Using the Internet to Train Clinicians to Use Evidence-Based Psychologically-Informed Interventions, Including 'If-Then' Planning

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Declaration

I confirm that this work has not been submitted for any other degree or to any other institution.

Word Count

Literature Review

(a) without references and tables: 7,972

(b) with references and tables: 8,845

Empirical Study

(a) without references and tables: 7,997

(b) with references and tables: 9,449

Total Count

(a) without references and tables: 15,969

(b) with references and tables: 18,294

Overall Abstract

There has been considerable progress in the development of psychologically-informed evidence-based interventions aimed at supporting people experiencing mental health difficulties; however, disseminating such treatments has proven challenging. Internet-based training (IBT) may help to disseminate evidence based practice to clinicians' working in mental health settings. This project aimed to further develop the evidence base by conducting (i) a meta-analytic review of the literature aimed at characterising the effect of IBT on therapists' clinical competency, and (ii) a before-after study evaluating the effect of training clinicians in an evidence-based technique – namely 'if-then' planning – using IBT.

The first section of this thesis reports a meta-analytic review of 13 experimental studies that examined the impact of IBT in psychologically-informed evidence-based interventions on therapists' clinical competency. Findings indicated that IBT can be used to improve clinicians' clinical competency and was associated with a medium-sized change in competency relative to control conditions. The findings did, however, suggest that IBT may be relatively more effective in improving therapists' knowledge of EBP, ability to apply the knowledge, and ability to demonstrate an evidence-based skill, compared to its influence on therapists' use of skills in practice. It was concluded that IBT can improve therapists' competence in delivering psychologically-informed evidence-based practice, however further high-quality studies are required to determine how IBT could contribute to the wider-dissemination of evidence-based practice.

The second section of the thesis reports a before-after study of the effect of IBT to help clinicians to prompt their clients to form implementation intentions, or 'if-then' plans. Clinicians were invited to complete a video-based IBT programme in 'if-then' planning. Clinical competency was measured before and after training and 28-days later. Eighty-seven clinicians consented to the study and completed demographic

questionnaires. Thirty-five clinicians completed IBT and follow-up outcome measures. Findings from intention-to-treat analysis indicated that IBT improved clinicians’ knowledge and use of ‘if-then’ planning, with these improvements maintained at 28-day follow-up. Clinicians’ average use of 'if-then' planning increased from 0.55 to 1.01 times per month. Clinicians’ knowledge concerning the appropriate application of ‘if-then’ planning was maintained from post-training to 28-day follow-up. It was concluded that IBT can improve clinicians’ clinical competency in ‘if-then’ planning, however further research is needed to determine its impact on some aspects of clinical competency (e.g., therapists’ ability to demonstrate the skill).

Taken together, the two studies contribute to the evidence-base supporting the use of IBT for disseminating evidence-based practice. IBT is a cost-effective, accessible and scalable means of training clinicians, and therefore may help to overcome barriers to the wider-dissemination of evidence-based treatments. The findings do, however, highlight the need for further high-quality studies to be conducted in this area, which use standardised and objective assessments of clinical competency, and compare IBT to other training methods (e.g., face-to-face training).

Acknowledgements

Firstly, I would like to thank all the people who took the time to participate in this study, and the organisations and colleagues who supported recruitment to the project. Thank you to my supervisors, Dr Thomas Webb and Professor Gillian Hardy, who provided me with much valued guidance and expertise. Thank you too, Paulina Gonzalez, for your commitment to helping develop the materials used in the training programme.

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List of Contents

Section One: Literature Review

Internet-Based Training for Psychologically-Informed Evidence-Based Interventions: A Meta-Analysis

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Abstract

Objectives

The aim of this review was to examine the effect of internet-based training (IBT) in psychologically-informed evidence-based interventions on the clinical competency of therapists working in mental health settings.

Methods

A systematic search of Psychinfo, Medline, Scopus, and ProQuest databases was conducted in November 2017. Studies were required to: (a) be published in English, (b) have an experimental design, (c) involve less than 3 hours of in-person contact, (d) report a quantitative measure of clinical competency post-training, (e) have a sample consisting of more than 80% trainee or qualified mental health professionals, and (f) report sufficient data to enable calculation of an effect size. A random-effects meta-analysis was used to estimate the effect of IBT on clinical competency in psychologically-informed evidence-based practice.

Results

Thirteen relevant studies were identified for inclusion with a total sample size of $N = 738$. The mean inverse variance weighted effect of IBT on overall clinical competency was $d_+ = 0.53$ (95% CI [0.24, 0.81]). Sub-analysis indicated that IBT had a (i) medium-sized positive effect on knowledge ($d_+ = 0.50$, 95% CI [0.14, 0.86]), (ii) a large-sized positive effect on therapists' ability to apply the knowledge ($d_+ = 0.84$, 95% CI [0.19, 1.48]), (iii) a medium-sized positive effect on therapists' ability to demonstrate the skill ($d_+ = 0.57$, 95% CI [0.24, 0.89]), and (iv) a small effect on therapists' use of the skill in practice ($d_+ = 0.19$, 95% CI [-0.06, 0.43]).

Conclusions

IBT can improve therapists' competence in delivering psychologically-informed evidence-based practice. The findings of the review should, however, be interpreted

with caution due to the relatively small number of studies included in the review. Further high-quality studies that examine the efficacy of IBT on clinical competency are required to determine how IBT could contribute to the wider-dissemination of evidence-based practice.

Practitioner Points

Clinical Implications

- IBT may help to overcome barriers to disseminating psychologically-informed evidence-based practice to therapists working in mental health settings.
- IBT may be relatively more effective in improving therapists' knowledge, ability to apply the knowledge, and ability to demonstrate evidence-based skill, compared to its influence on therapists' use of evidence-based skills in practice.

Limitations of the Review

- The findings of this review are based on a limited number of studies, particularly concerning the analysis of therapists' ability to apply the knowledge ($k = 1$, $n = 40$), and therefore should be interpreted with caution.
- Clinical competency was predominantly assessed using non-standardised self-report measures.
- Studies predominantly included psychologists and counsellors. Therefore, the findings may not represent the effect of IBT with other professionals (e.g., occupational therapists and mental health nurses).

Introduction

Although considerable progress has been made in the development and evaluation of evidence-based psychological treatments, the dissemination of such treatments has proven challenging (Kazdin, 2017). A major barrier to dissemination and implementation of evidence-based psychological treatments is the shortage of therapists that are competent in its delivery (McHugh & Barlow, 2010). Even when people access empirically supported psychotherapy, it is often delivered sub-optimally (Shafran et al., 2009). Wang et al. (2005) found that only 32.7% of clients who have access to mental health services and meet criteria for a mental health disorder were receiving treatment that was 'at least minimally adequate' (p. 631). With increasing demand for psychological therapies, effective and scalable approaches to training therapists, to have the knowledge and skills, to competently deliver evidence-based psychological interventions are required (Fairburn & Patel, 2014).

What is Clinical Competency in Psychological Therapy?

Barber, Sharpless, Klostermann and McCarthy (2007) differentiated between 'global competence' and 'limited-domain competence', with the former referring to a trait that pervades therapists' overall approach to clinical intervention. In contrast, limited-domain competence concerns the competence expressed within a specific intervention or approach (e.g., cognitive-behavioural therapy for psychosis). The dissemination of evidence-based psychological treatments is concerned with the effective delivery of interventions to alleviate psychological difficulties rather than other more global skills (e.g., clinical assessment). Miller (1990) proposed a four-level hierarchical framework of competency assessment focused on a therapist's: (a) knowledge concerning the skill, (b) ability to apply the knowledge, (c) ability to demonstrate the skill, and (d) use of the skill in practice. Muse and McManus (2013) recently adopted this model of clinical competence in their systematic review of the

literature concerning the assessment of clinical competency in cognitive-behavioural therapy (CBT). The review identified a range of instruments used within the literature, including multiple choice questionnaires, clinical vignettes, and standardised role plays, that assessed each level of competence outlined by Miller (1990).

How are Therapists Being Trained to Implement Evidence-Based Psychological Treatments?

Availability and access to training in evidence-based psychological treatments often falls short of the demand and need for training within mental health services (Fairburn & Wilson, 2013). Typically, therapists are trained in psychological treatments using a two-phase approach. Firstly, therapists attend a face-to-face expert-led workshop(s), followed by practicing the treatment under the supervision of an expert (Beidas & Kendall, 2010). However, this approach to training is time and resource intensive. Furthermore, challenges in up-scaling this approach (e.g., having a sufficient number of expert trainers) has resulted in current demand for training not being met. In an attempt to overcome such problems, organisations have utilised the "train the trainer" model, where an expert trains a number of therapists to deliver training, who subsequently train other therapists to become trainers; thus creating a snowball-effect. Although this approach has been shown to be effective (e.g., in training therapists to deliver CBT for panic disorder; Wade, Treat, & Stuart, 1998), it is slow to expand and is still a relatively costly approach (Fairburn & Wilson, 2013).

Internet-Based Training for Evidence-Based Psychological Treatments

Some authors have proposed that internet-based training (IBT) may offer a much needed solution to overcoming the limitations of face-to-face training methods (Cucciare, Weingardt, & Villafranca, 2008; Fairburn & Cooper, 2011; Khanna & Kendall, 2015). Fairburn and Cooper (2011) differentiated between 'internet-enhanced training' and 'internet-alone training'. The former relating to a training package that

begins with the core training material being delivered online followed by clinician-delivered case supervision, and the latter referring to trainees obtaining their entire training from the IBT package. In both cases IBT was considered scalable and was predominantly delivered online. Despite scalability being a key advantage of IBT, consensus regarding what qualifies 'scalable IBT' has not yet been established. Fairburn and Cooper (2011) emphasised that IBT that involves less external input are more scalable, with internet only training being "[…] far less costly than conventional training. It would also be immensely scalable." (p. 376). However, authors also hypothesised that internet-only training may be less effective than 'internet-enhanced training' (i.e., IBT plus clinician-delivered case supervision) due to the lack of case supervision. IBT can also be experienced as 'impersonal' if trainees do not have contact with a trainer (Khanna & Kendall, 2015). Thus, the literature suggests that there needs to be a balance between the scalability of training and contact with trainers.

In addition to scalability, IBT offers a range of possible advantages over traditional training approaches including: (a) increased flexibility, (b) opportunities to deliver information both didactically and interactively, (c) consistency in quality, and (d) potential for remote ongoing supervision/consultation (Khanna & Kendall, 2015). IBT is, however, challenged by difficulties retaining trainees during follow-up sessions (i.e., high attrition rates; Bawa, 2016).

The Effect of Internet-Based Training on Clinical Competency

The effect of IBT has been examined within the wider-context of training healthcare professionals. A meta-analysis of 130 experimental and non-experimental studies indicated that IBT was associated with large effects on knowledge (Hedges g = 1.00), skills (Hedges g = 0.85) and learner behaviours and patient effects (Hedges g = 0.82) compared to no intervention (Cook et al., 2008). Furthermore, results suggested that IBT was equivalent to non-internet instructional methods. Jackson, Quetsch,

Brabson and Herschell (2018) conducted a systematic review of 45 studies examining the effectiveness of IBT for mental health clinicians. The review characterised the methodological features of studies and identified that the majority used a pretest-posttest design which are vulnerable to threats to internal-validity (e.g., practice-effects). Another proportion of the studies used a more rigorous randomised clinical trial design that included blinded assessments, clearly defined inclusion/exclusion criteria, comparison-group, and appropriate sample size. The latter studies could assess the efficacy of IBT more accurately by controlling for confounding variables (e.g., attention effects). Furthermore, Jackson et al. (2018) reported that the outcomes of IBT were typically measured using non-standardised behavioural observation and/or clinician-report measures (e.g., Dimeff et al., 2009, used a questionnaire to assess knowledge and structured role play to assess the impact of IBT in dialectical behaviour therapy skills). Overall, results from their qualitative synthesis found that IBT was generally associated with increases in knowledge, skill, and use of evidence-based practices. However, results concerning the relative effectiveness of web-based training to other methods (e.g., face-to-face training) were inconsistent. The majority of studies suggest that IBT was comparable to face-to-face training, however several studies (e.g., Rawson et al., 2013) reported that face-to-face training was superior to IBT. In summary, IBT may have a positive effect on clinical competency, however there is significant variance in the findings of studies.

What Causes Inconsistency in Study Findings?

The causes of variance in the effectiveness of IBT for mental health clinicians are yet to be identified. One approach to exploring heterogeneity among studies is to systematically synthesise research findings and conduct sub-group analysis using meta-analysis (Borenstein, Hedges, Higgins, & Rothstein, 2009). Results from Cook et al.'s (2008) meta-analysis of IBT for healthcare professionals indicate that heterogeneity in

study findings may be related to a range of variables including: participant characteristics, the nature of the training, and study characteristics (e.g., quality, comparator used, and attrition rates). Due to differences in the competencies required to effectively deliver mental health interventions compared to physical health treatments, an independent examination of study variance is justified (Barber et al., 2007; Wass, Van der Vleuten, Shatzer, & Jones, 2001; Watson, Stimpson, Topping, & Porock, 2002).

The Current Review

In summary, there is an increasing need to establish scalable and effective methods to provide training in evidence-based psychologically-informed treatments. The extant literature has suggested that IBT may provide a solution to improving clinical competence in mental health staff. However, recent systematic reviews of IBT for mental health professionals have indicated heterogeneity in findings. The current study aims to: (i) statistically characterise the average size of the effect of IBT on overall clinical competency, (ii) characterise the average size of the effect of IBT on different levels of clinical competency as outlined by Miller (1990), and (iii) examine variables that may influence the effect of IBT on clinical competency (i.e., participant characteristics, training variables, and study characteristics).

Method

Search Strategy

Electronic databases (PsychInfo, Medline, Scopus, and ProQuest) were searched using three filters (see Table 1) combined using the Boolean operator 'OR', and the operator 'AND' to combine filters. The Boolean search modifier '*' was used on selected filters to search for any word that begins or ends with the truncated search term. The reference lists of included papers, following the full text assessment, were examined for further relevant studies.

Table 1

Filters and Search Terms Used in Search Strategy

Filter 1: Intervention type	Filter 2: Intervention focus	Filter 3: Population
• Internet-based training • Online information • Online learning • Online education • Online-training • Online-information • Online-learning • Online-education • Internet-based training • Internet-based learning • Internet-based information • Internet-based education • Web-based training • Web-based information • Web-based learning • Web-based education • Technology-based • E-learning • Elearning	• Mental health • Anxiety • Depression	• *Therapist • Clinician • *Psychologist • Mental Health Professional • Practitioner

Eight criteria had to be satisfied for studies to be suitable for inclusion:

1. Published in English.
2. Published between database inception to November 2017.
3. Have an experimental research design (e.g., randomised controlled trial).
4. The intervention was designed to improve clinical competence in a psychologically-informed therapeutic technique or intervention (e.g., CBT).

5. The intervention was predominantly delivered online and involved less than 3 hours of contact (e.g., studies involving participants who accessed training via a CD or in laboratory-settings were excluded).
6. Reported a quantitative measure of clinical competency post training. his measure needed to assess at least one of the four levels of clinical competency outlined by Miller (1990): (a) 'knows', knowledge of theory, (b) 'knows how', knowledge in how to use the technique or intervention, (c) 'Shows how', abilities to demonstrate the technique or intervention, and (d) 'Does', practical application of the technique or intervention. Figure 1 provides a summary of the types of clinical competency assessment.
7. More than 80% of participants were (a) currently working as a licensed mental health professional, (b) a graduate student in a mental-health related field, and/or (c) a trainee working toward licensure to work as a mental health professional.
8. Sufficient data to enable calculation of an effect size reflecting the effect of training (relative to a suitable comparison condition) on clinical competency.

Screening

Figure 2 illustrates the flow of studies through the systematic review. The title and abstract of articles (k = 6,495) returned from database searches were screened for relevance. The full texts of 66 articles were examined and 53 did not meet inclusion criteria. Twenty-eight studies (42.43%) were rejected because the training programme evaluated was not predominately online or had more than 3 hours contact with trainers (e.g., Fairburn, Allen, Bailey-Straebler, O'Connor, & Cooper, 2017, offered participants more than 3 hours of telephone contact). Twenty-five studies (37.88%) did not use an experimental design (e.g., Wainer & Ingersoll, 2011, did not include a comparison group). One study (1.52%) was a research protocol (Ruzek et al., 2012). No studies were rejected because they were published in a language other than English.

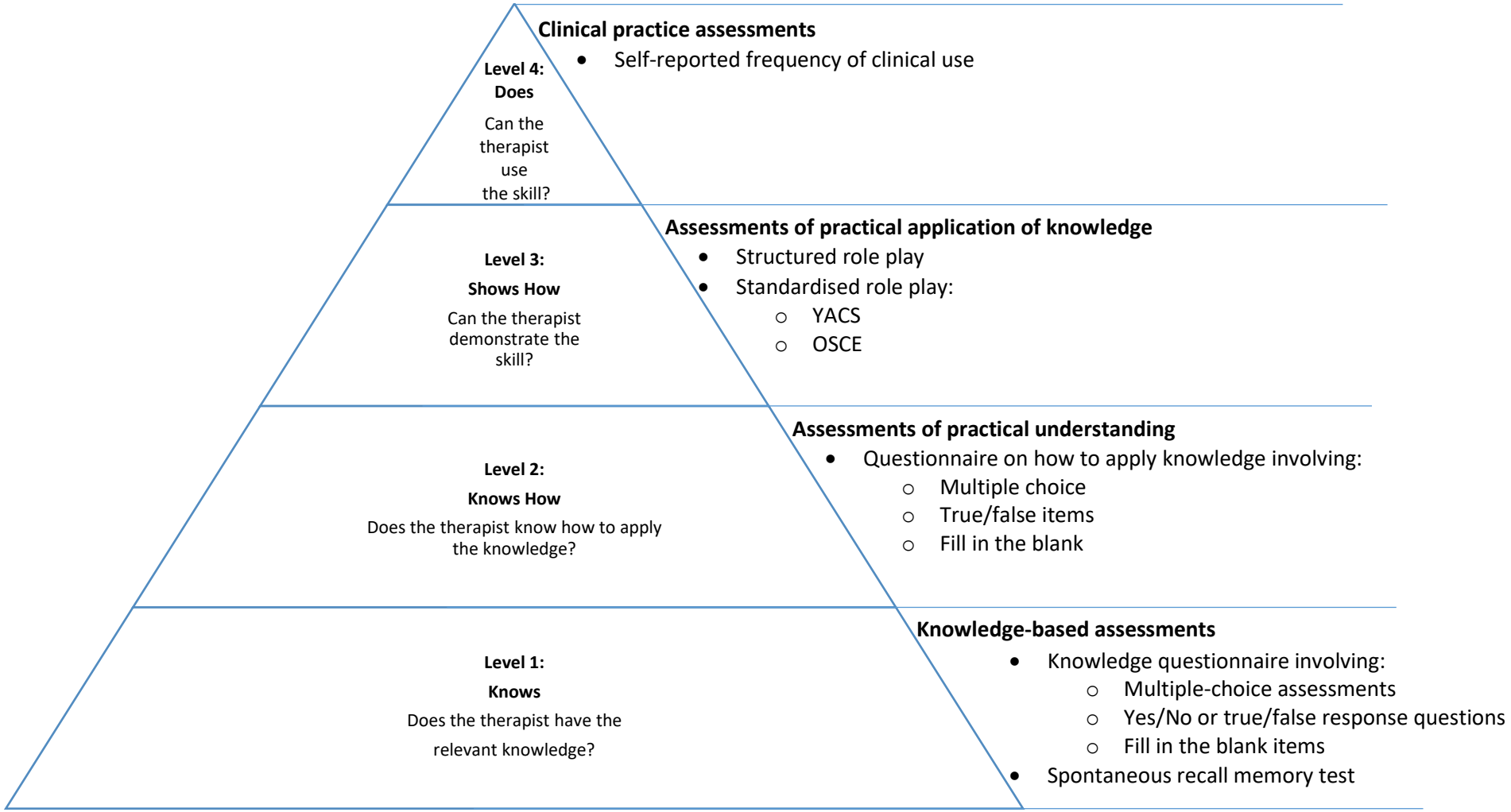

Figure 1. Outcome measures reported in studies, based on Miller's (1990) and Muse and McManus' (2013) frameworks. OSCE = Objective Structured Clinical Exam (Newble, 2004); YACS = The Yale Adherence Competence Scale (Carroll et al., 2000)

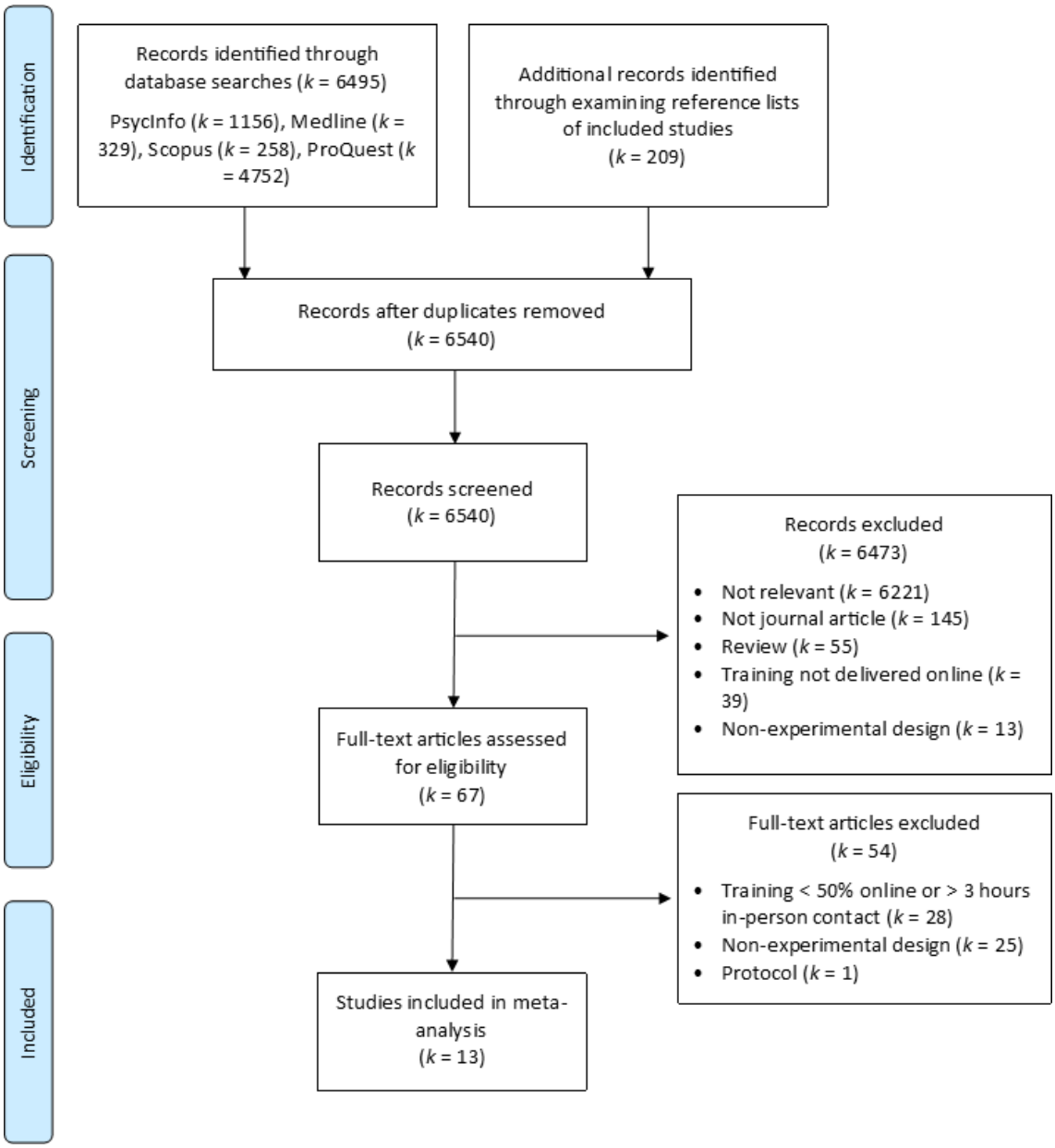

Figure 2. PRISMA diagram of record selection process (adapted from Moher, Liberati, Tetzlaff, Altman, & The PRISMA Group, 2009)

Thirteen studies (k = 13) with a total of 738 (N = 738) participants were included in the review. All of the studies were randomised controlled trials except for the study by Sholomskas et al. (2005) which was a non-randomised control trial. Table 2 shows information regarding each included study ordered alphabetically by author. Table 2 also summarises participants' country of origin, profession, sample size, training topic, comparator type and delivery method, clinical competency outcome(s), lengths of follow-up, quality rating score and effect size (Cohen's *d*) of each study.

Data Extraction and Assessment of Quality

The following data was extracted from each article: (a) Participant characteristics (e.g., level of education, profession, and months of clinical experience), (b) nature of the training programme (e.g., duration of training), (c) effect of the intervention on outcomes assessing clinical competency, (d) study characteristics (e.g., sample size, study design, randomisation, length of follow-up, and attrition rate of experimental group). Attrition rate was calculated by dividing the number of participants lost at follow up by the number of participants allocated to IBT, and multiplying by 100. The nature of the comparison condition was also extracted and categorised into: (i) Active – isolating, which referred to comparisons that isolated the effect of IBT by controlling for time and attention effects by delivering training equivalent in duration and delivery method (e.g., IBT on a different topic); (ii) Active – alternative training, which referred to an alternative training approach which varied in duration and/or delivery method; (iii) Treatment manual, which referred to unguided access to treatment manual or information; (iv) Passive, which referred to no additional training.

