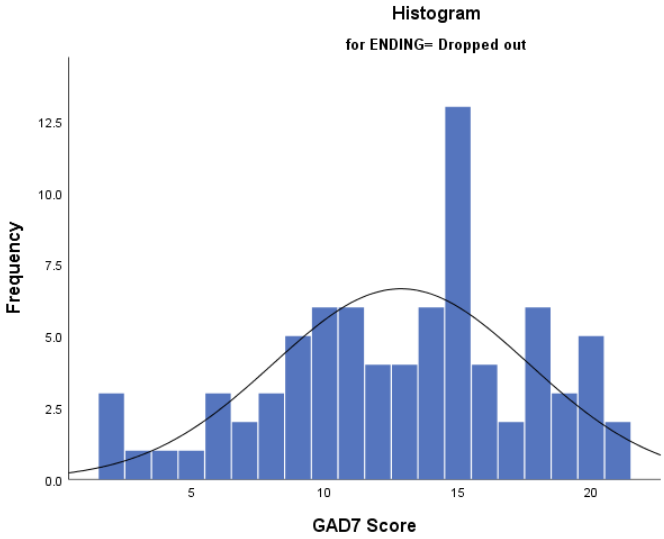
PHQ-9



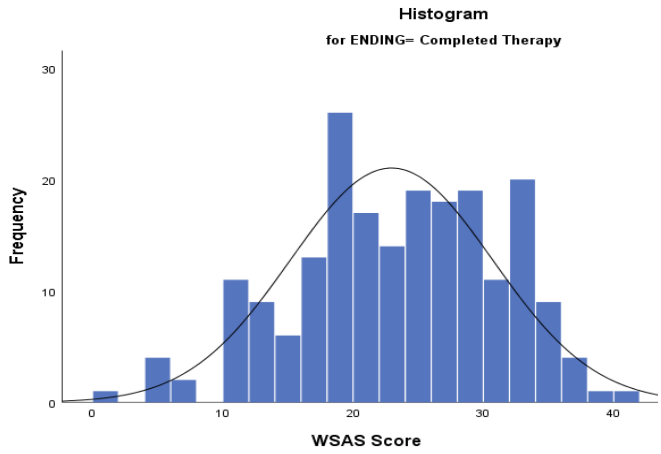


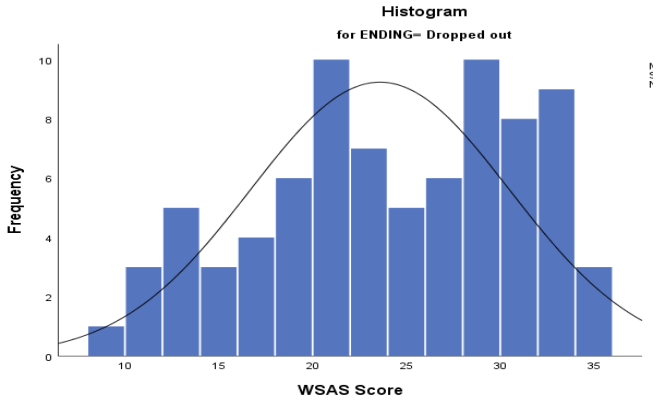
GAD-7



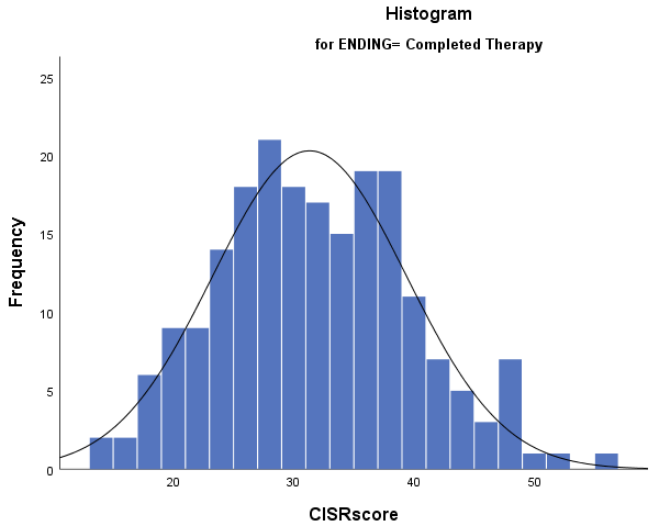


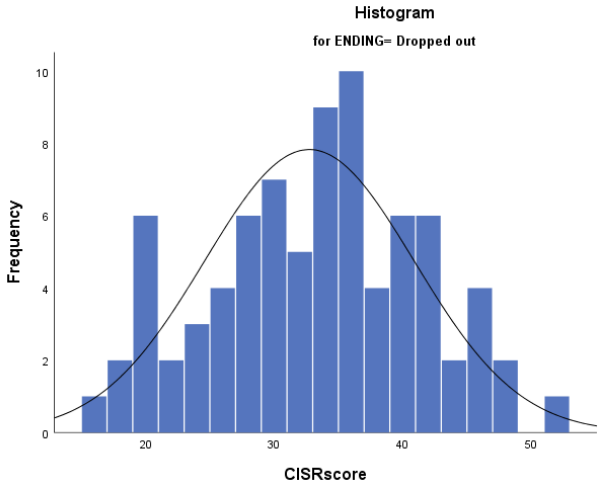
WSAS



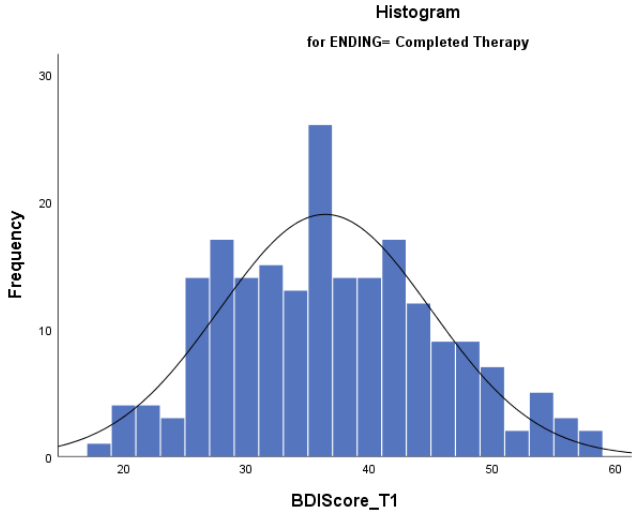


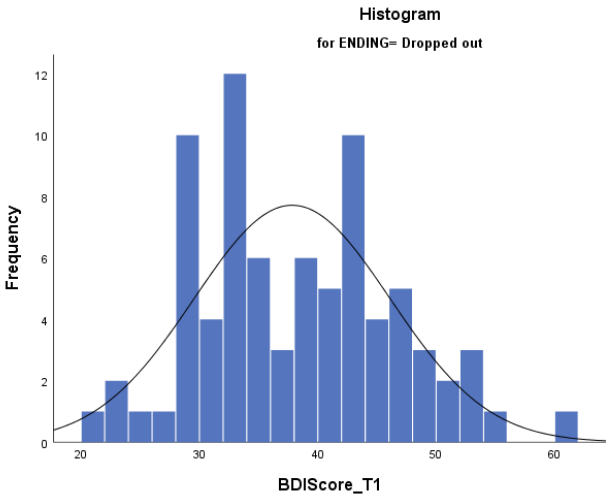
CISR



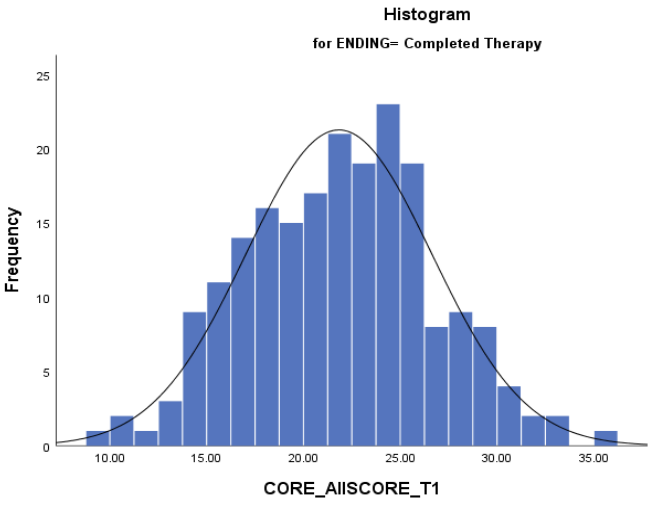


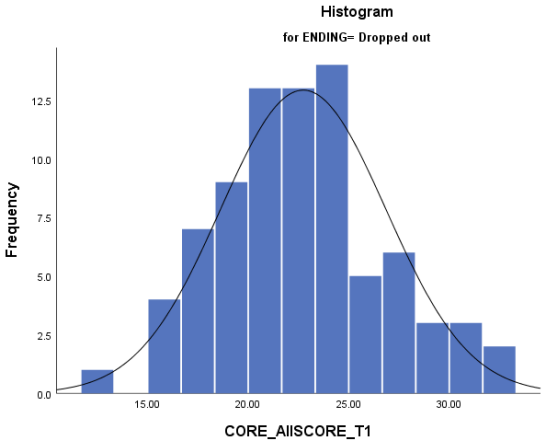
BDI



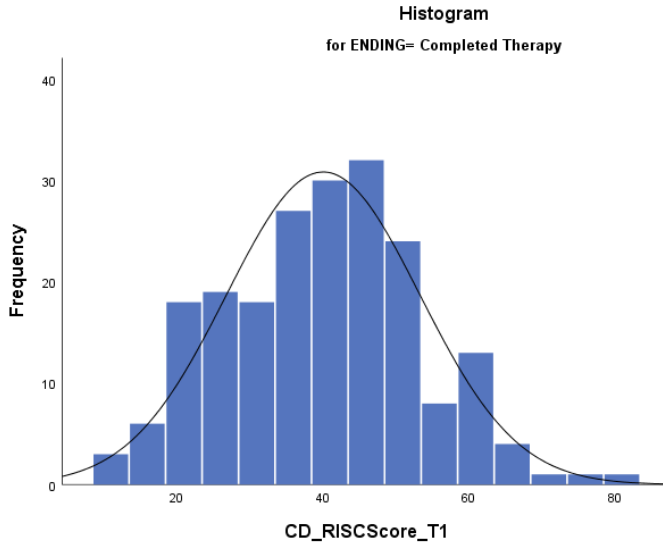


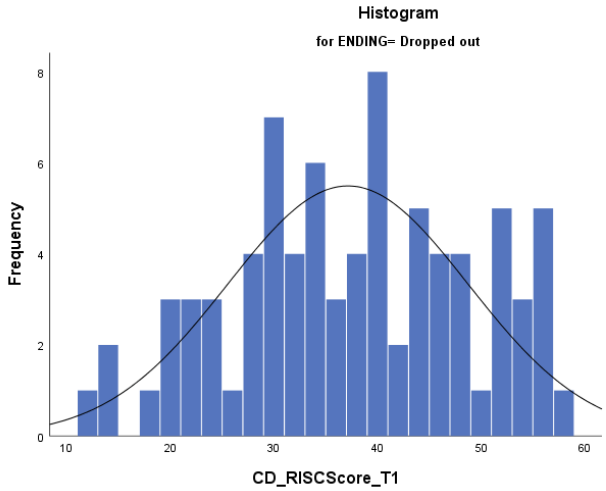
CORE-OM





CD-RISC


Histogram
for ENDING= Completed Therapy