The methodological quality of studies was assessed using The Critical Appraisal Skills Programme assessment tool for randomised controlled trials (CASP; Critical Appraisal Skills Programme, 2017; Appendix A). CASP assessment tools assess the applicability, reliability, and validity of studies based on their methodological design. Studies were rated 'yes', 'can't tell' or 'no' on a range of criteria, and were assigned values of 2, 1 and 0 respectively. Scores were totalled to provide an overall assessment of risk of bias and a quality rating score ranging from 0 to 18. Assessment of the methodological quality of studies provided a summary of the quality of studies conducted within this subject area and contributed to the author's interpretation of results (i.e., assessment of whether results were unduly influenced by study design

Table 2

Summary of the Characteristics and Effect Sizes of Included Studies

Author (year)	Country	Profession	n_e	n_c	Training topic and *details of specific area*	Nature of the comparison group	Comparator delivery method	Clinical competency outcome (competency level) assessment type	Follow-up length (weeks)	Quality rating score	*d*
Cooper et al. (2017)	USA and Canada	Psychologist	33	45	CBT *for eating disorders*	Active – alternative	IBT plus telephone support (up to 6 hours)	(1) Knowledge questionnaire	26.0	14	-0.12
Dimeff et al. (2015)	USA	Counsellor	31	45	DBT *for borderline personality disorder*	Active – alternative	Instructor-led training	(1) Knowledge questionnaire (3) Structured role play (4) Self-report frequency of clinical use	12.9	14	0.23
Dimeff et al. (2009)	USA	Psychologist	34	36	DBT skills	Treatment manual	Treatment manual	(1) Knowledge questionnaire (3) Structured role play	12.9	14	0.43
Hagermoser (2016)	USA	Counsellor	14	17	Individual and group delivered CBT (Coping Cat intervention) *for anxious youth*	Passive	Waiting list	(1) Knowledge questionnaire	4.0	11	1.43
Harned et al. (2011)	USA	Counsellor	14	15	Exposure therapy	Active – isolating	IBT on different topic	(1) Knowledge questionnaire (4) Self-report frequency of clinical use	1.0	14	1.15

Table 2

(*continued*)

Author (year)	Country	Profession	n_e	n_c	Training topic and *details of specific area*	Nature of the comparison group	Comparator delivery method	Clinical competency outcome (competency level) assessment type	Follow-up length (weeks)	Quality rating score	*d*
Henggeler et al. (2013)	USA	Counsellor	52	53	Contingency management *for substance abusing adolescents*	Active – alternative	IBT plus workshop, telephone consultations, booster sessions and supervision.	(1) Knowledge questionnaire (4) Self-report frequency of clinical use	52.0	14	0.27
Hubley et al. (2015)	USA	Psychologist	33	16	Behavioural activation	Active – isolating	IBT on a different topic	(1) Knowledge questionnaire (1) Spontaneous recall memory test on topic knowledge	1.0	14	2.04
Leathers and Strand (2013)	USA	Social worker	9	9	Evidence-based practice *for children's mental health disorders*	Treatment manual	Unsupported access to online materials	(1) Knowledge questionnaire	12.0	12	-0.10
Pasquariello (2013)	USA	Psychologist	20	20	Physical activity counselling	Passive	Training as usual	(1) Knowledge questionnaire (2) Ability to apply knowledge questionnaire	0.0	13	0.05
Quinn (2004)	USA	Social worker	14	19	Principles of behaviourism	Passive	Reading list	(1) Knowledge questionnaire	0.0	14	0.19

Table 2

(*continued*)

Author (year)	Country	Profession	n_e	n_c	Training topic and *details of specific area*	Comparator type	Comparator delivery method	Clinical competency outcome (competency level) assessment type	Follow-up length (weeks)	Quality rating score	*d*
Rakovshik et al. (2013)	Russia	Psychologist	31	32	CBT	Passive	Delayed training	(3) Standardized role-play assessed using the OSCE	4.0	16	0.92
Ruzek et al. (2014)	USA	Not reported	46	51	Cognitive behavioural intervention skills *for PTSD treatment providers*	Passive	Training as usual	(1) Knowledge questionnaire (3) Structured role play (4) Self-report frequency of clinical use	0.0	16	0.38
Sholomskas et al. (2005)	USA	Not reported	25	24	CBT	Treatment manual	Treatment manual	(1) Knowledge questionnaire (3) Role play assessed using YACS	21.0	13	0.58

CBT = Cognitive-behavioural Therapy; DBT = Dialectical behavior therapy; IBT = Internet-based training; n_e = Number of participants in experimental group; n_c = Number of participants in comparison group; OSCE, Objective Structured Clinical Exam (Newble, 2004); YACS, The Yale Adherence Competence Scale (Carroll et al., 2000)

and/or methodology). Because scales of quality assessments do not account for the different weightings of times or the direction of bias, use of quality scale scores within statistical analysis is not recommended (Greenland, 1994; Jüni, Witschi, Bloch, & Egger, 1999). Therefore, the impact of different aspects of study quality (i.e., randomisation, attrition rate of experimental group) were considered individually within the meta-analysis. Table 3 provides a summary of the definitions of moderator variables included in moderator analysis.

An independent trainee clinical psychologist, blind to the author's coding, extracted data (except for effect size data) for 4 (30.77%) of the included papers. Agreement on ratings was examined by calculating percentage agreement on all codes, and a Cohen's Kappa coefficient (Cohen, 1960) regarding categorical-ratings on quality assessment. Agreement was acceptable (82.50%), with 80% agreement recommended as the minimum acceptable interrater agreement (McHugh, 2012). Cohen's Kappa coefficient (κ) was 'substantial' ($\kappa = .61$, $p < .001$) according to Landis and Koch's (1977) criteria. Disagreements in ratings were resolved through discussion and the final coding was agreed.

Meta-Analytic Strategy

For all but two studies (Rakovshik et al., 2013; Sholomskas et al., 2005) effect sizes were calculated from means and standard deviations reported in text. Where mean and standard deviations were not reported, test statistics (e.g., *F*-ratios) were converted into Cohen's *d* using The LyonsMorris Meta-Analysis Calculator (Lyons, 1998). Effect sizes were calculated separately for each clinical competency outcome based on the furthest post-training data point available. This procedure enabled data to be gathered to assess the durability of the effect of IBT on clinical competency. Where there were multiple assessments per level of competency (e.g., two assessments of knowledge), effect sizes were averaged to create one effect size per level. This procedure captured

Table 3

Summary of the Definitions of Moderator Variables Included in Analysis

Moderator	Definition
Participant characteristics	
Profession	A paid mental-health related occupation, that involves formal qualification or a period (more than 2-years) of university-delivered training.
Clinical experience	The total amount of time (months) that clinicians have been delivering therapy to individuals experiencing mental health difficulties.
Intervention and study characteristics	
Duration of IBT	The maximum amount of time that participants could access the IBT programme.
Nature of the comparison condition	(i) Active – isolating; study designs that compared IBT to training equivalent in duration and delivery method (e.g., IBT on a different topic) (ii) Active – alternative training; study designs that compared IBT to an alternative training approach which varied in duration and/or delivery method. (iii) Treatment manual; study designs that compared IBT to unguided access to treatment manual or information. (iv) Passive, study designs that compared IBT to no additional training.
Length of follow-up	The amount of time (in weeks) that elapsed between completing the IBT and the final assessment.
Attrition rate	The percentage of participants allocated to IBT that did not complete follow up assessment.

IBT = Internet-based training.

the richness of the data, whilst ensuring the independence of effect sizes, which is central to meta-analysis. Once effect sizes for each level were calculated, effect sizes across all four levels were then averaged to provide an overall estimate of the effect of the IBT on clinical competency.

Where studies compared two or more groups that received IBT and compared these to a control group, the intervention with the least face-to-face contact with trainers and/or the longest duration of IBT was included. Where a group that received IBT was compared to two or more comparator groups, the comparator with the least IBT and/or the shortest total duration was included. Studies with small sample sizes (e.g., Leathers & Strand, 2013, recruited just 18 participants) have an upward bias compared to studies with larger samples. Therefore, in line with Lipsey and Wilson (2001), a correction was performed and effect sizes were weighted based on inverse variance (d_+). Mean effect sizes were combined using a random effects model because it was probable that studies were 'different from one another in ways too complex to capture by a few simple study characteristics' (Cooper, 1986, p. 526). The standard error of *d* and 95% confidence interval of effect sizes were calculated using the equations detailed in Appendix B. The data was examined for outliers through visual inspection of forest plots. Homogeneity analysis was performed on effect sizes using Cochran's Homogeneity *Q* statistic. The *Q* statistic was used to assess whether the variability in effect sizes exceeds what would be expected based on sampling error (i.e., whether studies are likely to be estimating different population mean effect sizes). Publication bias was examined visually by drawing a funnel plot and statistically analysed using Egger's regression (Egger, Davey Smith, Schneider, & Minder, 1997).

The impact of moderator variables was analysed by modelling for variance in effect sizes using an analog to ANOVA for categorical variables and weighted least squares regression for continuous or discrete variables. Moderator analysis was performed using all continuous and categorical variables, provided that there were at least two studies that represented each level of the moderator (e.g., the moderating effect of 'country of origin' and 'randomisation' were not assessed due to too few studies on each level). Analysis of participants' profession was limited to comparing

studies recruiting psychologists and counsellors only, as two studies did not report participants' professional status and only one study reported another level (i.e. social worker) on this moderator variable. The moderating impact of the following participant, intervention, study and methodological variables were analysed: (a) participants' level of education, (b) participants' profession, (c) participants' clinical experience, (e) duration of IBT, (d) nature of the comparison group, (f) length of follow-up, and (g) attrition rate of experimental group. The Q statistic was examined to determine whether significant variability in effect sizes was explained by the categorical moderator variable, or to assess the relationship between effect sizes and continuous or discrete moderators. Post-hoc analysis was conducted, for analysis comparing categorical moderator variables, using *Z*-tests to examine differences between mean effect sizes of categorical groups. The potential risk of moderator variables (e.g., attrition rates) being confounded by other study features (e.g., length of follow-up; Lipsey & Wilson, 2001) was explored by examining relationships between all included moderator variables using Spearman's Rho. Correlations were interpreted using Hinkle, Wiersma and Jurs' (2003) guidelines, with r = .00 - .30 indicating 'negligible', r = .30 - .50 indicating 'low', r = .50 - .70 indicating 'moderate', r = .70 - .90 indicating 'high' and, r = .90 - 1.0 indicating "very high" correlation between variables. The statistical analysis was conducted using the SPSS macros developed by Wilson (2005). Effect sizes were interpreted using Cohen's (1992) "rules-of-thumb", with d = 0.20 indicating 'small', d = 0.50 indicating 'medium', and d = 0.80 indicating 'large' effect sizes. The widely used alpha threshold of 0.05 was used to determine statistical significance (Borenstein et al., 2009).

Results

The Effect of IBT on Overall Clinical Competency

The effect sizes from the primary studies ranged from d = -0.12 to 2.01. The mean inverse variance weighted effect size was d_+ = 0.53, 95% CI [0.24, 0.81]. These findings indicate that IBT had, on average, a medium-sized effect on overall clinical competence. Visual inspection of a forest plot of effect sizes (see Figure 3) indicated that there were no outliers. The homogeneity analysis was significant, $Q(12) = 40.18$, $p < .001$, indicating that there was significant variance between the effect sizes from the primary studies.

Quality assessment. The quality assessment results ranged from 11 to 16 (M = 13.77, SD = 1.36) within a possible range of 0 to 18. Appendix C provides the scores for each study on each item.

Publication bias. A funnel plot (see Figure 4), illustrating the distribution of effect sizes against the standard error of the pooled effect size estimate, showed signs of asymmetry. However, an Egger's regression suggested that significant publication bias was not present (p = .182). Further analysis indicated that publication status did not moderate the effect of IBT on overall clinical competency, $Q(1) < 0.01$, p = .945, with published studies reporting similar effect sizes (d_+ = 0.54) to unpublished studies (d_+ = 0.51). Taken together, these findings suggest that publication status did not have a significant impact on the effect sizes from the primary studies.

The Effect of IBT on the Different Levels of Clinical Competency

Sub-group analyses were conducted to examine the effect of IBT on different levels of clinical competency, as described by Miller (1990). See Figure 1 for a summary of the types of assessments reported by studies.

Level 1: 'Knows': Does the therapist have the relevant knowledge? Twelve studies (n = 675) assessed the impact of IBT on participants' knowledge. Effect sizes ranged from

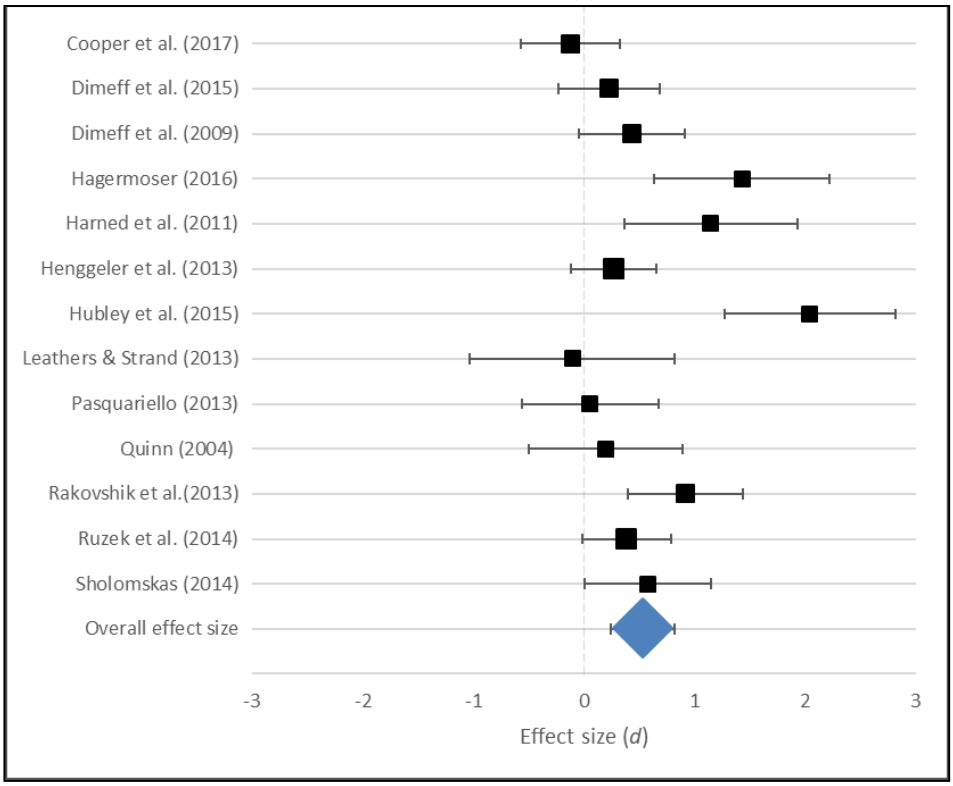

Figure 3. Forest plot presenting the effects of internet-based training on overall clinical competency. Marker size is relative to study weighting.

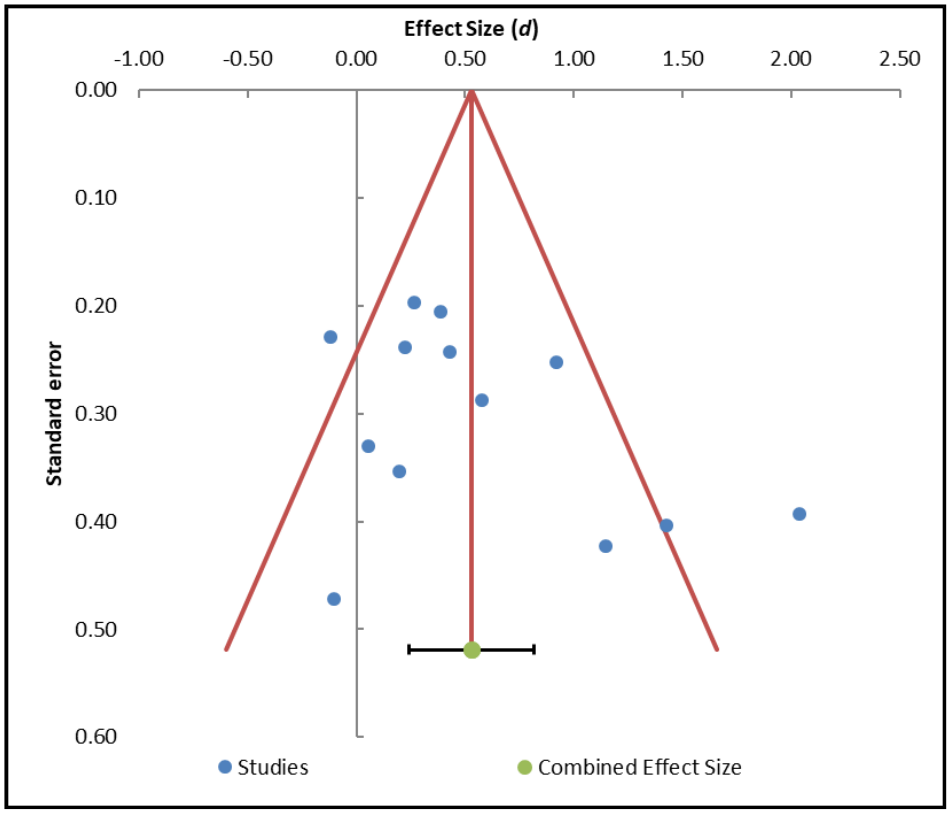

Figure 4. Funnel plot of effect sizes for all included studies.

d = -0.85 to 2.04. The mean inverse variance weighted effect size was d_+ = 0.50, 95% CI [0.14, 0.86], which indicates that IBT had a medium-sized effect on clinical competency level 1. The homogeneity analysis was significant, $Q(11) = 53.00$, $p < .001$, indicating significant variance between study effect sizes.

Level 2: 'Knows how': Does the therapist know how to apply the knowledge? Only one study (n = 40; Pasquariello, 2013) assessed the impact of IBT on participants' ability to apply knowledge, precluding sub-group analysis at clinical competency level 2. Pasquariello (2013) found an effect size of d_+ = 0.84, 95% CI [0.19, 1.48], of IBT on the clinical competency level 2 'Knows how'.

Level 3: 'Shows how': Can the therapist demonstrate the skill? Four studies (n = 285) assessed the impact of IBT on participants' ability to demonstrate skill related to the training topic. Effect sizes ranged from d = 0.25 to 0.92. The mean inverse variance weighted effect size was d_+ = 0.57, 95% CI [0.24, 0.89], which indicates that IBT had a medium-sized effect on level 3 clinical competence. Homogeneity analysis was nonsignificant, $Q(3) = 5.34$, $p = .148$, indicating that the effect sizes were homogeneous.

Level 4: 'Does': Can the therapist use the skill in practice? Five studies (n = 184) assessed the impact of IBT on participants' use of the skill related to the training topic. Effect sizes ranged from d = -0.15 to 0.73. The mean inverse variance weighted effect size was d_+ = 0.19, 95% CI [-0.06, 0.43], which suggests that IBT had a small-sized effect on level 4 clinical competence. Homogeneity analysis was nonsignificant, $Q(4) = 4.95$, $p = .293$, indicating that the effect sizes were homogeneous.

Moderators of the Effect of IBT on Overall Clinical Competency

Table 4 presents results examining correlations between moderator variables. Strength of correlations ranged from between r = .00 'negligible' and r = .77 'high'.

Table 4

Summary of Intercorrelations Between Moderator Variables

Moderator variable	1 (*k*)	2 (*k*)	3 (*k*)	4 (*k*)	5 (*k*)	6 (*k*)	7 (*k*)
1. Participants' level of education	-						
2. Profession	**-0.45** (8)	-					
3. Clinical experience	a (7)	-0.29 (6)	-				
4. Duration of IBT	0.00 (9)	**-0.49** (9)	**-0.38** (8)	-			
5. Nature of comparison group	**0.54** (11)	**-0.68** (10)	**-0.38** (8)	**0.36** (11)	-		
6. Length of follow-up	0.08 (11)	**-0.48** (10)	**-0.42** (8)	**0.77** (11)	**0.69** (13)	-	
7. Attrition rate	0.22 (11)	-0.22 (10)	**-0.71** (8)	**0.50** (11)	**0.31** (13)	0.23 (13)	-

Note. Correlations > .30 are in boldface.
IBT = internet-based training. a = Correlations could not be computed because, due to missing values, participants' level of education was constant.

Participant characteristics

Participants' level of education. Effect sizes were not significantly different between studies recruiting participants whose highest level of education was, on average, an undergraduate degree (d_+ = 1.12, k = 2, n = 94) relative to studies recruiting participants whose highest level of education was, on average, a post-graduate degree (d_+ = 0.51, k = 9, n = 533), $Q(1) = 2.79$, $p = .095$.

Profession. Effect sizes were not significantly different between studies recruiting counsellors (d_+ = 0.47, k = 3, n = 210) versus those recruiting psychologists (d_+ = 0.70, k = 6, n = 331), $Q(4) = 2.11$, $p = .716$.

Clinical experience. Studies (k = 8, n = 474) recruited participants with an average of between 72.00 and 145.90 weeks (M = 99.24, SD = 29.01) of clinical experience. Variance in study effect sizes were significantly related to participants' clinical experience ($Q(1) = 5.11$, $p = .024$), indicating that participants with more experience tended to benefit more from training ($\beta = 0.56$, $z(1, 8) = 2.26$, $p = .024$).

Intervention and study characteristics

Duration of IBT. Studies (k = 11, n = 610) ranged in duration of IBT from 19 to 2300 minutes (M = 569.45, SD = 695.14). A weighted least squares regression analysis revealed that the duration of IBT was not significantly related to effect sizes ($R^2 = 0.01$, $z(1, 10) = -0.36$, $p = .719$) and did not account for differences in effect sizes between studies, $Q(1) = 0.13$, $p = .719$.

Nature of the comparison condition. Effect sizes were significantly different between studies using passive (d_+ = 0.53, k = 5, n = 264), treatment manual (d_+ = 0.41, k = 3, n = 137), active – isolating (d_+ = 1.60, k = 2, n = 78), and active – alternative (d_+ = 0.14, k = 3, n = 259) comparison conditions, $Q(3) = 23.38$, $p < .001$. Passive ($z = 2.92$, $p = .004$) and active-isolating ($z = 4.54$, $p > 0.001$) groups were significantly larger than treatment manual and active – alternative comparison conditions.

Length of follow-up. Studies (k = 13, n = 738) ranged in length of follow-up from 0 to 52 weeks (M = 11.29, SD = 14.93). Effect sizes were not significantly related to length of follow-up (R^2 = 0.12, z(1, 12) = -1.37, p = .171) and the length of follow-up did not significantly account for differences in effect sizes between studies Q(1) = 1.89, p = .171.

Attrition rate. The rate of attrition from the experimental group at follow-up ranged from 0% to 56% of the original sample (k = 13, n = 738, M = 21.48, SD = 21.14). Variance in study effect sizes were significantly related to attrition rates Q(1) = 4.57, p = .033, and studies with higher attrition rates tended to report smaller effect sizes (β = -0.45, z(1, 12) = -1.97, p = .049).

Discussion

Summary of Findings

This review is the first meta-analysis of experimental studies examining the impact of IBT on clinical competency in therapists delivering psychologically-informed interventions. A previous systematic narrative review by Jackson et al. (2018) of experimental and non-experimental studies was only able to *qualitatively* synthesise findings concerning the effect of IBT on clinical competency. The present review, therefore, aimed to identify the average size of the effect of IBT on overall clinical competency and on the four levels of clinical competency as outlined by Miller (1990). Following a systematic search of the literature, 13 studies investigating the impact of IBT on clinicians' clinical competency were identified as suitable for inclusion. The effect of IBT on overall clinical competency was of a medium magnitude (d_+ = 0.53). Sub-analysis of the four levels of clinical competency indicated that IBT had a: (i) medium-sized positive effect on level 1: knowledge (d_+ = 0.50); (ii) a large-sized positive effect on level 2: therapists' ability to apply the knowledge (d_+ = 0.84); (iii) a medium sized positive effect on level 3: therapists' ability to demonstrate the skill (d_+ =

0.57); and (iv) a small-sized effect on level 4: therapists' use of the skill in practice (d_+ = 0.19). It is important to note that only one study (Pasquariello, 2013) assessed the impact of IBT on participants' ability to apply knowledge, therefore the effect of IBT on level 2 clinical competency is based on the findings of this study only. Taken together, these findings indicate that IBT can be an effective approach to disseminating psychologically-informed interventions to practitioners working in mental health settings, although also suggests that further research may be needed, especially with respect to the effects of IBT on some outcomes.

The effect of IBT on clinicians' overall clinical competence was examined for the potential moderating effects of participant, training and study characteristics. Findings indicate that participants with more clinical experience tended to benefit more from training. Counsellors and psychologists, however, benefited equally from IBT. Effect sizes did not differ between studies using training programmes of different duration, or studies using different lengths of follow-up. Study effect sizes, however, differed dependent on the type of comparison group used. Studies that compared IBT to an active comparison group, that isolated the effect of IBT by controlling for time and attention effects (e.g., provided IBT on a different topic) reported largest effect sizes, followed by passive, and then treatment manual comparison groups. Finally, studies which compared IBT to a different training approach which varied in duration and/or delivery method (e.g., instructor-led training) reported smallest effect sizes, however effect sizes remained positive (d_+ = 0.14). This finding indicates that IBT had an equivalent impact on overall clinical competency when compared to studies with more in-person contact.

Using IBT to Disseminate Evidence-Based Practice

The findings of the review provide evidence to support recent interest in disseminating EBP using IBT, and suggest that IBT may provide much needed solutions

in overcoming barriers to disseminating EBP (Cucciare et al., 2008; Fairburn & Cooper, 2011; Khanna & Kendall, 2015). These findings are in line with previous research examining the effect of IBT in other contexts (e.g., training related to medical diagnoses and intervention) on the clinical competency of health professionals. However, the size of effect found in the current review was in the medium-range compared to the large effect sizes observed of IBT on the knowledge, skills, and learner behaviours and patient effects, of health professionals (Hedges g = 1.00, 0.85 and 0.82 respectively; Cook et al., 2008). This may have been due to the exclusion of non-experimental studies (e.g., pretest-posttest design) in the present review, compared to Cook et al.'s (2008) review which consisted of 53% pretest-posttest studies. By including experimental studies only (e.g., randomised controlled trials), the present findings characterise the relative effect size of IBT compared to active (e.g., workshop training) or passive (e.g., training as usual) control groups. It is therefore not surprising that the resultant effect size is smaller than that found following non-experimental pretest-posttest comparison. However, this methodological design offers a more rigorous means of examining the cause-effect relationship between training and clinical competency by controlling for confounding variables (e.g., learners naturally developing clinical competency through their clinical practice; Morris & DeShon, 2002).

Why did Clinicians' Competence Improve to a Different Extent for the Different Levels of Clinical Competency?