Frequency
CD_RISCScore_T1


Histogram
for ENDING= Dropped out
Frequency
CD_RISCScore_T1

Appendix 5

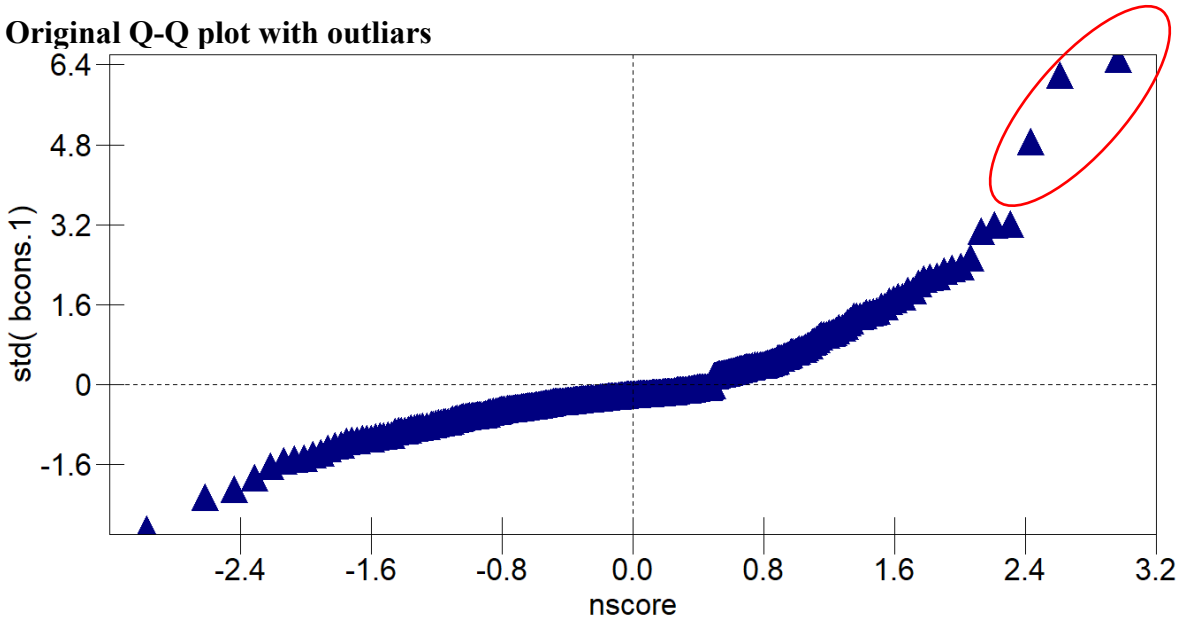
Table 3. Therapist demographic data

	Frequency *N*= 48	**Mean**	**SD.**	**Variance**
Gender	Male: 8			
	Female: 40			
Age	30-39: 17			
	40-49: 6			
	50-59: 16			
	60+: 8			
Days per week worked	1-2.5 days: 9	3.84	1.22	1.48
	3-5 days: 38			
Years worked in job	2-10 years:29	11.33	5.98	35.76
	10.5-29 years: 17			
Years worked in this role	2-10:37	8.53	3.99	15.98
	10.5-19: 10			
Therapy offered	CBT: 30			