Therapists benefited most from IBT in relation to the first three levels of clinical competency. Therefore, IBT may be best suited to improving therapists' knowledge concerning the skill, ability to apply the knowledge, and ability to demonstrate the skill. Whereas, it may be less effective in improving therapists' clinical practices (i.e., use of the skill in practice). The small effect of IBT on therapists' use of the skill in practice may be due to a multitude of factors. Indeed, therapists may have intended to use an

evidence-based skill in their practice following IBT, however their intentions did not result in behaviour change. This potential 'gap' between intentions and behaviour is well-evidenced within the health psychology literature, with research indicating that intentions account for just 28% of variance in behaviour (Sheeran, 2002). From a systems-contextual perspective (Turner & Sanders, 2006), change in therapist behaviour is often small due to the influence of therapist variables, organizational support, and client variables (e.g., the extent to which the EBP and a client's needs are compatible), which are often not addressed within training. Beidas and Kendall (2010) adopted this perspective in their systematic review of the literature concerning studies that both trained therapists in EBP (including internet and non-internet based methods) and measured variables outlined within the systems-contextual perspective. Findings from this review suggested that training improved clinicians' knowledge and attitudes towards EBP, however clinicians did not reach proficiency in treatment adherence, competence and skill. Therapists did, however, show greater behaviour change when they received training using active learning strategies (e.g., practice with feedback; Schoener, Madeja, Henderson, Ondersma, & Janisse, 2006). There have been a number of proposed methods in which active learning strategies could be integrated with IBT, including blending IBT with in-person and/or teleconference case supervision, and using advances in software development to create sophisticated interactive programmes (e.g., clinicians interacting with simulated-clients in a range of clinical scenarios; Fairburn & Cooper, 2011). Moreover, literature has evidenced the use of strategies, that support the translation of intentions into behaviour (e.g., 'if-then' planning or 'implementation intentions'; Gollwitzer, 1993; Gollwitzer & Sheeran, 2006), that could be integrated within IBT programmes.

How did IBT Compare to Alternative Training Methods and Passive Control-Groups?

The findings of the review indicate that clinicians benefited more from IBT than an active control group that isolated the effect of IBT by controlling for time and attention effects (e.g., IBT on a different topic), no training, and treatment manual on the same topic. These findings provide evidence to support on-going research into providing IBT to clinicians who have limited or no access to training (e.g., clinicians practicing in remote locations; Bennet-Levy & Perry, 2009). Furthermore, IBT provides a means of training clinicians who do not have the time or resources to attend other training methods (e.g., whole-day training) and thus require the flexibility and accessibility that IBT provides (Khanna & Kendall, 2015). The unexpected finding, that the effect of IBT is largest when compared to active-isolating comparison conditions, may be due to the relatively few studies that included this type of comparator ($k = 2$, $n = 78$). Therefore, further research is needed before drawing conclusions regarding the isolated effect of IBT.

The finding that the relative effect of IBT remains positive when compared to IBT delivered via a different training method (e.g., instructor-led training) is encouraging. This is in line with findings from Cook et al. (2008) who found that IBT in physical health-related topics was equivalent to non-internet instructional methods (predominantly face-to-face courses or paper modules) in healthcare professionals working in physical health settings. Taken together, this suggests that IBT may be equivalent to alternative training methods. Thus, IBT may allow clinicians to develop clinical competency in EBP to the same extent as in-person training whilst enjoying the comparative benefits of IBT including: (a) increased flexibility and accessibility, (b) cost-efficiency, and (c) consistency in the quality of training (Khanna & Kendall, 2015). Moreover, the content of an IBT programme can be easily updated with research

findings; thus reducing the time-lag between research developments in EBP and changes in clinical practice (Fairburn & Cooper, 2011; Kazdin, 2017).

Why Might Clinician Characteristics Moderate the Effect of IBT on Outcomes?

The findings of the review suggest that clinicians who were more clinically experienced benefited more from IBT. This may be due to having a wider-breadth of experience, allowing them to draw on different skills to help learn and implement the skills within IBT. Furthermore, clinicians with more clinical experience may have attended professional training programmes that were based on earlier understandings of EBP within mental health. Due to increased emphasis of EBP within current professional training programmes, it is likely that IBT for EBP may have contained more novel material for clinicians with more clinical experience compared to clinicians who have recently completed their professional training (Kazdin, 2017). The finding that counsellors and psychologists were equal in the benefits that they gained from IBT may be due to the flexibility of IBT, allowing for self-paced learning that enabled practitioners of different training backgrounds to benefit equally (Khanna & Kendall, 2015). Less experienced clinicians may benefit from being able to personalise IBT to their clinical experience and clinical competency. Providing users with optional training modules, that train clinicians in more basic and/or advanced aspects of the EBP, may improve the effectiveness of IBT.

How did Differences in the Intervention Moderate the Effect of IBT?

The present review found that training duration did not influence the effects of IBT on clinical competency. This finding may be due to different IBT programmes focusing on different topics; with each topic requiring a different duration of time to increase therapists' clinical competency. For instance, increasing therapists' skill in an evidence-based therapy, such as cognitive-behaviour therapy (e.g., Rakovshik et al.,

2013), is likely to take more time than training in a specific EBP-skill; such as exposure therapy (e.g., Harned et al., 2011).

How did Differences in the Nature of the Study Design Moderate the Effect of IBT?

High levels of attrition rate were associated with smaller effects of IBT on overall clinical competency. This is contrary to well-established evidence linking attrition rates to inflated effect sizes and Type I error (i.e., "false positive" findings; Dumville, Torgerson, & Hewitt, 2006). There is a risk that results from moderator analysis may have been confounded by intercorrelations between moderator variables and other study features (Lipsey & Wilson, 2001). For example, the moderating effect of attrition rate may have been confounded by factors that correlate with this moderator variable; such as therapists' clinical experience. The finding that effect sizes did not differ as a function of the length of follow-up indicates that the impact of IBT is durable. However, with high-correlations found between duration of training and length of follow-up, these findings also may have been confounded by methodological features of studies (Lipsey & Wilson, 2001).

Generalisability of Findings

The mean effect sizes of this review represent the average magnitude of the effect of IBT on therapists' clinical competency aggregated from thirteen studies that recruited therapists' from a variety of clinically-relevant settings. Findings are therefore more robust and generalisable than the findings of individual studies (Lipsey & Wilson, 2001). However, the primary studies predominantly recruited psychologists and counsellors, thus the findings may not be representative of the effect of IBT among other professionals (e.g., occupational therapists and mental health nurses). Furthermore, the studies included in this review predominantly focused on IBT for skills in CBT, behavioural therapy, and dialectical behaviour therapy. As such, the

findings may not apply to other psychologically-informed interventions (e.g., systemic and psychodynamic approaches). It should also be noted that the findings regarding the effects of IBT in relation to an alternative intervention were based on a relatively small number of studies (k = 3, n = 259), and may not reflect the relative effect size of IBT compared to other training methods (e.g., practice based learning approaches; Barrows, 1994). Furthermore, the current review only included studies which assessed clinical competency in relation to Miller's (1990) framework. Studies that measured other therapist outcomes (e.g., self-efficacy; Dimeff et al., 2015) and client outcomes (e.g., anxiety-symptoms) were not reviewed, and therefore results may not generalise beyond Miller's (1990) framework**.** The review identified variables that examined why the study effect sizes may differ (e.g., participant clinical experience), however studies may be influenced by variables not included in analysis (e.g., clinician attitudes towards evidence-based practice). Finally, the mean length of follow-up was 11.3 weeks, thus conclusions concerning the long-term (e.g., 5-years following training) durability of findings is not known.

Appraisal of the Methodological Quality of the Review

Strengths of the current meta-analysis include (a) the inclusion of unpublished studies, (b) assessment of coder reliability, and (c) sensitivity analysis of the impact of variables reflecting the methodological quality of the study (i.e., attrition rates) on effect sizes. Furthermore, although this review only included articles published in English, no studies were rejected based on this inclusion-criteria. There are, however, several caveats in interpreting results. One issue concerns the identification of studies to include in the review. Although the current review utilised a multitude of search terms, due to inconsistencies in the terms used to describe IBT in the broader literature, relevant papers may have not been included (e.g., 'virtual classroom' was not included as a search term). Contact was not made with authors and/or Listserv (electronic mailing

list) requests were not made to retrieve further unpublished studies. Therefore, results may not be representative of all the available evidence. Moreover, although there was no evidence to indicate that effect sizes differed between published and unpublished studies included in the review, unpublished studies typically have smaller effect sizes than published studies (Rosenthal, 1979). Consequently, reported mean effect sizes may be larger than the true effect of IBT on clinical competency.

The findings of the present review are based on a relatively limited number of studies (k = 13), particularly concerning the effects of IBT on clinical competency level 2: therapists' ability to apply the knowledge (k = 1), and therefore should be interpreted with caution. The findings of this review are based on an aggregate of the results of included studies; therefore, considering the quality of these studies is crucial. The author did not identify serious flaws in the methodological design of studies during quality assessment, however the predominate use of non-standardised self-report measures means that the outcome assessment was potentially less rigorous than if an objective measure of behaviour (e.g., direct observation) or independently-rated assessment was used. Although the review analysed effect sizes in relation to a key way in which the measures differed (i.e., what level of clinical competency they assessed), further differences in the measures (e.g., independently-rated vs self-report assessment) used across studies can also create artificial differences in effect size, thus limiting the comparability of studies and the validity and reliability of findings (Morris & DeShon, 2002). Furthermore, due to the limited number of studies (k < 2) representing each level of the moderator analysis concerning 'country of origin' and 'randomisation', it was not possible assess to moderating effect of these variables. It was only possible to systematically assess the moderating effect of one aspect of methodological quality (i.e., attrition rate) on effect size, therefore it is not known how other methodological features may have impacted on results.

The current review used posttest scores to estimate effect size. This allowed for inclusion of study data that was measured at post-training only (e.g., Dimeff et al., 2015, measured therapists' use of DBT strategies at follow-up only) to be included in the review. However, this method is associated with an increased risk of selection-bias compared to using pretest–posttest scores (Morris & DeShon, 2002). Moreover, posttest scores do not capture the statistical adjustments made by some studies to control for bias in analysis (e.g., intention-to-treat analysis; Cooper et al., 2017; Dimeff et al. 2009; Harned, Dimeff, Woodcock, & Skutch, 2011; Hubley, Woodcock, Dimeff, & Dimidjian, 2015).

The present review is also likely to have been influenced by the limited statistical power of the *Q* statistic when used with small sample sizes. Thus, analysis may not have detected relevant heterogeneity among studies resulting in an underestimation of the influence of moderating variables (Greenhouse & Iyengar, 2009; Huedo-Medina, Sánchez-Meca, Marín-Martínez, & Botella, 2006).

Implications for Theory, Policy, and Clinical Practice

Many clients are not receiving EBP for their mental health difficulty (Dobson & Beshai, 2013). Consequently, the effective dissemination of EBP is important (Fairburn & Patel, 2014). The findings from the current study provide support for recent enthusiasm for using IBT as an effective means of disseminating EBP (Fairburn & Cooper, 2011; Khanna & Kendall, 2015). Like many other forms of training, IBT does, however, seem to be more effective in developing clinicians' knowledge and ability to demonstrate skills in EBP, compared to developing clinicians' practical use of EBP (Beidas & Kendall, 2010). The review suggests that IBT may be equivalent to in-person training in improving clinical competency in these areas. In light of these findings, organisations (e.g., the National Health Service) deciding between IBT and in-person training as a means of disseminating EBP to clinicians, may benefit from focusing their

decision on the practical advantages and disadvantages of each approach (as summarised in Khanna & Kendall, 2015).

Recommendations for Future Research

Future research should focus on developing and utilising empirically-validated tools aimed at assessing the impact of IBT on clinical competency. By using empirically-validated self-report assessments (e.g., Cognitive Therapy Adherence and Competence Scale; Barber, Liese, & Abrams, 2003) and objective outcome assessment (e.g., observation of therapist behaviour), more precise comparisons could be drawn between studies and more accurate conclusions could be drawn regarding the effectiveness of IBT. Moreover, the relative impact of IBT compared to alternative training methods on different levels of clinical competency warrants further investigation. There is also a need to identify techniques to ensure that the beneficial effects of IBT on levels 1 to 3 of clinical competence are translated into changes in use of EBP (i.e., level 4). Additionally, studies should explore whether developing more sophisticated IBT programmes (e.g., integrating active learning methods) and/or supplementing IBT with in-person and/or teleconference approaches (e.g., case supervision) improves the impact of IBT on clinical competency.

Conclusion

The current review demonstrates that IBT can be effective in improving mental health therapists' clinical competency in EBP. It has been proposed that IBT may play an important role in disseminating practices that have an established evidence-base, by providing a cost-effective, accessible, and flexible approach to meeting the increasing demand for clinicians who are competent in EBP (Fairburn & Cooper, 2011; Khanna & Kendall, 2015). Therefore, further high-quality studies that examine the efficacy of IBT on clinical competency, and the relative effectiveness of IBT compared to in-person training, will help establish an evidence-base for recommendations of how IBT could

contribute to the wider-dissemination of EBP. It is hoped that the finding that IBT has a substantive and consistent effect on clinical competency for EBP will stimulate research in this area aimed at further developing the effectiveness of IBT.

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Note that references preceded by an asterisk (*) represent studies included in the systematic review.

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Appendix A

The Critical Appraisal Skills Programme Quality Assessment Tool

The Critical Appraisal Skills Programme assessment tools for randomly controlled trials (CASP; CASP UK, 2010) used to assess study quality

11 questions to help you make sense of a trial

How to use this appraisal tool

Three broad issues need to be considered when appraising the report of a randomised controlled trial:

- **Are the results of the trial valid?** **(Section A)**
- **What are the results?** **(Section B)**
- **Will the results help locally?** **(Section C)**

The 11 questions on the following pages are designed to help you think about these issues systematically.
The first two questions are screening questions and can be answered quickly. If the answer to both is ***yes***, it is worth proceeding with the remaining questions.

There is some degree of overlap between the questions, you are asked to record a ***yes***, ***no*** or ***can't tell*** to most of the questions. A number of prompts are given after each question. These are designed to remind you why the question is important. Record your reasons for your answers in the spaces provided.

There will not be time in the small groups to answer them all in detail!

These checklists were designed to be used as educational tools as part of a workshop

(A) Are the results of the trial valid?

Screening Questions

1. Did the trial address a clearly focused issue? ❑ Yes ❑ Can't tell ❑ No

Consider: An issue can be 'focused' In terms of

- The population studied
- The intervention given
- The comparator given
- The outcomes considered

---

2. Was the assignment of patients to treatments randomised? ❑ Yes ❑ Can't tell ❑ No

Consider:

- How was this carried out, some methods may produce broken allocation concealment
- Was the allocation concealed from researchers?

Is it worth continuing?

Detailed questions

3. Were patients, health workers and study personnel blinded? ❒ Yes ❒ Can't tell ❒ No

Consider:

- Health workers could be; clinicians, nurses etc
- Study personnel – especially outcome assessors

---

4. Were the groups similar at the start of the trial? ❒ Yes ❒ Can't tell ❒ No

Consider: Look at

- Other factors that might affect the outcome such as age, sex, social class, these may be called baseline characteristics

---

5. Aside from the experimental intervention, were the groups treated equally? ❒ Yes ❒ Can't tell ❒ No

6. Were all of the patients who entered the trial properly accounted for at its conclusion?

❑ Yes ❑ Can't tell ❑ No

Consider:

- Was the trial stopped early?
- Were patients analysed in the groups to which they were randomised?

(B) What are the results?

7. How large was the treatment effect?

Consider:

- What outcomes were measured?
- Is the primary outcome clearly specified?
- What results were found for each outcome?
- Is there evidence of selective reporting of outcomes?

8. How precise was the estimate of the treatment effect?

Consider:

- What are the confidence limits?
- Were they statistically significant?

(C) Will the results help locally?

9. Can the results be applied in your context? (or to the local population?) ❒ Yes ❒ Can't tell ❒ No

Consider:

- Do you have reason to believe that your population of interest is different to that in the trial
- If so, in what way?

---

10. Were all clinically important outcomes considered? ❒ Yes ❒ Can't tell ❒ No

Consider:

- Is there other information you would like to have seen?
- Was the need for this trial clearly described?

---

11. Are the benefits worth the harms and costs? ❒ Yes ❒ Can't tell ❒ No

Consider:

- Even if this is not addressed by the trial, what do you think?

Appendix B

Statistical Equations Used to Calculate the Standard Error of *d* and 95% Confidence Intervals

Standard error of *d* was calculated using the following equation

$$SE_d \sqrt{\frac{n_{ex} + n_c}{n_{ex} \times n_c} + \frac{d^2}{2\,(n_{ex} + n_c)}}$$

SE_d = Standard error of *d*
n_{ex} = *n* of experimental group
n_c = *n* of comparison group

Standard error was then used to calculate confidence intervals based on a *Z*-score (1.96) derived from a 95% confidence interval and a *p* value of 0.05 as follows:

$$\text{Upper 95\% CI} = d + (1.96 \times SE_d)$$

$$\text{Lower 95\% CI} = d - (1.96 \times SE_d)$$

SE_d = Standard error of *d*

Appendix C

Summary of Results from Quality Assessment

Table Summarising the Results of the CASP Randomised Controlled Trial Checklist

Author and year	CASP item									Overall quality rating
	1. Did the trial address a clearly focused issue?	2. Was the assignment of patients to treatments randomised?	3. Were all of the patients who entered the trial properly accounted for at its conclusion?	4. Were patients, health workers and study personnel 'blind' to treatment?	5. Were the groups similar at the start of the trial?	6. Aside from the experimental intervention, were the groups treated equally?	9. Can the results be applied in your context? (or to the local population?)	10. Were all clinically important outcomes considered?	11. Are the benefits worth the harms and costs?	
Cooper et al. (2017)	✓	✓	✓	x	✓	✓	✓	x	✓	14
Dimeff et al. (2015)	✓	✓	✓	x	x	✓	✓	✓	✓	14
Dimeff et al. (2009)	✓	✓	✓	x	✓	✓	✓	x	✓	14
Hagermoser (2016)	✓	✓	✓	x	x	✓	✓	x	?	11
Harned et al. (2011)	✓	✓	✓	x	✓	✓	✓	x	✓	14
Henggeler et al. (2013)	✓	✓	✓	x	✓	✓	✓	x	✓	14
Hubley et al. (2015)	✓	✓	✓	x	✓	✓	✓	x	✓	14
Leathers & Strand (2013)	✓	✓	✓	x	?	✓	✓	x	?	12
Pasquariello (2013)	✓	✓	✓	x	x	✓	✓	✓	?	13
Quinn (2004)	✓	✓	✓	x	?	✓	✓	✓	?	14
Rakovshik et al. (2013)	✓	✓	✓	x	✓	✓	✓	✓	✓	16
Ruzek et al. (2014)	✓	✓	✓	x	✓	✓	✓	✓	✓	16
Sholomskas (2005)	✓	x	✓	x	✓	✓	✓	✓	?	13

✓ = yes; x = no; ? = can't tell; CASP = The Critical Appraisal Skills Randomised Controlled Trial Checklist (CASP UK, 2010)

Section Two: Research Report

Using the Internet to Help Clinicians to Help Their Clients to Form 'If-Then' Plans

Abstract

Objectives

Internet-based training (IBT) may be an effective way to disseminate evidence-based practice to clinicians working in mental health settings. However, research has yet to examine whether IBT can help clinicians to understand and prompt their clients to form implementation intentions – or 'if-then' plans. The present study therefore aimed to determine whether completing an IBT programme in 'if-then' planning increases clinicians' clinical competency in this skill.

Design

The study used a before-after design with a 28-day follow-up assessment.

Methods

One-hundred and eighty-one clinicians (N = 181) who were currently delivering psychologically-informed interventions with individuals experiencing health difficulties clicked on the link to training. Eighty-seven clinicians consented to take part in the study and completed demographic assessment. Clinicians completed a brief video-based IBT programme describing how to help their clients to form 'if-then' plans. Thirty-five clinicians completed self-report measures concerning (i) knowledge of 'if-then' planning, and (ii) use of 'if-then' planning, pre-training, post-training and at 28-day follow-up. Clinicians also completed post-training and follow-up assessments of their knowledge concerning the appropriate use of 'if-then- planning.

Results

Intention-to-treat analysis indicated significant differences in knowledge of 'if-then' planning across time-points ($\chi^2(2) = 59.60$, $p < .001$), with significant increases from pre- to post-training ($z = -5.13$, $p < .001$) which were maintained from post-training to follow-up ($z = -1.22$, $p = .221$). Clinicians' use of 'if-then' planning also significantly increased ($z = -2.37$, $p = .018$) from pre-training to follow-up.

Furthermore, clinicians prompted a significantly larger ($z = -2.44$, $p = .015$) percentage of their clients during the month after training compared to the month before training to form 'if-then' plans. Clinicians' knowledge concerning the appropriate use of 'if-then' planning at post-training was maintained from post-training to follow-up ($z = -1.28$, $p = .201$).

Conclusions

It was concluded that an IBT programme, designed to train clinicians to help their clients to form 'if-then' plans, can improve clinicians' clinical competency in 'if-then' planning. Furthermore, IBT can increase clinicians' knowledge of 'if-then' planning and use of 'if-then' planning, and these improvements are maintained at 28-day follow-up.

Practitioner Points

- IBT can be used to disseminate 'if-then' planning to clinicians delivering psychologically-informed therapeutic interventions with individuals experiencing mental health difficulties.
- IBT in 'if-then' planning can be used to increase clinicians' use of 'if-then' planning within clinical practice.

Limitations of the Study

- The study utilised a non-experimental before-after design, therefore the findings may be influenced by confounding variables (e.g., naturally occurring changes in practice over time).
- Clinical competency was assessed using self-report measures which may have biased findings (e.g., recall error).
- Findings may not generalize to all mental health clinicians.

Introduction

Use of Goals in Therapy

Psychotherapy focuses on the achievement of idiosyncratic goals, which are often related to symptom reduction. Therapeutic goals may, however, also focus on interpersonal, existential, personal-growth, and functional improvements (Battle et al., 2010; Holtforth, Wyss, Schulte, Trachsel, & Michalak, 2009). Goals are internal 'representations of desired states' (Austin & Vancouver, 1996, p. 338) and are the initial phase of the wilful control of action (Gollwitzer & Moskowitz, 1996). Consequently, from the start of psychotherapy, clients are prompted to discuss their goals both within therapy, and more generally (Michalak & Holtforth, 2006). Klinger (1977) proposed that goal setting involves people committing themselves to achieving a certain incentive (e.g., to be more confident). Literature has described various approaches to effective goal setting. For example, Doran's (1981) SMART criteria for effective goal setting directs clinicians to consider whether their client's goal is specific, measurable, attainable, realistic, and time-bound. Whilst in psychotherapy, clients often set proximal goals that constitute intermediate-steps to achieving a distal goal (Bandura & Schunk, 1981). For instance, a client with a fear of crowds might set an initial goal of visiting a supermarket as a step towards attending a concert (Clark & Wells, 1995).

'If-Then' Planning

Goal setting and goal striving can be differentiated, with goal striving referring to movement towards a chosen goal (Lewin, Dembo, Festinger, & Sears, 1944). Goal intentions are an individual's self-instructions, which guides their action towards attaining such goals (Sheeran & Webb, 2011; Triandis, 1980). Enhancing the strength of goal intentions only increases goal attainment to a small-medium degree; this discrepancy is termed the intention-behaviour 'gap' (Sheeran, 2002; Webb & Sheeran, 2006). Grounded in theories of self-regulation, Gollwitzer (1993, 1999, 2014)

highlighted the role of planning to increase the likelihood of goal attainment. Gollwitzer (1993) developed a technique termed implementation intentions; also known as 'if-then' planning. This technique builds on an individual's goal intentions by linking critical situational cues with instrumental goal-directed behaviour. For example, an anxious client's goal intention may be 'I intend to relax more' which can be linked to situational cues (e.g., 'if I notice the early-signs of stress') and suitable response (e.g., 'then I will spend time relaxing'), to form an 'if-then' plan.

Using 'If-Then' Plans to Help Individuals Experiencing Mental Health Difficulties to Achieve Their Goals

Research indicates that forming 'if-then' plans narrows the intention-behaviour gap (Gollwitzer & Sheeran, 2006). A meta-analysis by Toli, Webb and Hardy (2015) identified 29 experimental studies that assessed the effect of 'if-then' planning on goal attainment among individuals experiencing mental health difficulties. A large-sized effect of forming 'if-then' plans on goal attainment was found ($d_+ = 0.99$). It was concluded that 'if-then' planning can help individuals experiencing mental health difficulties achieve their goals, and may be a useful evidence-based strategy to integrate within psychotherapy.

Evidence-Based Practice

The importance of evidence-based practice (EBP) is increasingly emphasised in government policy and health guidelines. EBP is defined by the American Psychological Association (2005) as "the integration of the best available research with clinical expertise" (p. 273). Despite the apparent importance of EBP, recent reviews report that many clients are not receiving evidence-based treatment for their mental health difficulty (Dobson & Beshai, 2013; Insel, 2009; Shafran et al., 2009). Developing effective ways to disseminate EBP is of upmost importance when addressing this gap between research and clinical practice (Fairburn & Patel, 2014).

Dissemination of EBP

There is high demand for EBP training within mental health services; however, accessing such training can be difficult. At present, EBP is usually disseminated using a 'workshop' approach (Beidas & Kendall, 2010; Weissman et al., 2006). Typically, trainees attend an expert-delivered presentation and clinical demonstration (between 90 minutes and 2 days), followed by supervision from an expert (Fairburn & Cooper, 2011). The face-to-face workshop approach of delivering therapy is, however, resource intensive and is difficult to up-scale. In an attempt to resolve such issues, there has been increased interest in internet-based training (IBT; Cucciare, Weingardt, & Villafranca, 2008; Fairburn & Cooper, 2011).

Using IBT to Disseminate EBP

A systematic review of both experimental and non-experimental studies indicated that IBT is associated with an increase in therapist knowledge and skill compared to baseline (Jackson, Quetsch, Brabson, & Herschell, 2018). Emphasis on developing effective ways to disseminate EBP comes from the need to increase the number of clinicians 'competent' in EBP (Fairburn & Cooper, 2011). Miller (1990) proposed that a therapist's clinical competency could be assessed on four levels: (i) knowledge concerning the skill, (ii) ability to apply the knowledge, (iii) ability to demonstrate the skill, and (iv) use of the skill in practice. Therefore, Horan (2018) conducted a meta-analysis of 13 experimental trials examining the impact of IBT on overall clinical competency in healthcare professionals delivering psychologically-informed interventions and found a medium-sized effect (d = 0.53). Further analysis, based on Miller's (1990) four-level hierarchical framework of clinical competency assessment, indicated that IBT had a (i) medium-sized positive effect on level 1: knowledge concerning the skill, (ii) a large-sized positive effect on level 2: therapists' ability to apply the knowledge, (iii) a medium sized positive effect on level 3:

therapists' ability to demonstrate the skill, and (iv) a small effect on level 4: therapists' use of the skill in practice. Given that 'if-then' planning is a 'simple regulatory strategy' (Gollwitzer, 2014, p. 1), it is plausible that dissemination of this therapeutic-technique could be achieved using IBT.

What Factors Influence Long-Term Use of IBT Following Training?

The adoption and long-term use of EBP such as 'if-then' planning is affected by a multitude of factors including those relating to the wider healthcare-system, organization, and therapist (Aarons, Hurlburt, & Horwitz, 2011). It is important to understand what factors influence the effect of IBT on therapists' use of EBP, so that areas can be identified as the focus for future research aimed at developing its effectiveness and efficiency. Proctor et al. (2011) identified key outcomes for the early stages of implementing new EBPs, which impact on longer-term use of the intervention, including the (a) perceived acceptability, (b) initial intention to use, and (c) perceived appropriateness of the EBP.

Research has measured how acceptable EBP is to therapists' using the Evidence-Based Practice Attitude Scale (EBPAS; Aarons, 2004) and found that scores on the EBPAS is related to use of EBP in practice (Nakamura, Higa-McMillan, Okamura, & Shimabukuro, 2011; Nelson, Steele, & Mize, 2006). However, the influence of the perceived acceptability of EBP on the use of EBP following IBT has yet to be examined.

As described earlier, goal intentions increase goal attainment to a small-to-medium degree (Webb & Sheeran, 2006) therefore it is unsurprising that initial intentions to use an EBP have been related to later use. Despite this potential link, literature exploring the relationship between 'initial intentions to use' an EBP and use of EBP following IBT is sparse. Literature has, however, reported that therapists' motivation to use, confidence in the use of, and ability to implement an EBP was

significantly improved by IBT in dialectical behaviour therapy (Dimeff et al., 2009; 2015) and exposure therapy (Harned et al., 2014). One study found that therapists' confidence in their ability to deliver exposure therapy was positively associated with use of this skill in clinical practice (Harned et al., 2013).

Research exploring the influence of therapists' perceived appropriateness of an EBP on the effect of IBT is sparse. In their study examining the impact of IBT for exposure therapy, Harned et al. (2013) found that the extent to which therapist's perceived that it was appropriate to use exposure therapy with clients and within their organisation was negatively associated with clinicians' proficiency in the delivery of the treatment; except for therapists accessing IBT that included an online learning community. However, perceived client and organisational appropriateness did not predict use of exposure therapy.

Studies report that therapist satisfaction with IBT is high (Dimeff et al., 2009; Kobak, Craske, Rose, & Wolitsky-Taylor, 2013; Kobak, Lipsitz, Markowitz, & Bleiberg, 2017). However, the potential impact of satisfaction with IBT on use of EBP has received little attention. Studies have found that satisfaction with IBT has a weak-positive correlation with levels of applied knowledge (Quinn, 2004), but satisfaction is not related to treatment fidelity (i.e., the extent to which an intervention is delivered in accordance to a treatment plan; Vismara, Young, Stahmer, Griffith, & Rogers, 2009). However, the impact of satisfaction with IBT on use of EBP has yet to be examined.

Aims

The present study aimed to:

1. Evaluate the effect of completing an IBT programme on 'if-then' planning on clinicians' competency in using 'if-then' planning.
2. Explore whether clinicians' (a) perceived usefulness of 'if-then' planning, confidence in their use, and intentions to use 'if-then' plans, (b) attitudes

towards EBP, and (c) satisfaction with training, influenced clinicians' change in use of 'if-then' planning.

3. Qualitatively explore therapists experience concerning how appropriate and acceptable IBT in 'if-then' planning is for clinicians working in mental health-settings.

Hypothesis

It was hypothesised that clinicians who complete IBT in 'if-then' planning will demonstrate a statistically significant increase in (a) knowledge of 'if-then' planning, and (b) use of 'if-then' planning, from pre-training to post-training which will be sustained at 28-day follow-up. Furthermore, clinicians' (c) knowledge concerning the appropriate application of 'if-then' planning will be maintained from post-training to 28-day follow-up. Due to the exploratory nature of the other aims of the study, no further hypotheses were made.

Method

Design

This study adopted a two-part research design. Firstly, the training materials were developed using a cross-sectional survey design. Secondly, a before-after design was used to test the study hypothesis and meet the first and second aim of the study. The third aim of the study was met by examining clinicians' qualitative responses to IBT.

Ethical Considerations

Ethical approval for the study was granted by The University of Sheffield Department Ethics Sub-Committee URMS (#011985). See Appendix A for supporting documentation.

Part 1: Development of Training Package

A draft version of the course content was developed based on a non-systematic review of the literature. 'If-then' planning has, to date, been primarily used by health psychologists (e.g., Adriaanse, Vinkers, De Ridder, Hox, & De Wit, 2011; Bélanger-Gravel, Bilodeau, & Poirier, 2013; Carraro & Gaudreau, 2013; Gollwitzer & Sheeran, 2006). Therefore, in order to ensure that the course content is appropriately applied to mental health-settings, feedback from 'experts' in 'if-then' planning was sought. Responsibilities for Part 1 of the study were divided between Andrew Horan and Paulina Gonzalez (Trainee Clinical Psychologist) as detailed in Appendix B.

Method

Participants

'Experts' in 'if-then' planning consisted of individuals who were: (a) listed as authors in the 'Synergy Expert Group' statement (Hagger et al., 2016) concerning 'if-then' planning and planning interventions in Health Psychology, (b) identified as having relevant expertise by Dr Thomas Webb. Participants were invited to participate in the study via an email (see Appendix C) containing a link to a Qualtrics survey (Qualtrics Labs, Provo, Utah). The email invitation to the study was sent twice, 10 days apart.

Recruitment

Participants were recruited between 29th March 2017 to 1st May 2017. Sixty-five individuals were emailed an invitation to the survey. Twenty-five participants consented to take part in the study, and 12 participants completed all of the items.

Procedure

Upon clicking on the email link, experts were presented with information about the study followed by a consent form (see Appendix D). Participants who consented to the study were then presented with the draft course content (see Appendix E) followed

by a feedback questionnaire. Open text boxes were included in each section of the draft course content for experts to provide qualitative feedback.

Questionnaire Designed to Elicit Feedback from Expert Participants

A brief questionnaire using Likert-scales, a Yes/No question, and a grouping and ranking task was designed to elicit feedback from expert participants on the draft course content (see Appendix F). Experts were asked to respond to two Likert-scales: (i) 'To what extent do you think that this training would enable clinicians to develop an understanding of the theory underlying 'if-then' planning?', on a scale ranging from 1 (*The programme will not enable clinicians to develop an understanding*) to 5 (*The programme will enable clinicians to develop a full understanding*); (ii) 'To what extent do you think that this training will provide clinicians with everything that they need to be able to help their clients to form 'if-then' plans in clinical practice', on a scale ranging from 1 (*The programme does not provide clinicians with what they need*) to 5 (*The programme provides clinicians with everything they need*).

To elicit feedback from expert participants regarding whether course content needs to be amended, removed, and/or added, participants (a) responded to a yes/no question 'Do you think that the training could be improved in any way?' and, (b) completed a grouping-task for the first nine draft section-titles. Participants grouped section-titles into two headings: '*The training should not contain these sections*' or '*The training should contain these sections in the following order*'. Participants were asked to rank items placed in the latter group. 'Section 10: Conclusions and questions' was not included as it was considered to be an essential end to training.

Results

Questionnaire Designed to Elicit Feedback from Expert Participants

Mean scores on Likert-scales (ranging from 1-5) were 4.00 (*SD* = 1.28) and 3.92 (*SD* = 1.24) respectively. Two (16.67%) expert participants provided feedback that

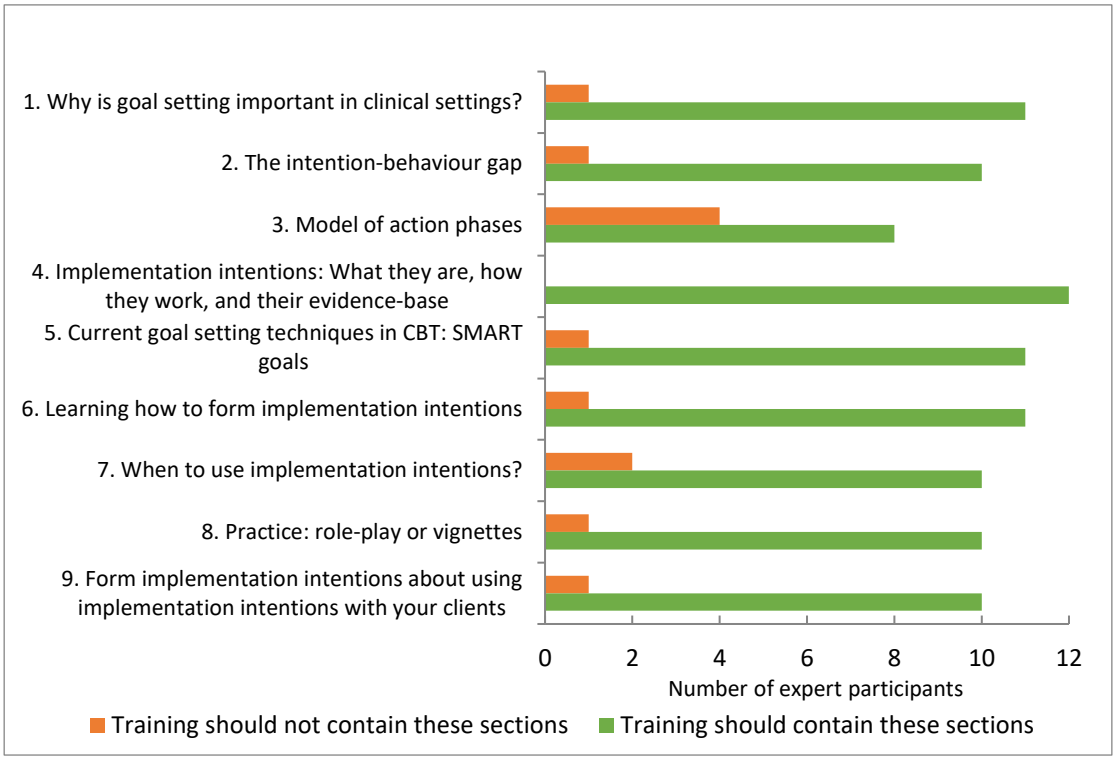

Figure 1. Bar chart displaying the frequency of responses to the grouping task.

training could not be improved, and 10 (83.33%) indicated that training could be improved. See Figure 1 for a summary of responses to grouping task. Participant agreement on mode responses within the ranking task for the first nine draft section-titles ranged from 33.33% to 81.82% (see Table 2). Participants made an average of 6.60 (*SD* = 1.65) qualitative comments per section. Decisions regarding amendments to the course content were made in response to each comment, and are summarised in Appendix G.

Finalised Course Content and Development of IBT Programme

The final content of the course is summarised in Appendix H. The course content was developed into a video-based IBT programme using VideoScribe software (www.videoscribe.co/en/) as guided by Clark and Mayer's (2016) principles of effective e-learning relating to: (a) audio narration, (b) simple animation, (c) dividing animation in managable chunks, and (d) using visual effects to direct participants' attention. Five video animations were developed based on scripts found in Appendix I and details of

videos are summarised in Table 3. Videos can be accessed using the following link: www.youtube.com/playlist?list=PLfHAe3NR5pVuN94pBtS3pl0XtPetBHNhF. Figure 2 shows an image from 'The Model of Action Phases - Part 2' video. Training content was tailored to the strengths and limitations of video-based IBT as hosted in Qualtrics by: (i) moving content relating to SMART goals to earlier in training, and (ii) not asking therapists to form 'if-then' plans concerning their own practice.

Table 2

Expert Participant Responses to the Ranking Task, Indicating Which Order the Training Course Content Should Be Presented.

Section number	Mode section-title	Number of participants who ranked a section-title for this section (*n*)	Number of participants who ranked the mode section-title (*n*)	Percentage of ranked section-titles that match the mode section-title (%)
1	Why is goal setting important in clinical settings?	11	9	81.82
2	The intention behaviour gap	10	6	60.00
3	Model of action phases	8	5	62.50
4	'If-then' planning: what they are, how they work, and their evidence-base	12	4	33.33
5	Current goal setting techniques in cognitive behavioural therapy: SMART goals	11	4	36.36
6	Learning how to form 'if-then' plans	11	5	45.45
7	When to use 'if-then' planning	10	4	40.00
8	Practice: role-play or vignettes	10	8	80.00
9	Form an 'if-then' plan about using 'if-then' planning with your clients	10	8	80.00

Table 3

Details of the Internet-Based Training Videos Presented to Participants

Video number	Topic	Section-titles of the course content covered in the video	Part name (if divided)	Duration (mm:ss)
1	The Intention Behaviour Gap	• Why is goal setting important in clinical settings? • The intention behaviour gap • Current goal setting techniques in cognitive behavioural therapy: SMART goals	-	3:41
2	The Model of Action Phases	• Model of action phases • 'If-then' planning: what they are, how they work, and their evidence-base	Part 1	3:41
3			Part 2	2:52
4	How and When to Prompt Clients to Form 'If-Then' Plans	• Learning how to form 'if-then' plans • When to use 'if-then' planning	Part 1	3:42
5		• Practice: vignettes • Conclusions	Part 2	1:49

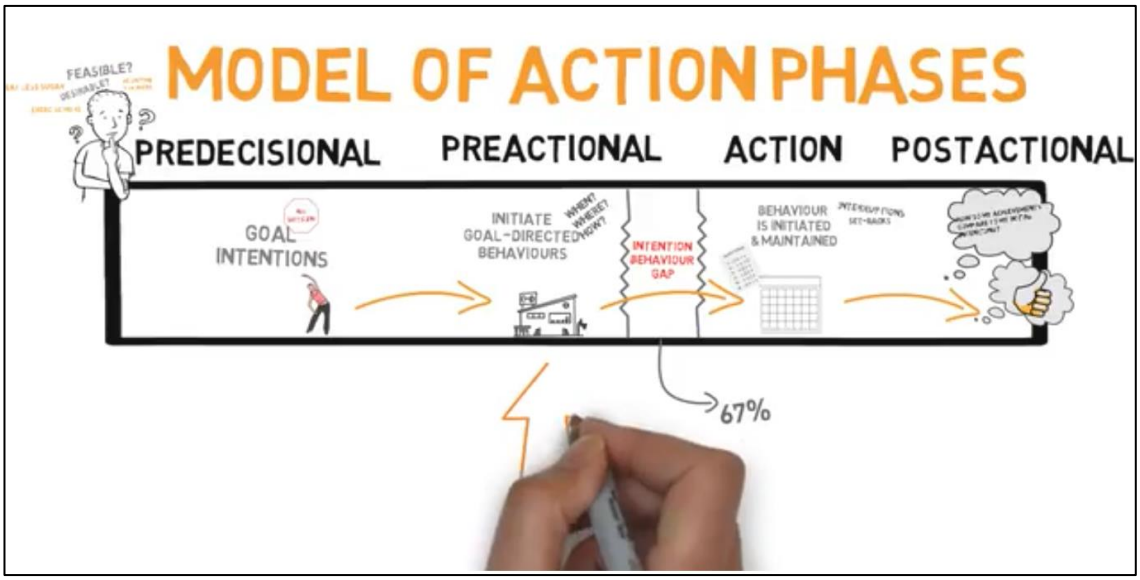

Figure 2. Image from 'The Model of Action Phases - Part 2' video.

Part 2: Before-After Study

Design

The effect of IBT as an effective means of disseminating 'if-then' planning, was assessed using a before-after (i.e., repeated measures) research design. Clinicians' clinical competency in 'if-then' planning was assessed pre-training, post-training, and at 28-day follow-up. The three primary-dependent variables were: (a) knowledge of 'if-then' planning, (b) knowledge concerning the appropriate application of 'if-then' planning, and (c) use of 'if-then' planning. An exploratory analysis examined whether changes in Clinicians' use of 'if-then' planning (i.e., the dependent variable) was predicted by four independent variables: (a) a combined variable concerning the perceived usefulness of 'if-then' planning, confidence in their use, and intentions to use 'if-then' plans, (b) the percentage of clients that therapists' intended to prompt using 'if-then' plans post-training, (c) therapist attitudes towards EBP, and (d) satisfaction with training. Quantitative analysis was completed through examination of clinicians' qualitative comments at follow-up.

Method

Participants

Sample size calculations regarding the study hypothesis were conducted using G*Power 3.1.9.2 software (Faul, Erdfelder, Lang, & Buchner, 2007). Sample size calculations based on an intention-to-treat analysis (ITT), one condition, three time-points, an alpha of 0.05 and an effect size derived from Horan (2018; $d = 0.53$) indicated that the study should aim to recruit a minimum of 39 clinicians at baseline to detect a significant change over time. Sample size calculations for exploratory analysis were based on Van Belle's (2002) statistical "rule of thumb" that 10 participants are required for each independent variable in an ordinal regression model to detect a significant relationship. Based on a model containing two predictor variables, the study aimed to recruit a minimum of 20 clinicians at follow-up.

Recruitment

To be included in the present study, participants were required to: (a) currently be delivering psychologically-informed therapeutic interventions with individuals experiencing mental health difficulties, (b) have access to a computer or laptop, and (c) able to access audio-visual content. Participants were recruited from October 2017 to March 2018 via email, digital newsletters (North West Psychological Professionals Network and Practice Research Network Group), social media adverts (FaceBook, Twitter and LinkedIn), University of Sheffield academic seminars, and professional training courses (see Appendix J for examples of recruitment adverts and summary of recruitment efforts).

One-hundred and eighty-one participants ($N = 181$) clicked on the link to training. Eighty-seven clinicians, who identified themselves as currently delivering psychologically-informed therapeutic interventions with individuals experiencing mental health difficulties, consented to the study and completed demographic

assessment. Thirty-five participants completed assessment at 28-day follow-up. Figure 3 summarises the flow of participants through the study and Table 4 summarises the demographic characteristics (ordered in relation to prevalence within the ITT-group) for participants in 'non-completers', 'completers', and ITT groups.

Procedure

The 'if-then' planning IBT programme was hosted by the Qualtrics survey platform (Qualtrics Labs, Provo, Utah). Qualtrics was chosen as it offered timing-features that ensured that participants could not continue to the next section of training until the duration of each video had passed. Participants were sent an email invitation containing a link to the study. Upon clicking the link, participants were presented with information about the study, and responded to a question designed to assess their eligibility to participate (See Appendix K). Participants provided informed consent and a participant identification code (see Appendix L). Participants then completed a series of questionnaires related to their demographic information (e.g., gender and training status), pre-training awareness of 'if-then' planning, and knowledge and use of 'if-then' planning. Participants then accessed the 'if-then' planning IBT videos. One participant contacted the author to inform them that, due to compatibility issues, they could not view the videos on the Qualtrics platform. This was overcome by providing a link through which they could access the videos on an alternative internet-based platform (YouTube). After watching all five videos, participants completed assessments related to: (a) knowledge of 'if-then' planning; (b) knowledge concerning the appropriate application of 'if-then' planning; (c) perceived usefulness of 'if-then' planning, confidence in their use, and intentions to use 'if-then' plans; (d) satisfaction with

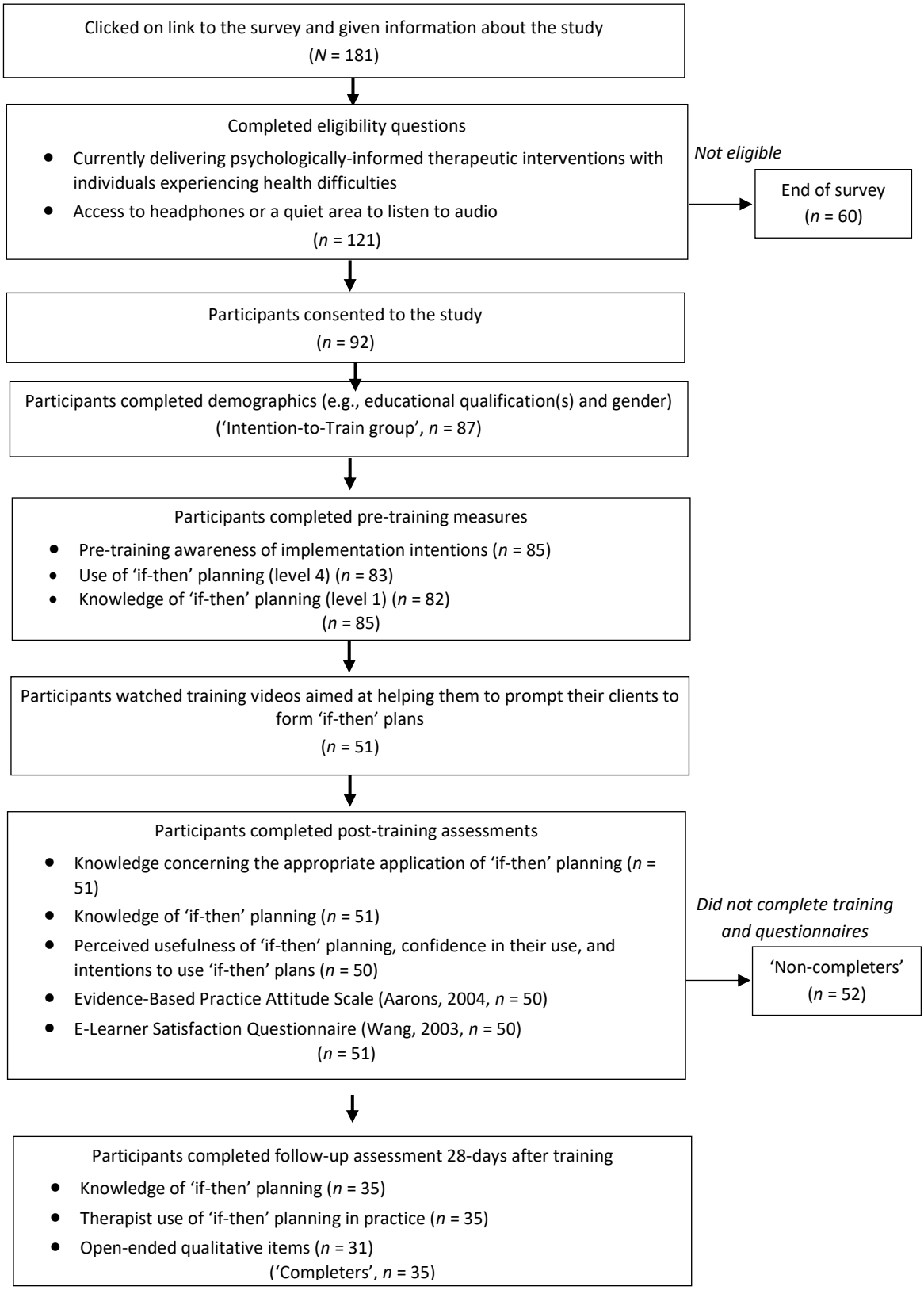

Figure 3. Diagram showing the flow of participants through the study

Table 4

Summary of Participant Demographic Characteristics

Variable	Non-Completers (*n* = 52)	Completers (*n* = 35)	Intention-to-treat (*n* = 87)
Age, *M* (*SD*)	33.19 (9.71)	31.31 (8.67)	32.44 (9.30)
Gender, *n* (%)			
Female	42 (80.77)	28 (80.00)	70 (80.46)
Male	7 (13.46)	7 (20.00)	14 (16.09)
Other	1 (1.92)	-	1 (1.15)
Prefer not to say	2 (3.85)	-	2 (2.30)
Profession, *n* (%)			
Psychologist			
Trainee Clinical Psychologist	12 (23.08)	15 (42.86)	27 (31.03)
Assistant Psychologist	11 (21.15)	7 (20.00)	18 (20.69)
Clinical Psychologist	6 (11.54)	4 (11.43)	10 (11.49)
Psychologist	2 (3.85)	1 (2.86)	3 (3.45)
Counselling Psychologist	1 (1.92)	-	1 (1.15)
Nurse			
Nurse	2 (3.85)	-	2 (2.30)
Care-coordinator	1 (1.92)	-	1 (1.15)
Mental Health Practitioner	1 (1.92)	-	1 (1.15)
IAPT			
Psychological Wellbeing Practitioner	3 (5.77)	3 (8.57)	6 (6.90)
High Intensity Trainee Therapist	2 (3.85)	2 (5.71)	4 (4.60)
High Intensity Therapist	1 (1.92)	-	1 (1.15)
eTherapy Co-ordinator	1 (1.92)	-	1 (1.15)
Specialist Therapists			
CBT Psychotherapist	2 (3.85)	1 (2.86)	3 (3.45)
CBT Psychotherapy Trainee	1 (1.92)	-	1 (1.15)
Other			
Clinical Lead	2 (3.85)	1 (2.86)	3 (3.45)
Occupational Therapist	1 (1.92)	1 (2.86)	2 (2.30)
Research Assistant/Researcher	2 (3.85)	-	2 (2.30)
Missing, *n* (%)	1 (1.92)	-	1 (1.15)
Highest level of education completed, *n* (%)			
Master's degree	17 (32.69)	17 (48.57)	34 (39.08)
Undergraduate degree	15 (28.85)	10 (28.57)	25 (28.74)
Doctor of Clinical Psychology	9 (17.31)	3 (8.57)	12 (13.79)
Postgraduate Diploma	7 (13.46)	4 (11.43)	11 (12.64)
PhD	1 (1.92)	1 (2.86)	2 (2.30)
Doctor of Counselling Psychology	1 (1.92)	-	1 (1.15)
Post Graduate Certificate	1 (1.92)	-	1 (1.15)
Other (not specified)	1 (1.92)	-	1 (1.15)
Currently in training, *n* (%)	17 (32.69)	18 (51.43)	35 (40.23)

Table 4

(*continued*)

Variable	Non-Completers (*n* = 52)	Completers (*n* = 35)	Intention-to-treat (*n* = 87)
Type of training course, *n* (% of *n* in training)			
Doctorate in Clinical Psychology	11 (64.71)	15 (42.86)	26 (74.29)
IAPT High Intensity	3 (17.65)	2 (5.71)	5 (14.29)
CBT Psychotherapy	-	1 (2.86)	1 (2.86)
Introduction to CBT	1 (5.88)	-	1 (2.86)
Missing, *n* (%)	2 (1.92)	-	2 (5.71)
Months delivering psychological therapy, *M* (*SD*)	52.94 (60.93)	51.57 (70.573)	52.38 (64.63)
Theoretical orientation (*n*, %)			
CBT	33 (63.46)	24 (68.57)	57 (65.52)
Eclectic	11 (21.15)	9 (25.71)	20 (22.99)
Psychodynamic	3 (5.77)	-	3 (3.45)
Humanistic	1 (1.92)	1 (2.86)	2 (2.30)
Systemic	1 (1.92)	1 (2.86)	2 (2.30)
DBT	1 (1.92)	-	1 (1.15)
Solution focused	1 (1.92)	-	1 (1.15)
Integrative	1 (1.92)	-	1 (1.15)
How many clients worked with in the past month, *M* (*SD*)	11.82 (12.37)	10.68 (12.09)	11.35 (12.20)
Missing, *n* (%)	3 (5.77)	1 (2.86)	4 (4.60)

Note, where a participant characteristic was not reported within the sub-group a dash was inserted into the cell. CBT = Cognitive-behavioural therapy; DBT = Dialectical behavior therapy; IAPT = Increasing Access to Psychological Therapies.

training; (e) their attitude towards EBP in general. Participants were asked to provide their email address so that they could be contacted 28-days after training. Twenty-eight-days after training, participants were sent an email containing a link to a second survey (see Appendix M). Participants were asked to provide their identification code so that their responses could be linked with their pre- and post-training responses. A reminder email was sent to unfinished respondents 7-days after the initial email (see Appendix M). Participants then completed measures assessing: (a) knowledge of 'if-then' planning, (b) knowledge concerning the appropriate application of 'if-then' planning, and (c) use of 'if-then' planning. Participants were then asked if they would like to be

sent a copy of the final research report. Finally, participants were thanked for their time.