	PCET: 18			
Number of Patients	CBT: 172	5.73	5.46	29.79
	PCET: 180	10.00	13.42	180.11
Amount of Dropout	CBT: 64	2.13	2.46	6.05
	PCET:48	2.66	3.76	14.12

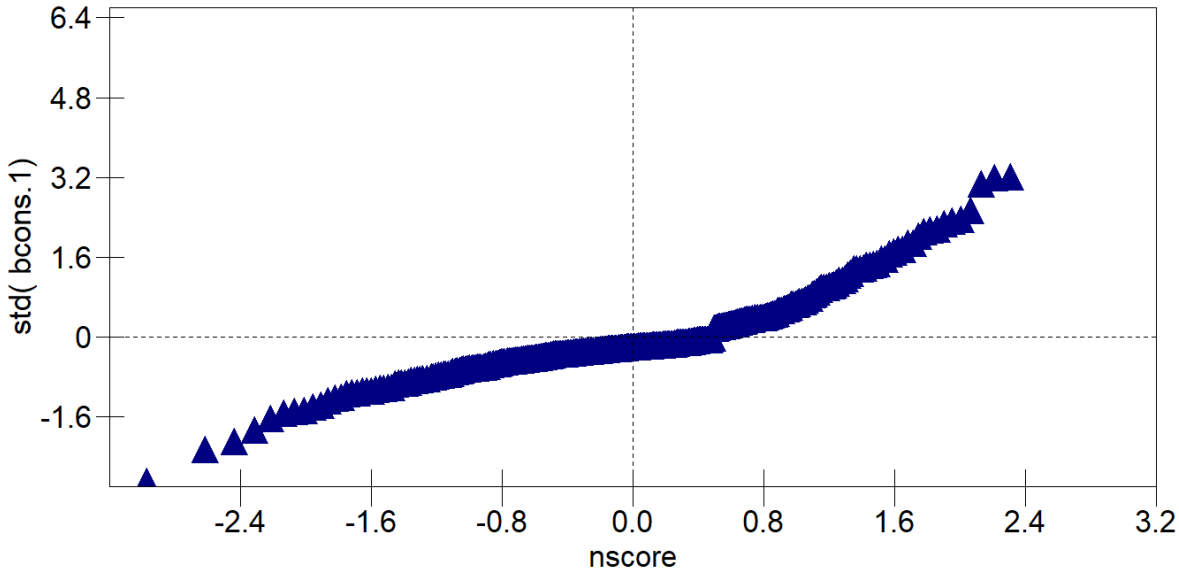
Appendix 6

Normality Q-Q Plots for model

Original Q-Q plot with outliars



Q-Q plot with outliars removed from model



Appendix 7

Multilevel Model

$$ENDING_{ij} \sim Binomial(Denom_{ij}, \pi_{ij})$$

$$\begin{aligned}logit(\pi_{ij}) = {} & \beta_{0j}cons + 0.836(0.347)\text{All other age categories}_{ij} + \\ & 1.312(0.450)\text{All other deprivation categories}_{ij} + -0.048(0.016)(\text{CD\_RISCScore\_T1-gm})_{ij} + \\ & -0.003(0.001)(\text{CD\_RISCScore\_T1-gm})\text{^}2_{ij} + -0.359(0.043)(\text{HI\_Sessions-gm})_{ij} + \\ & 0.016(0.006)(\text{HI\_Sessions-gm})\text{^}2_{ij} + 1.305(0.352)CBT_{j}\end{aligned}$$

$$\beta_{0j} = -3.682(0.583) + u_{0j}$$

$$\begin{bmatrix} u_{0j} \end{bmatrix} \sim N(0,\ \Omega_u)\ :\ \Omega_u = \begin{bmatrix} 0.000(0.000) \end{bmatrix}$$

$$var(ENDING_{ij}|\pi_{ij}) = \pi_{ij}(1 - \pi_{ij})/Denom_{ij}$$

(332 of 338 cases in use)

UNITS:

Therapistno: 34 (of 34) in use