Primary and Secondary Outcome Measures

In line with guidance from Streiner (2003), internal consistency was examined for all outcome scales except measures designed to assess multifaceted constructs (i.e., outcomes relating to knowledge, application of knowledge, and perceived usefulness of 'if-then' planning and intentions to use 'if-then' plans). Primary outcome measures

Primary outcome measures assessed participants' clinical competence in 'if-then' planning as defined by Miller (1990) on the following levels: (i) a therapist's theoretical knowledge of 'if-then' planning (level 1), (ii) knowledge concerning the appropriate application of 'if-then' planning (level 2), and (iii) use of 'if-then' planning in practice (level 4)[1].

Demographics and pre-training awareness of 'if-then' planning. Participants were asked to indicate their gender, age, job title, highest educational qualification, current training status, theoretical orientation, and the length of time that they have been delivering psychological therapy (see Appendix N). Participants were also asked to respond to questions concerning their awareness of 'if-then' planning (see Appendix O). For example, participants were asked to rate the question 'To what extent do you know what forming an 'if-then' plan involves?' on a Likert-scale ranging from '*I have no idea what this means*' (1) to '*I have full knowledge of 'if-then' planning*' (5).

Knowledge of 'if-then' planning (level 1). Participants responded to 5 multiple-choice answers designed to assess their knowledge of the theory underlying 'if-then' planning (see Appendix P). Example items include, 'If-then planning is a technique

[1] Due to the limitations in the Qualtrics platform (e.g., lack of two-way interaction tool such as teleconferencing), level 3 clinical competency: therapist ability to apply the skill, was not assessed. Assessments of this level of competency is typically conducted using structured role-play which requires two-way interaction between therapist and assessor (Muse & MacManus, 2013)

that…' (a) …is used to form goal intentions; (b) …helps people who lack motivation to achieve their goal; (c) …links a specified opportunity with a goal directed response; (d) …specifies why a goal is important; (e) don't know'. A binary outcome for each response was generated (i.e., correct/incorrect) and all 5-items were summed to a total score ranging from 0 to 5.

Knowledge concerning the appropriate application of 'if-then' planning (level 2). Therapists' knowledge of how to appropriately apply 'if-then' planning was assessed by asking participants to read two clinical vignettes and respond to a multiple-choice item based on each vignette, and then generate an 'if-then' plan based on a third clinical vignette (see Appendix Q). For the former multiple-choice questions, participants selected one of four choices; one of which was correct. For example, participants responded to a clinical vignette describing a clinical session with a woman diagnosed with obsessive compulsive disorder during which 'if-then' planning was used. Participants chose from four options – three of which were incorrect because they violated the theory underlying 'if-then' planning. Participant's ability to generate an 'if-then' plan was scored based on four predetermined criteria (e.g., use of the word 'if'). All seven items were summed resulting in a total score with a possible range of 0 to 7.

Therapists' use of 'if-then' planning in practice (level 4). Before training and at follow-up, participants were asked whether they had used 'if-then' planning with a client in the past month, and if so how many. They were also asked how many clients they have worked with in the past month' (see Appendix R).

Secondary outcome measure

Perceived usefulness of 'if-then' planning, confidence in using if then planning, and intentions to use 'if-then' plans. Participants rated the extent to which they thought 'if-then' plans would be useful to help support their clients to meet their goals, how confident they felt in using 'if-then' plans, and their intentions to use 'if-

then' plans. For example, participants rated the statement 'I intend to help my patients to form 'if-then' plans' on a Likert-scale ranging from '*strongly disagree*' (1) to '*strongly agree*' (10, see Appendix S). An overall score on this measure was calculated by averaging Likert-scale ratings. Participants were also asked 'in the next month, what percentage of your clients do you intend to prompt with 'if-then' plans?'. Participants responded to the latter item with a percentage value, therefore this item was analysed separately from the mean overall score of responses to Likert-scale ratings.

Therapists' attitudes towards EBP. A 15-item questionnaire, the Evidence-Based Practice Attitude Scale (EBPAS; Aarons, 2004) assessed clinicians' attitudes towards EBP (see Appendix T). Participants were asked to respond on a Likert-scale ranging from '*Not at all*' (1) to '*A very great extent*' (5) to 15 statements including 'I know better than academic researchers how to care for my clients'. The EBPAS yields four subscales: (a) requirement – a therapist's willingness to adopt new practices if required; (b) appeal – a therapist's willingness to adopt EBP if perceived as intuitively appealing; (c) openness – a therapist's openness toward novel and/or innovative practices; (d) divergence - the extent to which a therapist believes that their usual practice diverges from EBP. Internal consistency for the EBPAS total scale ($\alpha = .77$) and subscales ($\alpha = .90$, $\alpha = .80$, $\alpha = .78$, and $\alpha = .59$ respectively) are acceptable, except for the divergence subscale which showed poor internal consistency. Low internal consistency indicates that the items of the divergence subscale may not be measuring the same underlying construct. Internal consistencies for the current study, however, were acceptable for the EBPAS total score ($\alpha = .83$) and subscales (requirement, $\alpha = .83$; appeal, $\alpha = .77$; openness, $\alpha = .85$; divergence, $\alpha = .81$).

***Satisfaction with training*.** Participants satisfaction with training was assessed using an adapted version of the E-Learner Satisfaction Questionnaire (ELS; Wang, 2003). The questionnaire was adapted by removing the non-relevant subscale 'learning

community'. This resulted in a 12-item version of the ELS (see Appendix U). The questionnaire yielded 3 subscales: (a) learner interface, ease of use of the training package; (b) content, the content of the training package; (c) personalisation, ability to tailor training to personal learning needs. Participants rated items (e.g., 'The content of the training programme enabled me to learn what I needed') on a Likert-scales ranging from (5) '*strongly agree*' to (1) '*strongly disagree*'. The ELS total score (α = .93) and sub-scales have demonstrated acceptable internal consistency (learner interface, α = .90; content, α = .89; personalisation, α = .88). Internal consistency of the ELS for the current study was acceptable for the total score, and learner interface and content subscales (α = .89, α = .87, and α = .75 respectively). Internal consistency for the personalisation subscale was relatively low (α = .66).

Qualitative information regarding the Experience of IBT for 'if-then' planning. Participants responded to a questionnaire designed to elicit qualitative feedback regarding clinicians' experience of IBT (see Appendix V). To elicit feedback regarding the appropriateness of 'if-then' planning in clinical settings, participants responded to a yes/no question 'Have you encountered any barriers to using 'if-then' plans?' followed by an open-text item 'If yes, please explain'. Furthermore, participants responded to the question 'Is there anything that would have helped you form 'if-then' plans with your clients more often?'. Finally, to elicit feedback concerning the acceptability of training, participants responded to the question 'Do you have any further comments about this study that you would like to share?'

Data security and management. Data collected during the study was stored in accordance to the Data Protection Act (Office of Public Sector Information, 1998) on password-protected computers. Participants' email addresses and identification codes were kept separately from participant responses.

Data Analysis

Primary data analysis was conducted using an intent-to-treat analysis (ITT-analysis). The analysis was then repeated for participants who completed all outcome measures (i.e., 'complete case analysis'; summarised in Appendix W). ITT-analysis was conducted by dealing with missing data using the last observation carried forward method. Where participants did not complete all of the baseline measures, and an observation was not available to carry-forward, missing values were labelled 'missing' and the participants were still included in analysis. The earliest time-point of each outcome measure was examined for the assumptions of parametric statistical analysis (see Appendix X). Variables concerning knowledge of 'if-then' planning and knowledge concerning the appropriate application of 'if-then' planning, were at the ordinal data level and thus violated the parametric assumption of continuous data. Outcomes related to use of 'if-then' planning were examined for the normality of distribution assumption of parametric statistical analysis. A Shapiro-Wilk's test ($p < .05$), visual inspection of histograms, and normal Q-Q plots showed that measures were not normally distributed. Thus, the study hypothesis was tested using a non-parametric assessment. A Friedman's test was used for measures assessed across all 3 time-points. Post-hoc analysis was conducted using Wilcoxon signed-rank tests with a Bonferroni correction applied, resulting in a significance level set at $p = .017$. Wilcoxon signed-rank tests analysed variables assessed post-test and follow-up only. Furthermore, mean and standard deviation statistics examined scores on assessments administered at follow-up only.

Exploratory analysis was conducted using the 'completers' group. Examination of the dependent variables revealed that they did not meet the normality of distribution assumption of parametric statistical analysis (see Appendix X). Therefore, analysis was performed using non-parametric ordinal regression analyses. Change in score was

examined by adjusting for baseline scores in analysis (i.e., including baseline scores as an independent variable in the regression model). Assessing change using adjustment of baseline methods is more statistically-robust compared to analysis using simple change scores (e.g., subtracting baseline from follow-up scores; Senn, 2006). Statistical analyses were conducted using the Statistical Package for Social Sciences (SPSS) version 24.0. All analyses are reported with a two-tailed level of significance at an alpha level of 0.05.

Qualitative comments were examined by the first author. Participant responses were divided into sub-groups based on a common theme shared by the comments. Where participants gave two or more comments related to two or more themes, their response was included in multiple sub-groups. A second researcher, blind to the author's sub-group assignment, determined interrater reliability (70.37%) of assignment for all anonymised comments. Disagreements were resolved through discussion.

Results

Participant Characteristics

Demographic characteristics. Independent *t*-tests and Chi-square analyses examined differences between completers' and non-completers' demographic characteristics. Maximum results on Chi-square ($\chi^2(16) = 9.95$, $p = .46$) and independent *t*-test ($t(85) = -0.92$, $p = .36$) analyses revealed that there were no significant differences between participants who completed and participants who did not complete the study.

Awareness of 'if-then' planning before training. Nineteen clinicians (35.54%, 2 missing responses) in the 'non-completers' group ($n = 52$) and 17 clinicians (48.57%) in the 'completers' group (n = 35) indicated that they had heard of 'if-then' planning before training. Thirty-six clinicians (42.35%, 2 missing values) in the 'IIT-group' ($n = 87$) had heard of 'if-then' planning. Table 5 provides further summary statistics of

baseline assessments of (a) awareness of, (b) knowledge of, and (c) use of 'if-then' planning before training, for 'non-completers', 'completers' and ITT-group. Results of Mann-Whitney U comparisons indicated that the 'completer' group had higher ratings on the scale 'To what extent do you know how to help patients form 'if-then' plans' compared to 'non-completers' (U = 630.50, z = -2.24, p = 0.025). Maximum results on Mann-Whitney U comparisons indicated that clinicians did not differ on other baseline assessments of awareness of 'if-then' planning at baseline (U = 672.00, z = -1.87, p = 0.620).

Results Regarding Primary Variables

Table 6 provides a summary of mean and standard deviation scores on primary outcome assessment pre-training, post-training and follow-up for ITT-group. All results were confirmed by complete case analysis (see Appendix W)

Knowledge of 'if-then' planning (level 1). There was a significant difference in knowledge across the three time-points ($\chi^2(2) = 59.60$, $p < .001$). A significant increase in knowledge was observed between pre- and post-training (z = -5.13, $p < .001$), and pre-training and follow-up (z = -5.15, $p < .001$). There was a non-significant difference between post-training and follow-up (z = -1.22, $p = .221$).

Ability to apply knowledge of 'if-then' planning (level 2). There was no difference in participants' ability to apply knowledge from post-training to follow-up (z = -1.28, $p = .201$).

Use of 'if-then' planning (level 4). There was a significant difference in participants' use of 'if–then' planning (z = -2.37, $p = .018$) during the month after training compared to the month before training. Participants prompted a significantly larger (z = -2.44, $p = .015$) percentage of their clients during the month after training compared to the month before training.

Table 5

Summary of Participant Responses to the Questionnaires Designed to Assess Participant's Awareness of, Knowledge of, and Use of 'If-Then' Planning Pre-Training

Variable	Non-completers (*n* = 52)		Completers (*n* = 35)		Intention-to-treat (*n* = 87)	
	Mean (*SD*)	Median (*IQR*)	Mean (*SD*)	Median (*IQR*)	Mean (*SD*)	Median (*IQR*)
Awareness of 'if-then' planning						
To what extent do you know what 'if-then' planning involves	2.08 (2.29)	2.00 (0.00-4.00)	3.37 (2.77)	3.00 (1.00-6.00)	2.61 (2.56)	2.00 (0.00-5.00)
Missing, *n* (%)	2 (3.85)		-		2 (2.30)	
To what extent do you know how to help patients form 'if-then' plans	1.64 (1.89)	1.00* (0.00-3.00)	2.69 (2.55)	2.00* (0.00-5.00)	2.07 (2.24)	1.00 (0.00-4.00)
Missing, *n* (%)	2 (3.85)		-		2 (2.30)	
Knowledge of 'if-then' planning						
Total score	2.15 (1.57)	2.00 (1.00-3.00)	3.03 (1.74)	3.00 (1.00-5.00)	2.52 (1.69)	2.00 (1.00-4.00)
Missing, *n* (%)	5 (9.62)		-		5 (5.75)	
Use of 'if-then' planning						
How many clients prompted with 'if-then' plans in the past month	0.53 (1.68)	0.00 (0.00-0.00)	0.58 (1.39)	0.00 (0.00-0.00)	0.55 (1.55)	0.00 (0.00-0.00)
Missing, *n* (%)	9 (17.31)		2 (5.71)		11 (12.64)	
Percentage of clients prompted with 'if-then' plans in the past month	5.07 (13.34)	0.00 (0.00-0.00)	7.63 (20.83)	0.00 (0.00-0.00)	6.23 (17.05)	0.00 (0.00-0.00)
Missing, *n* (%)	12 (23.08)		2 (5.71)		14 (13.79)	

Note. IQR = Interquartile Range (25^{th} - 75^{th} percentile). Where there was no missing data a dash was inserted into the cell

*$p < 0.05$

Table 6

Mean and Standard Deviation Statistics for Primary Assessment Measures Pre-Training, Post-Training, and 28-Day Follow-Up for Intent-To-Treat Analysis (n = 87)

Variable	Assessment time point					
	Pre-training		Post-training		28-day follow-up	
	Mean (*SD*)	Median (*IQR*)	Mean (*SD*)	Median (*IQR*)	Mean (*SD*)	Median (*IQR*)
Knowledge	2.52 (1.69)	2.00 (1.00-4.00)	3.79 (1.68)	5.00 (3.00-5.00)	3.73 (1.66)	5.00 (3.00-5.00)
Missing, *n* (%)	5 (5.75)		5 (5.75)		5 (5.75)	
Ability to apply knowledge			5.47 (0.73)	6.00 (5.00-6.00)	5.35 (0.74)	5.00 (5.00-6.00)
Missing, *n* (%)			31 (35.63)		31 (35.63)	
How many clients prompted to form 'if-then' plans in the past month	0.55(1.55)	0.00 (0.00-0.00)			1.01 (2.33)	(0.00-1.00)
Missing, *n* (%)	11(12.64)				11 (12.64)	
Percentage of clients prompted to form 'if-then' plans in the past month	6.23(17.05)	0.00 (0.00-0.00)			12.53 (24.12)	0.00 (0.00-16.67)
Missing, *n* (%)	14(13.79)				14 (13.79)	

Note. IQR = Interquartile Range (25^{th} - 75^{th} percentile).

Results Regarding Exploratory Analysis

A summary of the means and standard deviations of outcomes used in exploratory analyses (n = 35) are shown in Table 7. All results from exploratory analysis were confirmed when using percentage of clients prompted (instead of number of clients, as below) to form 'if-then' plans as the dependent variable (see Appendix Y).

Predictors of the number of clients prompted to form 'if-then' plans in the month after training

Perceived usefulness of 'if-then' planning, confidence in their use, and intentions to use 'if-then' plans. Perceived usefulness of 'if-then' planning, confidence in their use, and intentions to use 'if-then' plans, did not predict change in the number of clients prompted to form 'if-then' plans in the past month ($\chi^2(2) = 1.53$, $p = .465$). The percentage of clients that therapists intended to prompt to form 'if-then' plans post-training, did not predict change in the number of clients prompted in the past month ($\chi^2(2) = 1.24$, $p = .537$).

Therapist attitudes towards EBP. Overall attitudes towards EBP did not predict change in the number of clients prompted to form 'if-then' plans in the past month ($\chi^2(2) = 1.75$, $p = .418$). Similarly, therapists' willingness to adopt new practices if required ($\chi^2(2) = 2.90$, $p = .235$), willingness to adopt EBP if perceived as intuitively appealing ($\chi^2(2) = 1.19$, $p = .551$), openness toward novel and/or innovative practices ($\chi^2(2) = 1.83$, $p = .400$), and the extent to which therapists believed that their usual practice diverges from EBP ($\chi^2(2) = 1.23$, $p = .542$), were non-significant.

Satisfaction with training. Overall satisfaction with training did not predict change in the number of clients prompted to form 'if-then' plans in the past month ($\chi^2(2) = 1.21$, $p = .545$). Similarly, clinicians' satisfaction with the ease of using the training package ($\chi^2(2) = 1.28$, $p = .528$), the content ($\chi^2(2) = 1.28$, $p = .528$), and ability to tailor training to personal needs ($\chi^2(2) = 1.33$, $p = .514$), were non-significant.

Table 7

Mean and Standard Deviation Statistics for Variables Used in Exploratory Analysis Pre-Training, Post-Training and 28-Day Follow-Up (n = 35)

Variable	Assessment time point					
	Pre-training		Post-training		28-day follow-up	
	Mean (*SD*)	Median (*IQR*)	Mean (*SD*)	Median (*IQR*)	Mean (*SD*)	Median (*IQR*)
Dependent variables						
Number of clients prompted in the past month	0.58(1.40)	0.00(0.00-0.00)			1.64(2.88)	1.00(0.00-2.00)
Missing, *n* (%)	2(5.71)				2(5.71)	
Percentage of clients prompted in the past month	7.63(20.83)	0.00(0.00-0.00)			21.58(30.64)	8.00(0.00-33.33)
Missing, *n* (%)	2(5.71)				2(5.71)	
Predictor variables						
Perceived usefulness of 'if-then' planning, confidence in their use, and intentions to use 'if-then' plans						
Overall score			7.76(1.35)	7.76(6.67-9.00)		
Percentage intended to prompt			60.00(28.86)	60.00(30.00-80.00)		
E-Learner Satisfaction Questionnaire 12-item						
Interface			14.23(2.30)	16.00(13.00-16.00)		
Content			17.29(1.98)	17.00(16.00-20.00)		
Personal			8.26(2.38)	8.00(7.00-9.00)		
Total			39.77(5.35)	39.00(36.00-44.00)		
Evidence-Based Practice Attitude Scale						
Require			8.14(2.14)	9.00(6.00-9.00)		
Appeal			12.06(2.39)	12.00(11.00-14.00)		
Openness			11.03(2.71)	11.00(9.00-12.00)		
Divergence[1]			3.09(2.57)	2.00(1.00-4.00)		
Total			44.14(6.44)	45.00(41.00-48.00)		

Note. There are no missing values for the predictor variables. IQR = Interquartile Range (25^{th} - 75^{th} percentile).

[1]Lower scores on this subscale are more favourable.

Qualitative Responses to Open-Ended Items

In total, 31 participants responded to open-ended items at follow-up; providing a total of 52 comments. Table 8 summarises sub-groups derived from the comments to each item; listed in descending order of the number of comments in each sub-group. See Appendix Z for further details of anonymised comments. Thirteen participants reported being presented with barriers to using 'if – then' planning within their practice, and 16 participants responded to the follow-up item 'please explain below'. Twenty-two participants responded to the question 'Is there anything that would have helped you form 'if-then' plans with your clients more often?'. Eleven participants responded to the question 'Do you have any further comments about this study that you would like to share?'. Two participants provided comments related to possible confounding variables, which may provide a valuable context for interpretation of results: (i) *'I have worked with limited patients as I have been on annual leave for 3 weeks'*; (ii) '*I can't remember the names of all the stages of the model but that doesn't mean I didn't understand it and remember the concept - this will have skewed my response* […]'

Discussion

The primary aim of this study was to evaluate the effect of completing an IBT programme in 'if-then' planning on clinicians' clinical competency in 'if-then' planning. The secondary aim was to explore whether clinicians' (a) perceived usefulness of 'if-then' planning, confidence in their use, and intentions to use 'if-then' plans, (b) attitudes towards EBP, and (d) satisfaction with training, influenced clinicians' change in use of 'if-then' planning. Finally, the study aimed to explore therapists experience concerning how appropriate and acceptable IBT in 'if-then' planning is for clinicians working in mental health-settings.

Table 8

Frequency of Sub-Group Themes in Response to Each Open-Ended Questionnaire Item

Item	Sub-group	Number of comments in sub-group *n* (%)
Please explain the barriers you have encountered to using 'if-then' plans		
	Did not feel appropriate to use with some clients	7 (38.89)
	Forgot to use	4 (22.22)
	Did not feel skilled enough to use 'if-then' planning	2 (11.11)
	Did not feel appropriate to use within clinical-setting	2 (11.11)
	Therapeutic-orientation	1 (5.56)
	Lack of confidence	1 (5.56)
	Time-limitations in therapy	1 (5.56)
	Total	18 (100.00)
Is there anything that would have helped you form 'if-then' plans with your clients more often?		
	Waiting for the correct stage in therapy	7 (30.43)
	A prompt sheet and/or additional training materials	6 (26.09)
	A reminder to use	4 (17.39)
	Not sure	2 (8.70)
	More practice	2 (8.70)
	More detail on strategies on how to implement 'if-then' plans	1 (4.35)
	A less formal way of implementing 'if-then' plans	1 (4.35)
	Total	23 (100.00)
Do you have any further comments about this study that you would like to share?		
	Helpful	5 (45.45)
	Useful	3 (27.27)
	Possible confounding variable	2 (18.18)
	Interesting	1 (9.09)
	Total	11 (100.00)

Summary of Findings

The effect of IBT in ‘if-then’ planning on clinician competency. In line with the study’s hypothesis, findings from an ITT-analysis showed that IBT in 'if-then' planning improved clinicians’ clinical competency on two levels: (i) knowledge concerning 'if-then' planning, and (ii) use of ‘if-then’ planning, and that these improvements were maintained at 28-day follow-up. Furthermore, knowledge concerning the appropriate application of ‘if-then’ planning was maintained from post-training to 28-day follow-up. Clinicians’ average use of 'if-then' planning increased from 0.55 to 1.01 times per month. Results are in line with a recent meta-analysis which reported positive effects of IBT on clinical competency (Horan, 2018).

The relationship between predictor variables and use of ‘if-then’ planning. Of the clinicians who completed IBT, the extent to which their use of ‘if-then’ planning changed from pre-training to 28-day follow-up was not predicted by their (a) perceptions of the usefulness of ‘if-then’ planning, confidence in their use, and intentions to use ‘if-then’ plans, (b) satisfaction with training, or (c) their attitudes towards EBP.

Clinicians’ experience of using IBT to learn ‘if-then’ planning. Qualitative comments indicated that clinicians' experienced barriers to using 'if-then' planning. Clinicians’ reported barriers related to not feeling that it was some clients, forgetting to use the technique, not feeling skilled enough to use the approach, and feeling that 'if-then' planning was not appropriate for use within their service. Furthermore, comments indicated that IBT could be improved by providing extra materials (e.g., prompt sheets), reminders, and providing more opportunities for practice. Clinicians reported finding the training was helpful and useful, thus suggesting that training was acceptable to clinicians.

The Effect of IBT in 'If-Then' Planning on Clinician Competency

Findings support the use of IBT to disseminate 'if-then' planning to clinicians' delivering psychologically-informed interventions. These findings are in line with research supporting the use of IBT to disseminate EBP to therapists working in mental health settings (Fairburn & Cooper, 2011; Horan, 2018; Jackson et al., 2018). The improvement in use of 'if-then' planning was modest; with the number of clinicians prompting their clients increasing from relatively few clients (0.55 per month) pre-training compared to 1.01 clients per month at 28-day follow-up. This was in addition to improvements in therapists' knowledge concerning 'if-then' planning. Moreover, this was achieved using a cost-efficient and accessible training package (Khanna & Kendall, 2015). Clinician's levels of clinical competency, in addition to clinicians' knowledge concerning the appropriate use of 'if-then' planning, were maintained for 28-days. Therefore, demonstrating that the clinician-outcomes of IBT in 'if-then' planning were durable. Taken together with findings from quantitative analyses, these findings suggest that IBT in 'if-then' planning was acceptable to clinicians and improved their clinical competency. Clinicians also proposed practical means of improving the IBT programme (e.g., providing reminders) in addition to highlighting factors that may influence use of 'if-then' planning following IBT. Barriers concerning the appropriateness of using 'if-then' planning with clients and within clinicians' organisations, are in line with those found more generally in disseminating EBP via internet and non-internet methods (Beidas & Kendall, 2011)

Why was the Effect of IBT not Predicted by Therapist-Variables?

Findings that therapists' overall attitudes towards EBP did not impact on use of skill, are consistent with results from some studies (Shapiro, Prinz, & Sanders, 2012) but not others (Nakamura et al., 2011; Nelson et al., 2006). Therefore, this relationship may warrant further examination using theoretical frameworks that link attitudes to

behaviour (e.g., Theory of Planned Behaviour; Ajzen, 1991). The finding that clinicians' perceived usefulness of 'if-then' planning, confidence in their use, and intentions to use 'if-then' plans did not predict change in use of 'if-then' planning, may have been a consequence of these factors being examined using a single outcome assessment. This might have impacted on the predictive-validity of this variable. The finding that intentions to use 'if-then' planning did not predict use of skill was surprising, as literature has consistently indicated that intentions are related to behaviour (Webb & Sheeran, 2006). In addition to addressing barriers to using 'if-then' planning within clinical practice (e.g., opportunities to use them, and perceived client and organisational appropriateness; Proctor et al., 2011), clinicians' themselves may have benefited from using 'if-then' planning themselves to help translate their behaviours into action (Gollwitzer, 1993; Gollwitzer & Sheeran, 2006).

Why Did Therapists' Satisfaction with Training Not Influence the Effect of IBT?

The findings that satisfaction with training was not related to change in use of 'if-then' planning is consistent with studies examining the impact of satisfaction on treatment fidelity (Vismara et al., 2009) but inconsistent with findings concerning applied knowledge (Quinn, 2004). Taken together, these findings suggest that satisfaction with training may impact on the lower levels (e.g., knowledge) but not the higher levels of clinical competence (e.g., use of skill).

Clinical Implications

This study provides the preliminary resources for disseminating 'if-then' planning more widely. Research has demonstrated that 'if-then' planning has a large-sized effect on goal attainment in individuals experiencing mental health difficulties (Toli et al., 2016). Thus, it is hoped that the clients of the therapists who attended IBT better achieved their goals. Wider dissemination of this IBT programme could be achieved through high-quality pathways to impact, which focus on the use of the

principles of knowledge exchange (e.g., co-production; Economic and Social Research Council, 2018).

Limitations of the Study

The findings of the present study must be considered within the context of a number of limitations. First, the study used a before-after research design which are often biased by threats to internal validity (e.g., regression to the mean effects). Therefore, increases in knowledge may be due to confounding variables (e.g., clinicians' naturally developing knowledge through their clinical practice). Other experimental designs (e.g., a randomised control trial) would have better controlled for such confounding factors. Furthermore, the current study did not have a comparison-group; therefore, conclusions cannot be drawn regarding how IBT compares to other training methods (e.g., in-person training in 'if-then' planning as evaluated by Gonzalez, 2018, who also found that training improves clinicians' knowledge and use of 'if-then' planning).

The findings may also have been affected by the relatively high rate of attrition (57% of clinicians who completed baseline measures did not complete follow-up assessment) compared to other studies of this kind (which have an average attrition-rate of 21%; Horan, 2018). Although attempts were made to ameliorate the impact of attrition-bias (e.g., using ITT-analysis) it is likely that attrition-bias influenced results from assessments completed post-IBT and follow-up only (e.g., qualitative comments and predictor-variables) as 'completers' only analysis was conducted. Furthermore, participants who completed the training programme rated that they knew more about how to help their clients form 'if-then' plans compared to 'non-completers'. Therefore, individuals who completed the study may not be representative of clinicians accessing the course. It is plausible that participants with relatively higher practical awareness of 'if-then' planning may have engaged more with the course content, possibly using the

programme to refresh their knowledge, thus making it more likely that they completed the course.

The findings may also be impacted by practice and 'teaching to the test' effects. For instance, increase in therapists' scores on clinical competency assessments may not reflect a true increase in clinical competency, instead results may have increased due to clinicians’ familiarity with the assessment questions and skill in answering these questions (Kohn, 2000). Furthermore, results were dependent on self-report assessment. This may have been influenced by recall error and clinicians' ability to discriminate between 'if-then' planning and other therapeutic strategies. Due to limitations in the IBT platform, clinical competency regarding therapists’ ability to demonstrate the skill (level 3) was not measured. This study may have benefited from an independently-rated assessment (e.g., an assessment of level 3 clinical competence; The Yale Adherence Competence Scale; Carroll et al., 2000) and/or objective measure of behaviour (e.g., direct observation).

Clinicians were required to opt into IBT in response to advertisement predominantly placed on platforms which promote EBP. Training also required clinicians to be able to access internet-based audio-visual material. Therefore, participants may not be representative of clinicians working in 'real world' mental health-settings. Indeed, a substantial proportion of the sample (40%) were attending a training course. Therefore, caution should be taken when generalising findings to other clinicians and clinical-settings. Finally, the follow-up of this study was limited to 28-days, therefore conclusions cannot be drawn regarding the long-term impact of training.

Recommendations for Future Research

Future research should focus on using objective measures to assess the impact of the training programme on clinicians’ ability to demonstrate the skill (level 3), and whether training impacts the outcomes of clients seen by clinicians who complete the

programme. Research should also determine the relative effectiveness of IBT against other training methods (e.g., in-person training) and passive control (e.g., training as unusual) using a randomised control trial. This would allow for decisions regarding how best to disseminate ‘if-then’ planning based on the relative practical benefits (e.g., cost-effectiveness) and effectiveness of each approach. Furthermore, research should focus on improving the effectiveness of IBT by further understanding the process of dissemination (e.g., overcoming barriers concerning perceived appropriateness), and incorporating strategies to improve the effectiveness of training (e.g., clinicians forming ‘if-then’ plans concerning their practice).

Conclusions

The current study evaluated the effect of IBT for disseminating 'if-then' planning to clinicians delivering psychologically-informed interventions. This study also examined whether (a) therapists’ attitudes towards EBP, (b) satisfaction with training, and (c) perceived usefulness of 'if-then' planning, confidence in their use, and intentions to use ‘if-then’ planning influenced the effects of IBT. Evidence supported the use of IBT for disseminating 'if-then' planning by increasing therapists' clinical competency on two levels: (i) knowledge concerning 'if-then' planning, and (ii) use of ‘if-then’ planning. These improvements were maintained at 28-day follow-up. Furthermore, knowledge concerning the appropriate application of ‘if-then’ planning was maintained from post-training to 28-day follow-up. There was no evidence to support factors influencing the effects of IBT for 'if-then' planning. Further qualitative comments indicate that IBT for 'if-then' planning is acceptable to therapists. In addition, comments identified areas in which the programme could be improved and potential barriers to the use of 'if-then' planning in clinical-settings. These findings contribute to research supporting the use of IBT to disseminate EBP to clinicians working in mental health-settings (e.g., Fairburn & Cooper, 2011; Horan, 2018), although further research is

needed to determine its impact on some aspects of clinical competency (e.g., level 3: therapists' ability to demonstrate the skill) and client outcomes.

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Footnotes

[1] Due to the limitations in the Qualtrics platform (i.e., lack of two-way interaction tool such as teleconferencing), level 3 clinical competency: therapist ability to apply the skill, was not assessed. Assessments of this level of competency is conducted using structured role-play which requires two-way interaction between therapist and assessor (Muse & MacManus, 2013)

Appendix A

Confirmation of Ethical Approval

Downloaded: 23/10/2017
Approved: 16/03/2017

Andrew Horan
Registration number: 150123680
Psychology
Programme: Doctorate of Clinical Psychology

Dear Andrew

PROJECT TITLE: The Feasibility of Using Internet based Training to Help Clinicians in to Prompt their clients to Form Implementation Intentions
APPLICATION: Reference Number 011985

On behalf of the University ethics reviewers who reviewed your project, I am pleased to inform you that on 16/03/2017 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 011985 (dated 13/03/2017).
- Participant information sheet 1027017 version 2 (13/03/2017).
- Participant information sheet 1027016 version 2 (13/03/2017).
- Participant information sheet 1028378 version 1 (13/03/2017).
- Participant consent form 1027019 version 2 (13/03/2017).
- Participant consent form 1027018 version 2 (13/03/2017).
- Participant consent form 1028379 version 1 (13/03/2017).

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.

Yours sincerely

Thomas Webb
Ethics Administrator
Psychology

Appendix B

Division of Project Responsibilities

Table Outlining the Division of Project Responsibilities

<table>
<tr><th></th><th>Andrew Horan</th><th>Paulina Gonzalez</th></tr>
<tr><td>Review literature to summarize:
- core components of 'if-then' planning (theoretical model, why, when and how it works)
- clinical applications of 'if-then' planning (how to use it in clinical practice)</td><td>Review literature on core components of 'if-then' planning</td><td>Review literature on Clinical application</td></tr>
<tr><td>Develop draft of training content to send to experts for consultation</td><td colspan="2">Collaboratively</td></tr>
<tr><td>Identify and recruit experts</td><td colspan="2">Collaboratively</td></tr>
<tr><td>Revise training content based on the feedback from experts</td><td colspan="2">Collaboratively</td></tr>
<tr><td rowspan="2">Develop questionnaires of theoretical and practical knowledge of 'if-then' planning</td><td>Practical knowledge questionnaire on 'if-then' planning (multiple-choice questionnaire)</td><td>Theoretical knowledge on 'if-then' planning (multiple-choice questionnaire)</td></tr>
<tr><td colspan="2">Both researchers will review questionnaires and use both questionnaires as part of their outcome measures.</td></tr>
<tr><td>Develop training package independently</td><td>Internet-based training</td><td>Workshop-based</td></tr>
</table>

Appendix C

Email Sent to Experts Inviting Them to Provide Feedback on Draft Course Content

Dear *Name*,

As an expert on implementation intentions, we would like to ask for your help to review the contents of a training programme on implementation intentions.

As part of a doctoral research project, we are developing a training programme aimed at clinicians who are delivering psychological interventions to people with mental health problems. The aim of the training will be to help clinicians form implementation intentions with their clients in order to help them achieve their goals.

We would like to ask for your help by giving us feedback on the proposed training content. If you would like to take part then you will be asked to read a short summary of the contents of the training on implementation intentions. In addition, you will be asked to complete a short questionnaire. It should take you less than 15 minutes. Once submitted, all your responses will be anonymous therefore you will not be identifiable in any reports that come out of this research.

If you would like to participate in this study, please click here.

Or copy and paste the URL below into your internet browser:
https://sheffieldpsychology.eu.qualtrics.com/jfe/form/SV_b70QXcS9XQWmhzn?Q_CHL=email

If you have any questions or concerns, then please contact us, Andrew Horan (ahoran1@sheffield.ac.uk) Paulina Gonzalez Salas Duhne (pgonzalezsalasduhne1@sheffield.ac.uk), Dr. Thomas Webb (t.webb@sheffield.ac.uk) or Prof. Gillian Hardy (g.hardy@sheffield.ac.uk).

Thank you for your time and participation.

Yours sincerely,

Andrew Horan, Paulina Gonzalez, Dr. Thomas Webb and Prof. Gillian Hardy

Appendix D

Information Sheet and Consent Form Given to Expert Participant

Clinical Psychology Unit
Telephone: +44 (0) 114 2226650
Email: a.sinha@sheffield.ac.uk
Amrit Sinha, Research Support Officer
Sheffield S10 2TN UK

Department of Psychology
University of Sheffield
Western Bank

7th March 2017

INFORMATION FOR PARTICIPANTS
Title of Research Project: Training clinicians to help their clients to form 'if-then' planning

Name of Researchers: Paulina Gonzalez Salas Duhne and Andrew Horan, supervised by Dr. Thomas Webb and Prof. Gillian Hardy.

Before you decide whether you would like to take part in this study it is important that you understand the purpose of the study and what taking part will involve. Please read the following information carefully and contact us if you would like more information. Our contact details are provided at the end of this document.

What is the purpose of this study?
To create a training package to help clinicians to help their clients to form 'if-then' planning - namely, specific if-then plans that link potential opportunities to achieve desired goals with specific responses to those opportunities (Gollwitzer, 1999; 2015).

In a second stage of this project, we will evaluate how acceptable and effective the training is.

Why have I been invited?
You have been identified as an expert on 'if-then' planning. Individuals were identified if they took part in the Synergy Expert Group for recommendations on 'if-then' planning (Hagger et al., 2016), have published at least three articles focused on 'if-then' planning, or have been identified as an expert by another expert.

Do I have to take part?
No, your participation in this study is completely voluntary. If you choose to participate, then you are free to withdraw at any point without giving a reason, by simply closing your browser.

What will happen to me if I take part?
If you choose to take part in this research, then you will be asked to read a summary of the contents of the proposed training. It is a brief summary that should take in average 15 minutes

to read. In addition, you will be asked to answer a few questions regarding the proposed training.

What are the possible benefits of this research?
You may reflect on what are the crucial aspects of 'if-then' planning, and your answers may help to improve the training. Our hope is that the training will help clinicians to gain tools which research suggests may help their clients to reach their goals. You will *not* be financially reimbursed for taking part in this study.

Are there possible risks of taking part in this research?
You will be asked some questions about your knowledge on 'if-then' planning. You may potentially find this uncomfortable. However, you are free to withdraw without giving any reasons (see question 'what if I change my mind?').

What will happen to my data and the results of the study?
The information from the questionnaires will be treated in strict confidence and we will not ask you for your any identifiable information in the online questionnaire (in other words, your responses will be anonymous). The data collected will be kept securely on a password-protected computer.

The anonymized data will be written up as part of our doctorate and may be published in a scientific journal. However, it will not be possible to identify your individual responses.

What if I change my mind?
You are free to withdraw your consent during the questionnaire without giving any reasons. Once submitted, your responses will be anonymized and there will no longer be any information linking you to your responses. Therefore, after submission you will not be able to withdraw your responses from the study.

Who should I contact if I have questions or need more information?
If you have any questions or need any more information please contact Paulina Gonzalez Salas Duhne and/or Andrew Horan (pgonzalezsalasduhne1@sheffield.ac.uk and/or ahoran1@sheffield.ac.uk). Should you prefer to call please contact the Research Support Officer at (+44 (0) 114 2226650) who will relay the message to Paulina or Andrew and they will call you back to answer your query.

What if I wish to complain about the way the study has been carried out?
If you have any complaints, please contact Professor Gillian Hardy (g.hardy@sheffield.ac.uk) or Dr Thomas Webb (t.webb@sheffield.ac.uk), supervisors of this study.

If you feel that your complaint has not been handled to your satisfaction following this, you can contact the Head of Psychology Department Professor Glenn Waller (g.waller@sheffield.ac.uk, 0114 222 6568).

This proposal has been reviewed and approved by the Research Ethics Committee in the Department of Psychology at the University of Sheffield.

Informed Consent Sheet for Expert Participants

Title of Research Project: Training clinicians to use 'if-then' planning with their clients

Name of Researchers: Paulina Gonzalez Salas Duhne and Andrew Horan, supervised by Dr. Thomas Webb and Prof. Gillian Hardy.

If you agree, please 'tick' each of the following statements.

- ☐ I confirm that I have read and understand the information for participants dated 7th March 2017 explaining the above research project and that I agree to take part in the research.
- ☐ I understand that my participation is entirely voluntary, and that I am able to withdraw my participation and consent during the questionnaire. The responses will be anonymised upon submission, therefore I understand that I will not be able to withdraw from the study after I have completed the questionnaire.
- ☐ I understand that the information collected during this study will be kept strictly confidential. I give permission for members of the research team to have access to my anonymized responses. I understand that my name will not be linked with the research materials, and I will not be identified or identifiable in the report or reports that result from the research.

Appendix E

Draft Contents of Training Presented to Expert Participants

1. Why is goal setting important in clinical settings?

This section of the training will explain that setting and striving for goals is a key part of any psychological therapy.

Clinicians will be guided to reflect on why clients come to therapy, and how their goals - explicit or implicit- tend to be at the heart of their motivation to seek therapy.

Clinicians will also be asked about common goals that clients have at the start of therapy (e.g., to decrease anxiety during exams).

Comment on this section (optional)

_____

2. The intention-behaviour gap

This section of the training will explain that forming goal intentions (i.e., statements describing the desired outcome or action) tend to be insufficient on their own to achieve a goal.

The training will explain that forming and committing to a goal intention are initial necessary steps towards achieving a goal. However, evidence suggests that motivation alone is likely to be insufficient to ensure goal attainment. A meta-analysis of 10 meta-analyses suggests that intentions account for just 28% of the variance in behaviour (Sheeran, 2002).

It is therefore important to developing techniques to bridge the intention-behaviour gap, especially for mental health service users, as they may experience even greater difficulties achieving their goals (Corrigan, Larsen & Rush, 2009).

Clinicians will be prompted to describe an example of when they failed to meet a goal that they set for themselves in the past month. Then clinicians will be asked to reflect on the additional difficulties that their clients are likely to fact striving to achieve their goals.

Comment on this section (optional)

_____

3. Model of action phases

This section of the training will provide a brief description of the Rubicon model of action phases (Heckhausen, 1991; Heckhausen & Gollwitzer, 1987).

Clinicians will receive a short explanation about each of the four phases of goal pursuit described by the model: Namely, predecisional, preactional, action and postactional. Clinicians will be guided through each of the phases using a clinical example.

Clinicians will be prompted to reflect on how, depending on which phase their client is at, distinct strategies may be adequate to help the client achieve their goal.

Comment on this section (optional)

_____

4. 'if-then' planning: What they are, how they work, and their evidence-base

This section of the training will explain what 'if-then' planning are, how they work, and their evidence-base in clinical practice.

We will explain that 'if-then' planning are 'if-then' plans that take the form 'If I encounter X critical condition, then I will perform Y goal-directed response' (Gollwitzer, 1999).

We will also describe research on how 'if-then' planning work; Namely, via (i) heightened cue accessibility (Aarts, Dijksterhuis & Midden, 1999; Webb & Sheeran, 2004); and (ii) strong cue-response linkages (Aarts & Dijksterhuis, 2000; Webb & Sheeran, 2008) leading to strategic automaticity (Gollwitzer & Schaal, 1998).

We will explain that forming 'if-then' planning has been shown to help service users with a range of mental health difficulties to achieve their goals (Toli, Webb, & Hardy, 2015). However, 'if-then' planning are not routinely used in clinical practice.

Clinicians will be provided with simple and clear information about each of the ideas expressed above, and examples of how 'if-then' planning can and have been used in clinical practice.

Comment on this section (optional)

_____

5. Current goal setting techniques in CBT: SMART goals

This section of the training will present a common goal setting technique in Cognitive Behavioural Therapy: Namely, SMART goal setting.

SMART criteria for effective goal setting directs clinicians to consider whether their client's goal is: Specific, Measurable, Attainable, Realistic, and Time-bound (Dorn, 1981).

The training will discuss the similarities between SMART goal setting and 'if-then' planning (e.g., that they both involve being specific about the desired goal).

The training will discuss the differences between SMART goal setting and 'if-then' planning (e.g., that SMART goals lack an 'if-then' clause).

Clinicians will be asked to reflect on how they commonly set goals with their clients and the

advantages and disadvantages of different techniques. The training will suggest that ‘if-then’ planning might be a valuable complement to SMART goal setting.

Comment on this section (optional)

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6. Learning how to form ‘if-then’ planning

This section of the training will further explain the crucial elements of ‘if-then’ planning and how to use them in clinical practice.

The training will explain that the ‘If' part of the plan specifies a good opportunity to act (e.g., a time, place, or internal state such as a feeling). The ‘then’ part of the plan identifies an effective goal-orientated response to this opportunity (e.g., initiate an action).

The training will explain that the specified opportunity (i.e., the 'if-part' of the plan) might consist of internal or external barriers to achieving the goal, for example 'If I feel sad and don't want to do anything'. The potential response ('then') might involve doing or not doing something, replacing a behaviour, ignoring something or thinking about something specific. For example '...then I will ignore that feeling and go for a run because I know that I will feel better afterwards'.

Clinicians will be presented with written clinical examples and videos with actors role-playing a therapy session where the clinician helps the client form ‘if-then’ planning.

Comment on this section (optional)

---

7. When it is appropriate to use ‘if-then’ planning

This section of the training will explain when it is appropriate to use ‘if-then’ planning.

We will suggest that ‘if-then’ planning should be formed when the client is in the pre-actional phase (i.e., once they have identified a clearly defined goal).

‘if-then’ planning are not suitable when clients are in the process of deciding what they would like to achieve. The findings of Sheeran et al. (2005) suggests that a lack of motivation undermines the efficacy of forming 'if-then' plans.

Clinicians will be shown clinical examples (i.e., vignettes) and asked to identify in which circumstances it would or would not be appropriate to form ‘if-then’ planning.

Comment on this section (optional)

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8. Practice: role-play or vignettes

This section of the training will provide role-plays and vignettes to reinforce clinicians'

knowledge of ‘if-then’ planning and to provide them with the opportunity to practice helping clients to form ‘if-then’ planning.

Comment on this section (optional)

_____

9. Forming an implementation intention to use ‘if-then’ planning with your clients

This section of the training will ask participants to form their own implementation intention to prompt their clients to form ‘if-then’ planning

For example, clinicians might be prompted to make the plan 'If the client identifies a clear goal that they are motivated to achieve, then, I will help them form an ‘if-then’ planning to support this goal.'

Comment on this section (optional)

_____

10. Conclusion and questions

This section of the training will outline the 'take-home' messages of the training package and provide an opportunity for participants to ask questions.

The main 'take-home' messages of the training are:

1. That prompting clients to form ‘if-then’ planning can be an effective strategy to help them to achieve their goals.

2. The ‘if-then’ planning are specific ‘if-then’ plans that link a good opportunity to act (in the 'if-part' of the plan), with a specific response to that opportunity (in the 'then-part' of the plan.

Comment on this section (optional)

_____

Appendix F

Questionnaire Designed to Elicit Feedback from Experts in the Field of 'If-Then' Planning

Thank you for reading the summary of the proposed training programme. We would like to ask for your feedback on the training programme detailed in the previous pages.

To provide your feedback, please answer each of the following questions and explain your answer, if appropriate.

1. To what extent do you think that this training would enable clinicians to develop an understanding of the theory underlying 'if-then' planning?

	The programme will not enable clinicians to develop an understanding				The programme will enable clinicians to develop a full understanding
To what extent...					

Please explain your answer:

_____

2. To what extent do you think that this training will provide clinicians with everything that they need to be able to help their clients to form 'if-then' planning in clinical practice?

	The programme does not provide clinicians with what they need				The programme provides clinicians with everything they need
To what extent...	○	○	○	○	○

Please explain your answer:

_____

3. Do you think that the training could be improved in any way?

○ Yes

○ No

If yes, please explain how you think that the training could be improved:

_____

4. What sections do you think should be part of a training programme for clinicians on 'if-then' planning?

Please drag the section titles which you think should form part of the training into the appropriate box. Please do this in the order that you think each section might best be presented to clinicians. If you think the training would benefit from additional sections, then please write suggest sections below.

The training **should** contain these sections in the following order:	The training **should not** contain these sections:
_____ Why is goal setting important in clinical settings?	_____ Why is goal setting important in clinical settings?
_____ The intention-behaviour gap	_____ The intention-behaviour gap
_____ Model of action phases	_____ Model of action phases
_____ 'if-then' planning: What they are, how they work, and their evidence-base	_____ 'if-then' planning: What they are, how they work, and their evidence-base
_____ Current goal setting techniques in CBT: SMART goals	_____ Current goal setting techniques in CBT: SMART goals
_____ Learning how to form 'if-then' planning	_____ Learning how to form 'if-then' planning
_____ When to use 'if-then' planning?	_____ When to use 'if-then' planning?
_____ Practice: role-play or vignettes	_____ Practice: role-play or vignettes
_____ Form 'if-then' planning about using 'if-then' planning with your clients	_____ Form 'if-then' planning about using 'if-then' planning with your clients
_____ Additional section (optional)	_____ Additional section (optional)
_____ Additional section (optional)	_____ Additional section (optional)

Appendix G

Expert Comments on the Draft Training Package and Decisions Made Following Review of Comments

A table summarising the qualitative comments from expert participants has been removed for confidentiality reasons.

Appendix H

Finalised Course Contents

Table Outlining the finalised training contents course contents based on feedback from expert participants, with reference to responses to participant comments in brackets.

<table>
<tr><th colspan="2" rowspan="2">Contents of the training</th><th colspan="2">Examples of the method of delivery</th></tr>
<tr><th>Workshop training</th><th>Online training</th></tr>
<tr><td>Why is goal setting important in clinical settings?</td><td>Goals are key part of the initial phase of any psychological therapy. Clients often specify desired states that involve needing to change their behaviour or way of thinking in order to attain these desired outcomes.</td><td>Power point followed by brief discussion regarding why clients come to therapy, with example of common goals patients have for therapy, based on clinical literature and our own clinical experience.</td><td>Text with picture.

Examples of common goals that patients have for therapy, based on clinical literature and our own clinical experience.</td></tr>
<tr><td rowspan="2">The intention-behaviour gap</td><td rowspan="2">Forming and committing to a goal intention are initial necessary steps towards achieving a goal. However, goal intentions are insufficient on their own to ensure goal attainment. A meta-analysis of 10 meta-analyses suggests that intentions account for just 28% of the variance in behaviour (Sheeran, 2002).

Individuals commonly set themselves health related goals, but few actually succeed. Successfully achieving a goal involves two tasks: first establishing a goal intention (i.e., being motivated) and then, implementing such goal effectively (i.e., translating this motivation into action, Gollwitzer & Oettingen, 2013).(response to comment 1, 3)</td><td>Therapists are prompted to describe an recent example when they failed to meet a goal that they set for themselves (response to comment 11).

Emphasise that despite these goals being realistic, practical and attainable, individuals still fail to achieve them (response to comment 7)

Presentation of statistics regarding health behaviour goals and actual attainment (e.g. X people wanted to give up smoking Y people succeeded), published in peer-reviewed journals in the past 15 years.</td><td>Therapists are prompted to describe an example when they failed to meet a goal that they set for themselves in the past month.

Presentation of statistics regarding health behaviour goals and actual attainment with animations (e.g. X people wanted to give up smoking Y people succeeded), published in peer-reviewed journals in the past 15 years.</td></tr>
<tr><td colspan="2">Examples:

Intention to donate blood accounts for 48% of the variance in people who actually donate blood (Giles, McClenahan, Carnis, & Mallet, 2004).

Intentions to exercise account for 33% of the variance in people actually exercising (Smiehotta, Scholz, & Schwarzer, 2005).

Ask participants to imagine examples where they have struggled to translate an intention into action, then times when a client has done the same.

Emphasize the intention-behaviour gap:goal = fantasy, failure explained by the inability to move beyond the current present obstacle. This typically makes the necessity of using planning/techniques (response to comment 10).</td></tr>
</table>

Contents of the training		Examples of the method of delivery	
		Workshop training	**Online training**
Model of action phases (Heckhausen & Gollwitzer, 1987; Gollwitzer & Sheeran, 2006)	Brief description of the model of action phases (Heckhausen & Gollwitzer, 1987; Gollwitzer & Sheeran, 2006), which divides goal pursuit into four distinct phases. Simply deciding to do something – i.e., the outcome of the pre-decisional phase) is not sufficient to ensure action. Instead, the model of action phases suggests that there is a pre-actional phase in which the person specifies when, where, and how they will act (i.e., forms an implementation intention) Implementation intentions may be a useful strategy to help individuals achieve their goals during pre-actional phase. II can be helpful for maintaining behaviour during the actional phase (response to comment 41) SMART goal setting is complementary to implementation intentions (response to comment 25).	Laminated sheets with the diagram of model of action phases describing the four consecutive phases involved in achieving a goal: pre-decisional, pre-actional, action, post-actional. Brief interactive (video or asking participants to move text boxes) explanation about the model. Indication of pre-actional and actional phases as the appropriate phase to prompt people to form implementation intentions. Present SMART goals and model of action phases chronologically e.g., use SMART to find a good goal, THEN use imps to create a good strategy (response to comment 80)	Animated diagram of model of action phases describing the four consecutive phases involved in achieving a goal: pre-decisional, pre-actional, action, post-actional. Indication of pre-actional as appropriate phase to use implementation intentions.
Implementation intentions	What are implementation intentions? (Gollwitzer, 1999) Evidence-base pointing to the effectiveness of if-then planning in mental health settings (Toli, Webb, & Hardy, 2015). Distinguish goal setting, striving and clarify the prerequisites to form implementation intentions (clear goal, motivated) , ensure that the respective goal is in place (i.e., there is a strong goal commitment) etc…, response to comments 1, 3, 38	Interactive explanation with power point presentation about implementation intentions, their effectiveness and their mechanisms. Describe appropriate situational cues and goal-directed responses with examples and common mistakes. (response to comment 22) Technique: 'What is the next step you need to make?' OR "how do I get there?" type of questioning to form the implementation intention (response to comment 27)	Text description of 'if-then' planning. Examples of implementation intentions. Task involving moving text boxes into the correct places on the screen to form an implementation intentions. As the participant does so, the mechanisms of implementation intentions will appear on screen.

Contents of the training		Examples of the method of delivery	
		Workshop training	**Online training**
	Describe what problems 'if-then' plans can be designed to solve (e.g. getting started, staying on track) by exploring why people fail to accomplish goals (response to comment 20)	Emphasize that implementation intentions are a specific type of plan" (i.e., one that has an if-then format that links a good opportunity to act with a predetermined response) (response to comment 69).	
Learning how to form implementation intentions	Crucial elements of implementation intentions: (a) The 'If-part' of the plan identifies a good opportunity to act (e.g. time or place) or internal response (e.g., a feeling); and (b) the 'then' part of the plan identifies an effective goal-orientated response (e.g. initiate action) to this opportunity. How to help clients form implementation intentions? The concept, the reason for using it, and the practice; and what to use them for. Perhaps include how if-then planning can be used to deal with problems encountered striving for goals, including different types of II (e.g. reframing II, antecedent vs. response-focused II; response to comment 78 & 60)	Clinical examples: videos with actors. Video script based on a Volitional Help Sheet for smokers (Armitage, 2008) describing how to form implementation intentions with clients. The video would depict a therapy session in which the patient has a specific goal in mind (possibly wanting to use relaxation strategies more often). The therapist would first explain to the client the concept of implementation intentions and how to use them. Then, the therapist would lead the client to form an "if-then plan" to support their goal, specifying a cue-response link.	
When to use implementation intentions? When are implementation intentions most likely to be most effective? (response to comment 42)	Identify a clearly defined goal that the client is motivated to achieve. Model of action phases reminder (implementation intentions are suitable during the pre-actional phases – i.e., once the person is motivated to act), but not when they are	Open question to the group: when to use implementation intentions. Power point displaying important reminders: identify a clearly defined goal intention and the person has identified that they are motivated to achieve the goal.	Therapeutic examples (vignettes) and indicators as to why it was or wasn't (e.g. when clients are deliberating about what they want) appropriate to use implementation intentions. Followed by bullet points with important reminders: identify a clearly defined goal

Contents of the training		Examples of the method of delivery	
		Workshop training	**Online training**
	still deciding what they would like to do. Implementation intentions are not effective is when they are not motivated to achieve the respective goal (as the findings of Sheeran et al., 2005, suggests that this undermines the efficacy of forming if-then plans).	We will include handouts and apps that may reinforce the use of II (comment 79) in clinical contexts (comment 81).	intention with sufficient motivation.
Practice	Reinforce knowledge on implementation intentions.	Role-play: ask participants in pairs to role play a client-therapist session. Instruct the client to have a specific goal in mind. Instruct the therapist to explain what are implementation intentions, why you propose to use them with the client (short), and help the client to form an implementation intention to support their goal	Form an implementation intention based on a clinical vignette by moving text boxes across the screen to the correct areas. E.g. a vignette describing an anxious client who intends to relax more. The client has identified a specific goal-directed of wanting to do more mindful breathing. Participants will be prompted to link the action to suitable situational cues e.g., "If I notice the early-signs of stress, then I will take some deep breaths", to form an implementation intention.
Intention to prompt if-then planning	Form your own if-then plans about forming if-then plans with your clients (e.g. If the client identifies a clear goal which they are motivated to achieve, then I will help them make an if-then plan'? (Response to comment 52) Ask clinicians to form their own plans in relation to their own obstacles to prompting clients to form II (e.g., feeling uncomfortable) or how they will deal with clients' reluctance to plan (response to comment 32) Consider both opportunities and obstacles (response to comment 56)	Handout for participants with 'if' and 'then' spaces. Consider the course content in relation to clinician's own case load. Emphasise the need for clinicians to use their clinical judgement when prompting individuals to form if-then plans (response to comment 22, 42, 55).	Open text box for participants to complete.

Contents of the training		**Examples of the method of delivery**	
		Workshop training	**Online training**
Conclusion / Questions	Take home messages: 1. People can struggle to achieve goals, even if they are 'SMART' 2. Prompting clients to form if-then plans can be an effective strategy to help them to achieve their goals. 3. Implementation intentions are formed using 'if', and the cue, and 'then' followed by goal-orientated response.	Bullet points of the main topics covered (also distributed as handouts). Space for final questions.	Described in-text

Appendix I

Scripts Used for Animation Voice-Over

Scripts are available upon request from the author.

Appendix J

Adverts Used to Recruit Clinicians and Summary of Recruitment Efforts

1. Email used during recruitment

Do you work as a trainee or qualified therapist? Are you interested in finding out about strategies to support clients to achieve their goals?

If so, then we would like to invite you to take part in a research project evaluating the feasibility of an online training programme. The programme is designed to help clinicians to understand and use 'if-then' planning (if-then plans) with their clients to help them to achieve their goals. The training is provided free of charge.

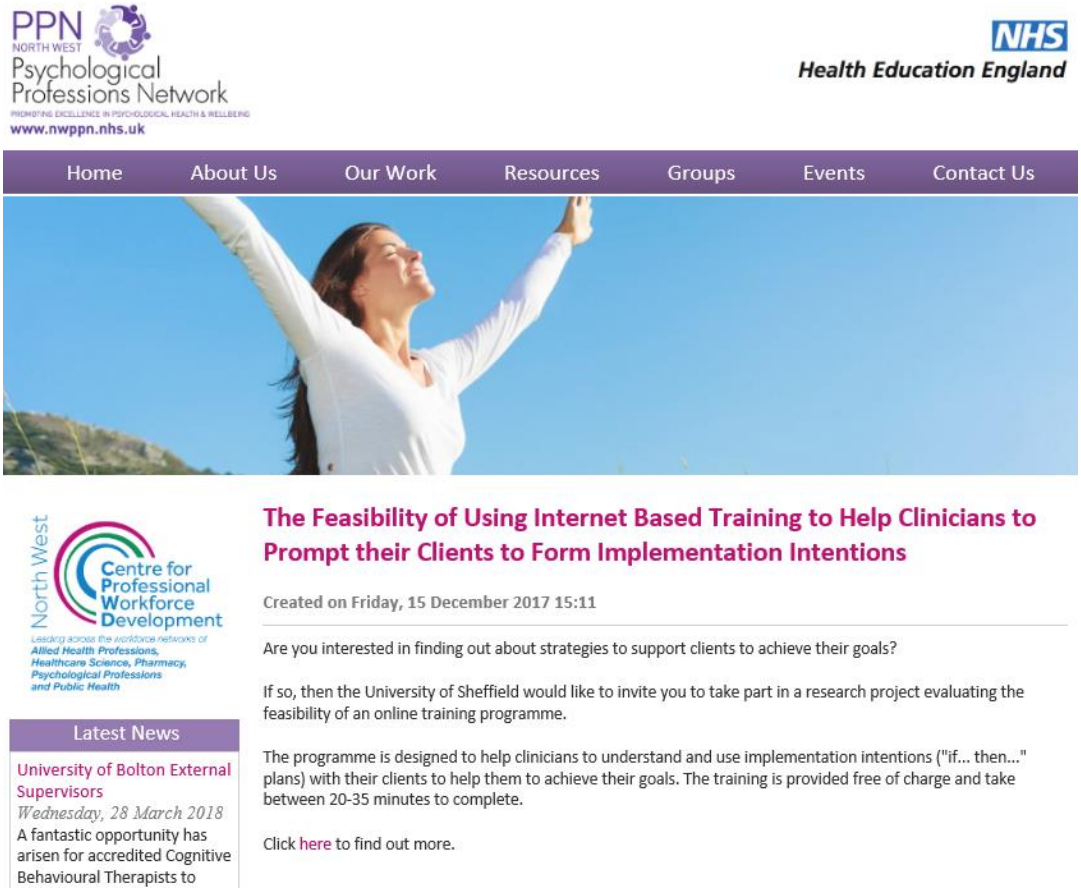
The programme will take between 20-45 minutes to complete and is organised into modules, so that you can choose how much information you would like to know about the topic.

Click here [Link to participant information sheet] to find out more.

Many thanks,

Andrew Horan (Trainee Clinical Psychologist)

2. Example of an advert used to recruit participants from digital newsletters



3. Examples of social media **used to recruit participants from social media websites:**

a) Facebook advert

Dear all,

Please see below for details of a free online CPD which may be of interest to you.

Are you interested in learning about strategies to support your clients achieve their goals? #TheraputicTechnique

If so, then we would like to invite you to take part in a research project evaluating the feasibility of an online training programme developed at the Clinical Psychology Unit at Sheffield University.

The programme is designed to help clinicians to understand and use implementation intentions ("if... then..." plans) with their clients to help them to achieve their goals.

Click here https://sheffieldpsychology.eu.qualtrics.com/…/SV_2a5YVHvW7… to find out more.

b) Twitter advert

Free CPD for all staff delivering psychological interventions (goo.gl/7ggPXz) focused on helping clients achieve goals @NIMHgov @mentalhealth @MHChat @MentalHealthAm @AUMentalHealth

1

4. Advert used to recruit participants from University of Sheffield academic seminars

Free CPD for **all clinicians** currently delivering psychologically-informed interventions.

Are you interested in therapeutic strategies aimed at supporting clients to achieve their goals?

If so, then we would like to invite you to take part in a research project evaluating the feasibility of an **online** training programme.

The programme is designed to help clinicians to understand and use "if.. then..." plans with their clients to help them to achieve their goals.

The **online** programme will take between 20-35 minutes to complete.

Please write your email address below to receive a link to the online training.
Email Address [Block Capitals]

Table Summarising the Method or Platform Used to Recruitment Participants, and the Date and Target Audience of Each Distribution of the Study Advert

Method or platform	Date	Target audience
Digital newsletters	December 2017	Psychology Professionals Network
	Jan 2018	Practice Research Network
Twitter	November-December 2017	In November 2017 advert was distrubuted to the following twitter accounts: @NIMHgov @mentalhealth @MHChat @MentalHealthAm @AUMentalHealth @DCPPreQual @DCPnorthwest @BPSLearning @UKDCP @cyp_iapt @BPSOfficial In December 2017 advert was distrubuted to the following twitter accounts : @mentalhealth @UKDCP @BPSOfficial @UK_ACP @APAHealthyMinds @PsychCentral @kennedyforum @MentalHelpNet @XGovMHN @DCPPreQual @Mental_Elf @Rethink_
Facebook	October – November 2017	• Assistant Psychologists UK - Psychology • UK Psychologists in Independent Practice. • Yorkshire Aspiring Clinical Psychologists Group. • UK based Clinical Psychology Facebook Group. • Mental Health Nursing December 2017 • Assistant Psychologists UK - Psychology • CBT-REBT therapists • Counselling, CBT & Life Coaching UK • CBT Nest - Peer Consultations for Cognitive-Behavioural Therapy Providers • Cognitive Behavioural Therapy Society of Southern California • RCN Mental Health Forum
Linkdn	January 2018	• The Psychology Network • Clinical Child and Adolescent Psychology Forum • Clinical Forensic Psychology • Assistant & Trainee Clinical Psychologists • BACP Workplace

Email Distribution to Doctorate in Clinical Psychology Training Course	November 2017 - January 2018	Sheffield Bangor University University of Bath University of Birmingham Cardiff University Coventry and Warwick University of East Anglia University of East London University of Edinburgh University of Essex - Tavistock University of Exeter University of Glasgow - NHS Scotland University of Hertfordshire Institute of Psychiatry, Psychology and Neuroscience - King's College London Lancaster University University of Leeds University of Leicester University of Liverpool University of Manchester Newcastle University North Thames - University College London Oxford Plymouth University Royal Holloway - University of London Salomons - Canterbury Christ Church University University of Sheffield University of Southampton South Wales Staffordshire University University of Surrey Teesside University Trent - Universities of Lincoln and Nottingham Hull

Email distribution to IAPT training courses	December 2017	Canterbury Christchurch Salomans University *Postgraduate Diploma in Psychological Therapies CBT (HI IAPT* Coventry University *Postgraduate Diploma in High Intensity Psychological Interventions* Institute of Psychiatry *IAPT Post-Graduate Diploma in High Intensity Interventions* Reading University *Postgraduate Diploma in Evidence-Based Psychological Treatment (IAPT Pathway)* Royal Holloway *IAPT Post-Graduate Diploma in High Intensity Interventions* Greater Manchester West CBT Training Centre at Manchester University *IAPT Post Graduate Diploma in Cognitive and Behaviour Therapies: Cognitive Behavioural Pathway* Southampton University *Postgraduate Diploma in Cognitive Therapy for Anxiety & Depression. (HI IAPT)* Staffordshire University *Postgraduate Programme in Cognitive Behavioural Psychotherapy (IAPT)* Teesside University *Post Graduate Diploma in CBT (HI IAPT)* UEA (University of East Anglia) *Postgraduate Diploma in Cognitive Behaviour Therapy for Primary Care Mental Health (IAPT)* University of Birmingham *Postgraduate Programme in Cognitive Behavioural Psychotherapy (IAPT)* University of Chester *Postgraduate Diploma: Cognitive & Behavioural Therapies (IAPT)* *- Both full and part time courses Accredited* University of Cumbria *IAPT Post-Graduate Diploma in High Intensity Interventions* University of Exeter *IAPT Post-Graduate Diploma in High Intensity Interventions* University of Newcastle *Postgraduate Programme in Cognitive Behavioural Psychotherapy (IAPT)* University of Nottingham *HI IAPT Postgraduate Diploma/MSc in Cognitive Behavioural Therapy* University of Sheffield *Diploma in high intensity CBT interventions (HI IAPT training)* University of Surrey *PG Dip in Psychological Interventions HI IAPT CBT*
Email distribution to professional services	January 2018 January 2018	3 x IAPT services in North Essex IAPT services in the north of England
Sign-up sheet distributed during continuous professional development events	December 2017 - April 2018	3 x Seminars delivered within the department of psychology Eye Movement Desensitisation Training Part-1 (Manchester)

Appendix K

Information Sheet Presented to Clinicians Participating in the Before-After Study and

Item Designed to Assess Participant Eligibility

The University Of Sheffield.

12/03/2017

Participant Information Sheet

1. **Research project title:** The Feasibility of Using Internet Based Training to Help Clinicians to Prompt their Clients to Form 'if-then' planning

2. **Invitation paragraph**
You are being invited to take part in a research project. Before you decide whether to do so it is important for you to understand why the research is being done and what it will involve. Please read the following information carefully and discuss it with others if you wish. Ask us if anything is not clear or if you would like more information.

3. **What is the project's purpose?**
Research suggests that forming 'if-then' planning with individuals with mental health difficulties helps them achieve their goals. *This study aims to evaluate the* acceptability, *feasibility and usefulness of an online training package aimed at training clinicians to help their clients to form 'if-then' planning to support their goals.*

4. **Why have I been chosen?**
The training package is designed for people who are currently delivering psychotherapy within healthcare settings. You may have been contacted for this study because your employer, a professional group you are involved with (e.g. BACP), and/or your university has indicated that you are currently delivering psychotherapy and may be interested in taking part in the training. Alternatively, you may have seen the study advertised on social media.

5. **Do I have to take part?**
It is up to you to decide whether or not to take part. If you do decide to take part, you will be asked to indicate your consent. You can withdraw at any time without it impacting on your employment, studies, or any benefits that you are entitled to in any way. You do not have to give a reason.

6. **What will happen to me if I take part?**
The training programme will last for between 20-45 minutes and is organised into modules so that you can choose how much information you would like to know about each topic. If you choose to continue, you will be asked to complete some questions before the training. You will also be asked to watch and respond to a video of a role-play between a therapist and a client (approximately 5-10 minutes). Then you will be able to access the training. After you have completed the training, you will be asked a few more questions and watch another video (approximately 5-10 minutes). 30-days after completing the

training, you will be contacted via email and asked to respond to a few more questions and to watch another short video (approximately 10-15 minutes).

7. **What are the possible benefits of taking part?**
You may find that the course provides you with the knowledge to confidently prompt your clients to form 'if-then' planning. This may support your clients in working towards their goals.

8. **What are the possible disadvantages and risks of taking part?**
You may find that forming 'if-then' planning is not appropriate for your everyday practice and therefore the knowledge you gain during the training programme does not benefit you.

9. **What if I change my mind?**
You are free to withdraw your consent to take part in this research at any time without giving your reasons. Any data collected will be destroyed. Withdrawing from the study will not affect your employment or studies in any way.

The data in this study will be anonymised upon collection. You will, however, be asked to provide a code (consisting of the first two letters of your mother's maiden name, the day of the month you were born, and the second and third letters of your father's given name) so that only you can identify your own data. You can use this code to withdraw your data during and after the study. You will not be able to withdraw your data from the study after the results are published (May 2018).

10. **What if something goes wrong?**
If you have any concerns about this research, please contact the researcher who will do their best to answer your questions. If they are unable to respond in an acceptable way or if you wish to make a complaint please contact the project supervisors, Professor Gillian Hardy (0114 222 6571), and Dr Thomas Webb (0114 22 26516).

If you feel that your complaint has not been handled to your satisfaction following this, then you can contact the Head of Department in the Department of Psychology, Professor Glenn Waller (g.waller@sheffield.ac.uk).

11. **Will my taking part in this project be kept confidential?**
All of the information that we collect about you during the course of the research will be kept strictly confidential. You will not be identified in any reports or publications, and the study will not impact on your employment or studies. Your data will be stored in accordance with the Data Protection Act 1998.

12. **What type of information will be sought from me and why is the collection of this information relevant for achieving the research project's objectives?**
During the research, data concerning your qualifications, professional status and clinical practice will be collected. Furthermore, you will be asked about your knowledge and use of 'if-then' planning before and after the training. We will also ask how you experienced the training package, specifically with regards to how acceptable and useful you found it. This information will enable us to explore whether the effects of the training package differ between people.

13. **What will happen to the results of the research project?**

The results of the research are likely to be published in a peer reviewed journal. If you would like a hard copy of the research project, then please contact

Amrit Sinha (Research Support Officer)
Clinical Psychology Unit
Department of Psychology
University of Sheffield
S10 2TP
Tel: +44 (0) 114 2226650 Email: a.sinha@sheffield.ac.uk

14. **Who is organising and funding the research?**
The research project forms part of a Doctorate in Clinical Psychology qualification. The project is organised and funded by the Department of Psychology, University of Sheffield.

15. **Who has ethically reviewed the project?**
This proposal has been reviewed and approved by the Research Ethics Committee in the Department of Psychology at the University of Sheffield.

16. **Contact for further information**

Lead researcher: Andrew Horan (email: ahoran1@sheffield.ac.uk*). Clinical Psychology Unit, Department of Psychology, The University of Sheffield, Western Bank, S10 2TN, UK*

Supervisors: Dr Thomas Webb (email: t.webb@sheffield.ac.uk*) and Professor Gillian Hardy (0114 222 6571)*

Thank you for agreeing to take part in the project.

This proposal has been reviewed and approved by the Research Ethics Committee in the Department of Psychology at the University of Sheffield (Reference No. 011985).

Item Designed to Assess Participant Eligibility

Are you currently delivering psychologically-informed therapeutic interventions with individuals with mental health difficulties?

- ○ Yes
- ○ No

Please note

Training is delivered via a series of video presentations. To access the videos you will need:

1. A computer or laptop (the training programme does not work on smartphone devices)
2. A private space *or* earphones so that you can listen to the videos

Appendix L

Consent and Participant Identification Code Form for Clinicians Participating in the Before-After Study

The University Of Sheffield.

Online Participant Consent Form

Title of Research Project: *The Feasibility of Using Internet Based Training to Help Clinicians to Prompt their Clients to Form Implementation Intentions*

Name of Researcher: *Andrew Horan (Trainee Clinical Psychologist)*

Participant Identification Code
Please enter the following details to form your participant Identification Code:

a) **First two letters of your mother's maiden name** ☐
(e.g. if your mother's maiden name was "Jones", type "JO")
b) **The day of the month you were born** ☐
(e.g. if you were born on the 14th of April, type "14")
c) **The second and third letters of your father's given name** ☐
(e.g., if your father's name is "Tony", type "ON")

Please tick box

1. I confirm that I have read and understand the information sheet dated 12/03/17 explaining the above research project and I have had the opportunity to ask questions about the project. ☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without there being any negative consequences. In addition, should I not wish to answer any particular question or questions, I am free to decline. ☐

3. I understand that my responses will be kept strictly confidential. I give permission for members of the research team to have access to my responses. I understand that my name will not be linked with the research materials, and I will not be identified or identifiable in the report or reports that result from the research. ☐

4. I agree to take part in the above research project. ☐

Appendix M

Email Invitation and Reminder Email for Questionnaires Administered 28-Days After Training Programme

1. Email invitation

Dear Participant,

28-days ago, you completed the "If.. Then..." planning training programme. To help us determine the feasibility of the programme, please complete a brief follow-up questionnaire. This should take between 5-10 minutes.

For this study to be a success, we need to know what your pratice is like now.

Follow this link to the complete a brief follow up questionnaire:
${l://SurveyLink?d=Take the Survey}
Or copy and paste the URL below into your internet browser:
${l://SurveyURL}

Thank you for taking part in the study

Best Wishes,

Andrew Horan
Trainee Clinical Psychologist
Sheffield University
ahoran1@sheffield.ac.uk

2. Reminder email sent to participants who have not yet completed questionnaires at 28-day follow-up.

Dear Participant,
A number of weeks ago, you completed the "If.. Then..." planning training programme. According to our records, you have not yet completed the follow-up questionnaire.

We would be really grateful if you could spare 5-10 minutes to complete the follow-up questions. ***For this study to be a success, we need to know what your pratice is like now.*** ${l://SurveyLink?d=Take the Survey}

Or copy and paste the URL below into your internet browser: ${l://SurveyURL}

Thank you for taking part in the study

Best Wishes,

Andrew Horan
Trainee Clinical Psychologist
Sheffield University
ahoran1@sheffield.ac.uk
Follow the link to opt out of future emails:
${l://OptOutLink?d=Click here to unsubscribe}

Appendix N

Questions Relating to Participant Demographics

1. Gender

- ○ Male
- ○ Female
- ○ Other: ……
- ○ Prefer not to say

2. How old are you?

……

3. What is your job title?

……

4. What is your highest educational qualification

- ○ Undergraduate degree
- ○ Master's degree
- ○ Postgraduate Diploma
- ○ PhD
- ○ Doctor of Clinical Psychology
- ○ Other ……

5. Are you currently in training?

- ○ Yes*
- ○ No

*If yes, what is the name of the training course?

……

*If yes, what year of study are you in?

- ○ First year
- ○ Second Year
- ○ Third Year
- ○ Fourth Year
- ○ Other

6. Approximately what is the size of your current case load?

……

6. Approximately how many months have you been delivering psychotherapy (including therapy delivered in previous roles)?

……

7. What model best describes your theoretical orientation?

- Cognitive-behavioural
- Psychodynamic
- Eclectic
- Humanistic
- Systemic
- Other, please provide more detail

Appendix O

Questionnaire Designed to Assess Clinicians' Awareness of 'If-Then' Planning

1. Have you heard of 'if-then' planning (or 'implementation intentions')?

- Yes
- No

If yes, where and what have you heard about this?

2. To what extent do you know what forming an 'if-then' plan involves?

I have no idea what forming an 'if-then' plan involves. — I have full knowledge of what an 'if-then' plan involves.

0 1 2 3 4 5 6 7 8 9 10

3. To what extent do you know how to help your patients to form an 'if-then' plan?

I have no idea how to help patients to form an 'if-then' plan — I have full knowledge of how to help patients to form an 'if-then' plan

0 1 2 3 4 5 6 7 8 9 10

4. In the past month, approximately how many patients have you worked with?

Number of clients:

5. In the past month, approximately how many patients have you prompted to form 'if-then' plans to help them to achieve their goals?

Number of Clients: (Write 'unknown' in this box if not known)

Appendix P

Questionnaire Designed to Assess Clinicians' Knowledge of 'If-Then' Planning

Please tick one response to each of the following questions

1) Research suggests that if a patient is motivated to achieve a goal (e.g., they intend to go running), then they will definitely achieve that goal.

- ○ True
- ○ False
- ○ Don't know

2) During which phases of the Model of Action Phases is prompting if-then planning most likely to be effective?

- ○ The predecisional and postactional phases
- ○ The preactional and actional phases
- ○ Don't know

3) If-then planning is a technique that…?

- ○ …is used to form goal intentions.
- ○ …helps people who lack motivation to achieve their goal.
- ○ …links a specified opportunity with a goal directed response.
- ○ …specifies why a goal is important.
- ○ Don't know

4) The 'If' part of an if-then plan should describe:

- ○ The outcome of taking action
- ○ A good opportunity to take action
- ○ A suitable response to that opportunity
- ○ Why it is important to take action
- ○ Don't know

5) The 'Then' part of an if-then plan should describe:

- ○ The outcome of taking action
- ○ A good opportunity to take action
- ○ A suitable response to that opportunity
- ○ Why it is important to take action
- ○ Don't know

Appendix Q

Questionnaire Designed to Assess Clinicians' Knowledge Concerning the Appropriate Application of 'If-Then' Planning

Please imagine that you are the clinician treating the client in each of the following descriptions then answer the questions below.

(1) Tina has a diagnosis of Obsessive Compulsive Disorder. She is a manager of a small grocery store and is responsible for locking-up the shop when they close. Tina engages in checking behaviours for up to 1-hour after work, which cause her significant distress. Tina is motivated to use strategies to manage her checking behaviours. During treatment, you prompt Tina to form an 'if-then' plan to help her to reduce her checking behaviours.

Which of the following 'if-then' plans do you think is most appropriate? (Tick only one response)

- ○ When I walk to my car, I will try remember that I have checked the locks and calm down.
- ○ If I leave work and feel that I have to check the locks, then I will resist the urge and walk to my car.
- ○ If I want to check the locks again, I don't need to.
- ○ When I want to leave, then I'm going to walk to my car immediately.

(2) Tony has suffered from depression since he lost his job two years ago. Tony experiences dizzy spells and has lost consciousness twice in the past month. You are concerned about his physical health. However, when you express this concern, Tony simply says "I'm fine, don't worry about me".

You encourage Tony to see his GP, which he always passes on his way home from the clinic. You prompt Tony to form the plan of "If I pass my GP, then I will arrange an appointment with the receptionist!"

What was wrong with this approach? (Tick only one response)

- Nothing.
- The plan did not include a situational cue.
- Tony was not motivated to go to his GP, so he should not have been asked to form an if-then plan to do so.
- The plan did not include how to respond to the situational cue.

(3) Carol experiences panic attacks when she is in public places. You have provided psychoeducation and Carol is motivated to work with exposure strategies. You practiced exposure together during a session and Carol agreed to practice this at home.

Carol is afraid that when doing the exposure on her own, she might convince herself to go back home after only 10 minutes. Carol knows she needs to stay outside for about an hour for her anxiety to go down. So collaboratively, you help Carol to form an 'if-then- plan.

Please write down an 'if-then' plan that you think would be helpful for Carol:

Scoring Guide for Question 3

One point for each of the following criteria met (total score = 4)

1. Use of 'If' word
2. Use of 'Then' word
3. Includes situational cue
4. Includes how to respond to the situational cue

Appendix R

Questionnaire Designed to Assess Therapist Use of 'If-Then' Planning

1. Have you prompted any of your clients in the past month to form an if-then plan?

- ◉ Yes
- ○ No

2. In the past month, approximately how many clients have you worked with?

3. In the past month, approximately how many clients have you prompted to form 'if-then' plans to help them to achieve their goals?

No. clients:
If unknown, write 'I don't know'

4. In the past month, approximately how many of your clients do you think it would have been appropriate to prompt to form an 'if-then' plan?

No. clients:
If unknown, write 'I don't know'

Appendix S

Questionnaire Designed to Assess Participant's Perceived Usefulness of 'If-Then' Planning, Confidence in Their Use, and Intentions to Use 'If-Then' Planning

Below are a series of statements, please select the number that best represents your opinion.

1) Forming 'if-then' plans will be a useful way to help support my patients in achieving their goals.

Not at all useful (0) ... Extremely useful (10)

0 1 2 3 4 5 6 7 8 9 10

2) I feel confident that I could help my patients to form 'if-then' plans.

Not at all confident (0) ... Extremely confident (10)

0 1 2 3 4 5 6 7 8 9 10

3) I intend to help my patients to form 'if-then' plans.

Strongly disagree (0) ... Strongly agree (10)

0 1 2 3 4 5 6 7 8 9 10

4. In the next month, with what percentage of your clients do you intend to prompt to form 'if-then' plans?

Percentage of clients:

Please write your email address below, so that we can contact you to complete a short follow-up questionnaire in a month:

Appendix T

The Evidence-Based Practice Attitude Scale

The Evidence-Based Practice Attitude Scale

	Not at all	To a slight extent	To a moderate extent	To a great extent	To a very great extent
I like to use new types of therapy/interventions to help my clients.	○	○	○	○	○
I am willing to try new types of therapy/interventions even if I have to follow a treatment manual.	○	○	○	○	○
I know better than academic researchers how to care for my clients.	○	○	○	○	○
I am willing to use new and different types of therapy/interventions developed by researchers.	○	○	○	○	○
Research based treatments/interventions are not clinically useful.	○	○	○	○	○
Clinical experience is more important than using manualized therapy/interventions.	○	○	○	○	○
I would not use manualized therapy/interventions.	○	○	○	○	○
I would try a new therapy/intervention even if it were very different from what I am used to doing	○	○	○	○	○

For the following questions

If you received training in a therapy or intervention that was new to you, how likely would you be to adopt it if:

	Not at all	To a slight extent	To a moderate extent	To a great extent	To a very great extent
It was intuitively appealing?	○	○	○	○	○
It "made sense" to you?	○	○	○	○	○
It was required by your supervisor?	○	○	○	○	○
It was required by your service?	○	○	○	○	○
It was required by governmental guidance?	○	○	○	○	○
It was being used by colleagues who were happy with it?	○	○	○	○	○
You felt that you had enough training to use it correctly?	○	○	○	○	○

EBPAS Scoring Guidelines

Scoring the subscales: The score for each subscale is created by computing a total or mean score for the items that load on a given subscale. For example, Items 11, 12, and 13 constitute subscale 1.

Computing the Total Scale Score: For the total score, all items from the Divergence subscale (Sub- scale 4) must be reverse scored before being used in computing the EBPAS total score.

0	1	2	3	4
Not at All	To a Slight Extent	To a Moderate Extent	To a Great Extent	To a Very Great Extent

Item	Subscale	Question
1.	3	I like to use new types of therapy/interventions to help my clients.
2.	3	I am willing to try new types of therapy/interventions even if I have to follow a treatment manual.
3.	4	I know better than academic researchers how to care for my clients.
4.	3	I am willing to use new and different types of therapy/interventions developed by researchers.
5.	4	Research based treatments/interventions are not clinically useful.
6.	4	Clinical experience is more important than using manualized therapy/interventions.
7.	4	I would not use manualized therapy/interventions.
8.	3	I would try a new therapy/intervention even if it were very different from what I am used to doing.
		For questions 9–15: If you received training in a therapy or intervention that was new to you, how likely would you be to adopt it if:
9.	2	it was intuitively appealing?
10.	2	it "made sense" to you?
11.	1	it was required by your supervisor?
12.	1	it was required by your agency?
13.	1	it was required by your state?
14.	2	it was being used by colleagues who were happy with it?
15.	2	you felt you had enough training to use it correctly?

Note: Subscale 1 = Requirements; 2 = Appeal; 3 = Openness; 4 = Divergence.

Appendix U

Adapted Version of The E-Learner Satisfaction Questionnaire (12-item)

E-Learner Satisfaction Questionnaire

The following questionnaire is designed to evaluate your satisfaction with the video-based training programme. Please answer the following questions regarding your experience of the video-based training programme.

The training programme…

	Strongly **Agree**	Agree	Neither Agree or Disagree	Disagree	Strongly **Disagree**
..was easy to use	○	○	○	○	○
...was user-friendly	○	○	○	○	○
...was stable (the system did not freeze and/or crash)	○	○	○	○	○
...made it easy for me to find the information that I needed	○	○	○	○	○

The content of the training programme…

	Strongly **Agree**	Agree	Neither Agree or Disagree	Disagree	Strongly **Disagree**
..fitted my needs	○	○	○	○	○
...provided sufficient information	○	○	○	○	○
...was useful	○	○	○	○	○
...was easy to understand	○	○	○	○	○
...was up-to-date	○	○	○	○	○
...enabled me to learn what I wanted to learn	○	○	○	○	○
...enabled me to choose what I wanted to learn	○	○	○	○	○
...enabled me to control my learning progress	○	○	○	○	○

Questionnaire adapted from Electronic Learner Satisfaction Questionnaire (Wang, 2003)

Scoring

Description	Score
Strongly agree	4
Agree	3
Neither agree or disagree	2
Disagree	1
Strongly Disagree	0

Subscale	**Item no.**	**Item**
Learner Interface	1	…easy to use
	2	…user friendly
	3	…was stable
	4	…easy to find the information I needed
Content	5	…fitted my needs
	6	…sufficient information
	7	…useful
	8	…easy for me to understand
	9	…up to date
Personalization	10	…learn what I wanted to learn
	11	…choose what I wanted to learn
	12	…control my learning progress

Appendix V

Questionnaire Designed to Elicit Qualitative Feedback Regarding the Effect of IBT for 'If-Then' Planning

Have you encountered any barriers to using if-then plans?

- ○ Yes
- ○ No

If yes, please explain:

……

Is there anything that would have helped you form 'if-then' plans with your clients more often?

……

Do you have any further comments about this study that you would like to share?

……

Appendix W

Summary of Results from 'Complete-Case Analysis'

Complete-case analysis: Knowledge of 'If Then' Planning (Level 1).

Freidman test revealed that there was a significant difference in knowledge across the three time-points ($\chi^2(2) = 34.43$, $p < 0.001$, $n = 35$). A significant increase was observed between pre- and post-training ($z = -5.13$, $p < 0.001$), and pre-training and 28-day follow-up ($z = -4.06$, $p < 0.001$). There was a non-significant difference between post-training and 28-day follow-up ($z = -1.22$, $p = 0.221$).

Complete-case analysis: Ability to Apply Knowledge of 'If Then' Planning (Level 2)

Results from Wilcoxon Signed Ranks Test indicated that differences in ability to apply knowledge from post-training to 28-day follow-up ($z = -1.28$, $p = 0.201$, $n = 35$) were non-significantly different.

Complete-case analysis: Use of 'If Then' Planning (Level 4).

Results indicated that participant's use of 'if–then' planning significantly ($z = -2.371$, $p = 0.018$, $n = 35$) increased during the month after training compared to the month before training. Furthermore, participants prompted a significantly larger ($z = -2.440$, $p = 0.015$, $n = 35$) percentage of their clients during the month after training compared to the month before training.

Appendix X

Test of Assumptions of Parametric Statistical Analysis

1. Test of assumptions of parametric statistical analysis for each variable at baseline for the study hypothesis

(a) Frequency table indicating that outcome variable 'Knowledge of 'if-then' planning (Level 1)' is at the ordinal data level.

T1_Know_Total1

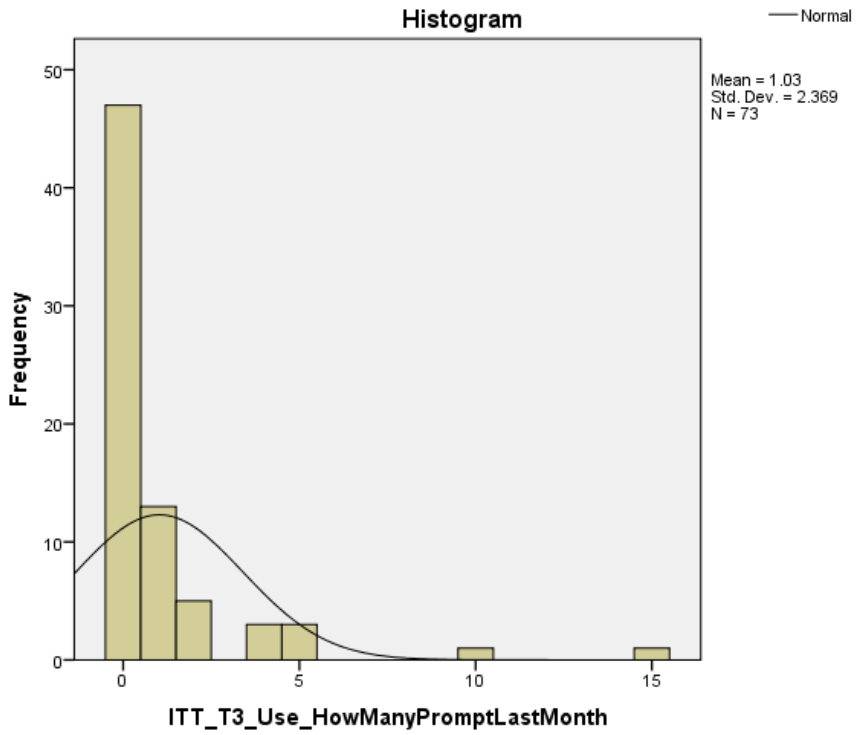
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	9	9.9	11.0	11.0
	1	21	23.1	25.6	36.6
	2	12	13.2	14.6	51.2
	3	14	15.4	17.1	68.3
	4	10	11.0	12.2	80.5
	5	16	17.6	19.5	100.0
	Total	82	90.1	100.0	
Missing	666	9	9.9		
Total		91	100.0		

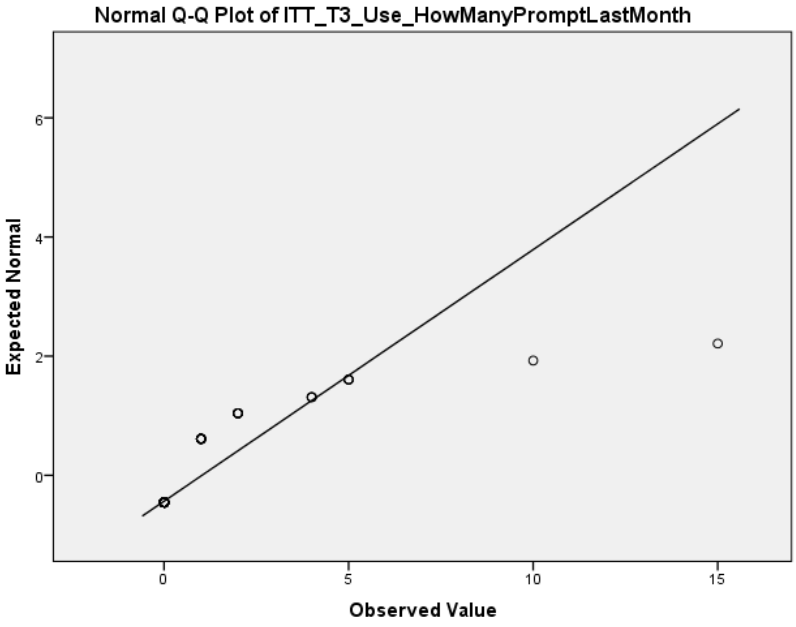
(b) Frequency table indicating that outcome variable 'Ability to Apply Knowledge (Level 2)' is at the ordinal data level.

T2_ApplyKnowL2_Total_Total score with Q1 and Q2 as dichotomous

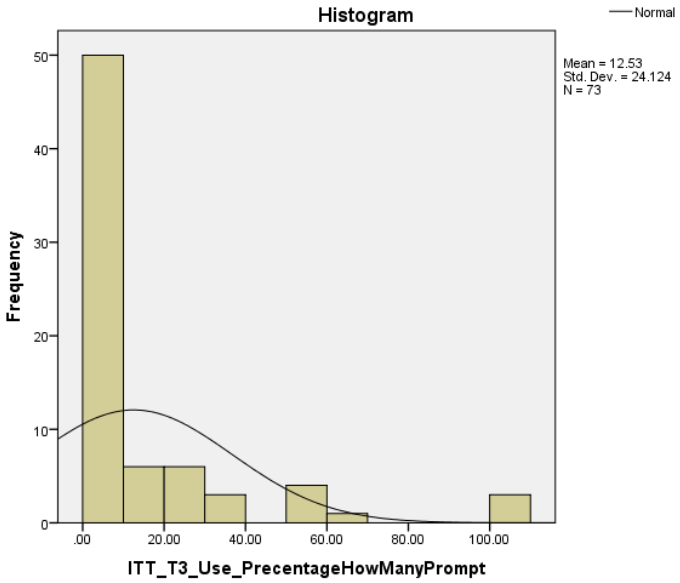
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	1	1.1	2.0	2.0
	4	4	4.4	7.8	9.8
	5	16	17.6	31.4	41.2
	6	30	33.0	58.8	100.0
	Total	51	56.0	100.0	
Missing	666	40	44.0		
Total		91	100.0		

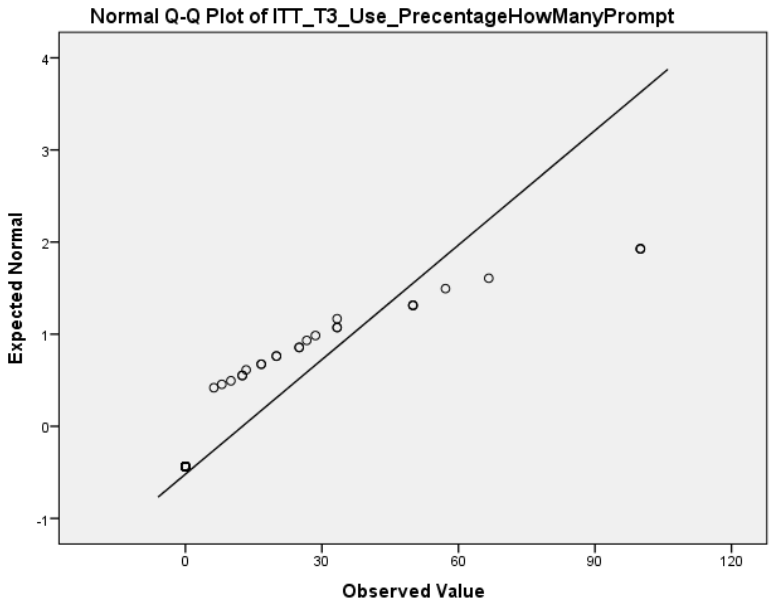
(c) Histogram, and normal Q-Q plots indicating that number of clients prompted to form 'if-then' planning in the last month was not normally distributed





(d) Histogram, and normal Q-Q plots indicating that 'percentage of clients prompted to form 'if-then' planning in the past month' was not normally distributed.



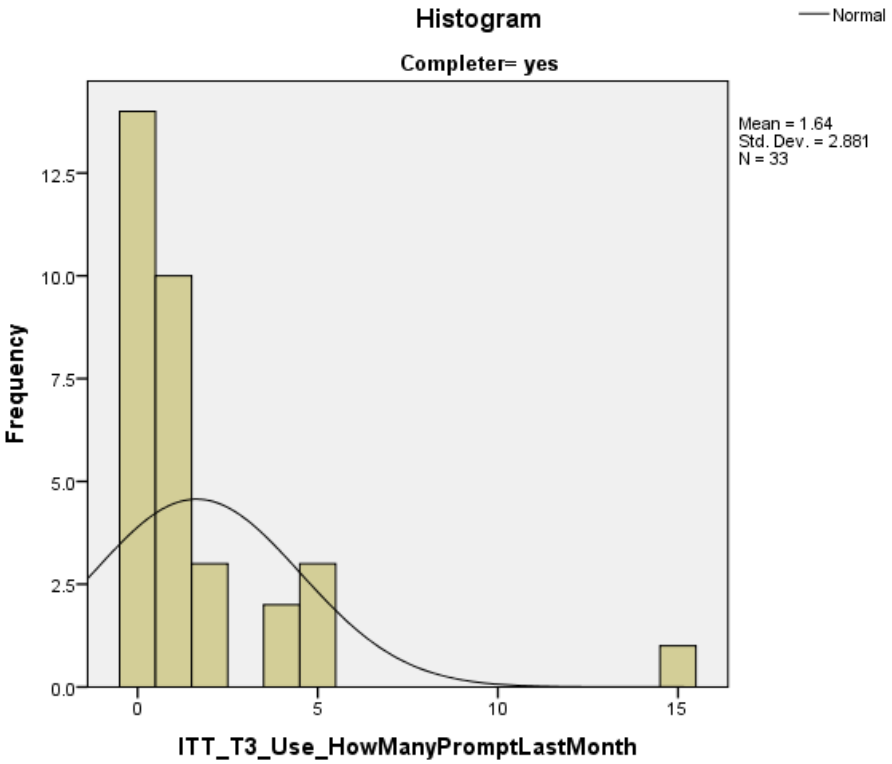


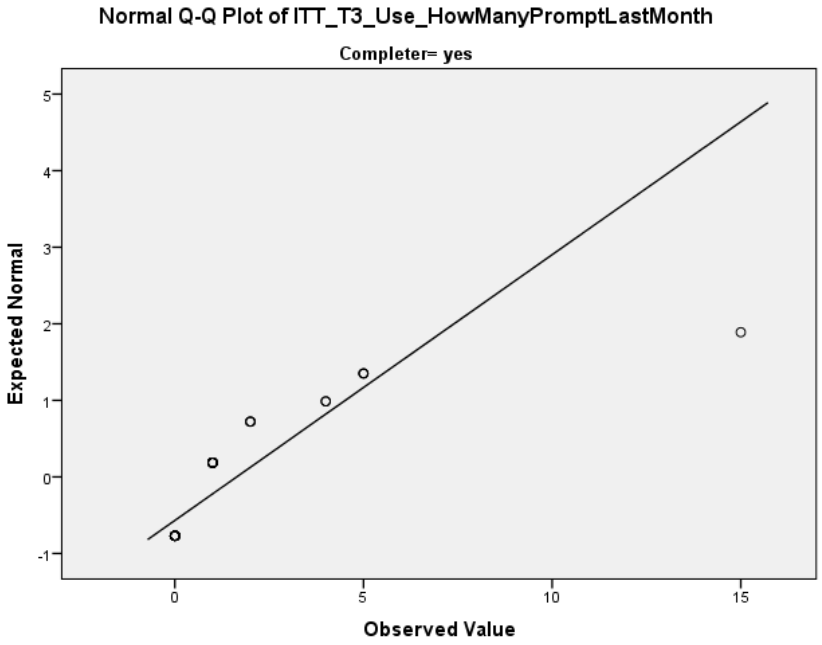
2. Test of assumptions of parametric statistical analysis for exploratory analyses

(a) Frequency table indicating that outcome variable use of 'if-then' planning at 28-day follow-up is at the ordinal data level.

ITT_T3_Use_HowManyPromptLastMonth

Completer			Frequency	Percent	Valid Percent	Cumulative Percent
yes	Valid	0	14	40.0	42.4	42.4
		1	10	28.6	30.3	72.7
		2	3	8.6	9.1	81.8
		4	2	5.7	6.1	87.9
		5	3	8.6	9.1	97.0
		15	1	2.9	3.0	100.0
		Total	33	94.3	100.0	
	Missing		2	5.7		
	Total		35	100.0		

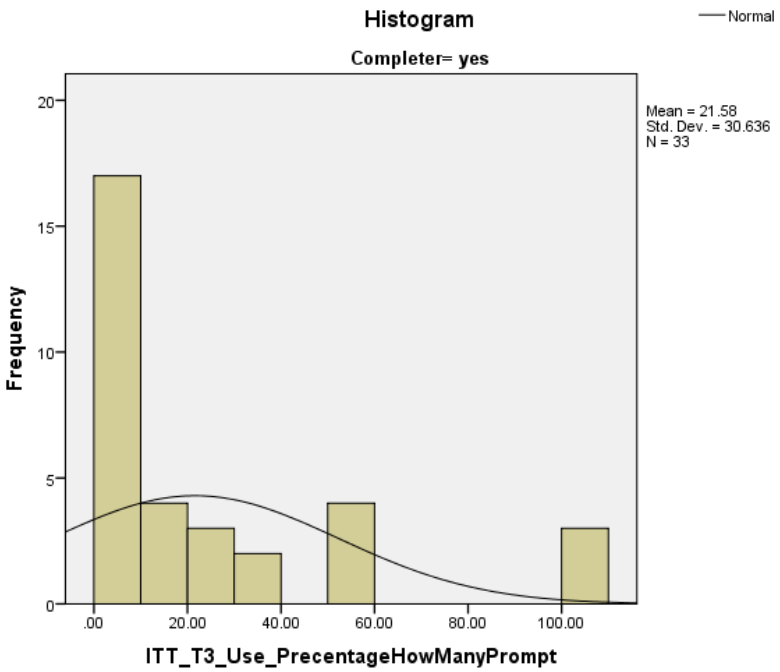


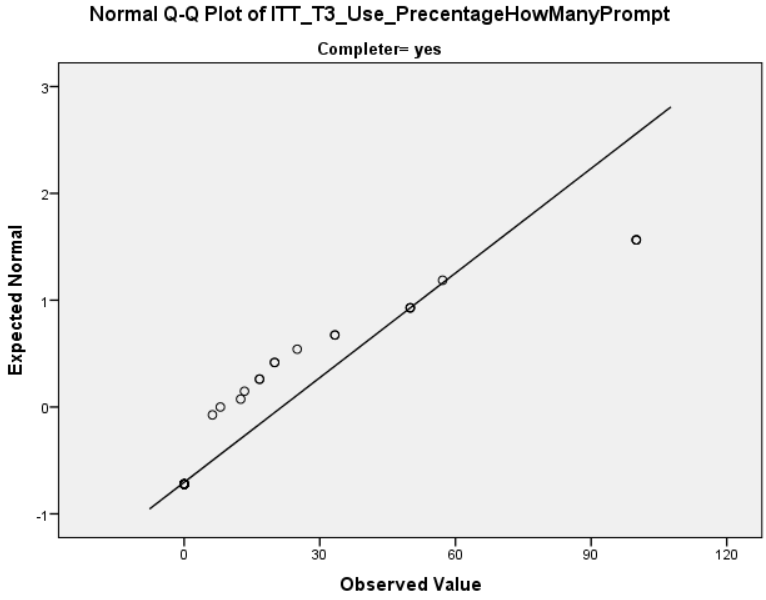


(b) Frequency table, histogram, and normal Q-Q plots indicating that 'percentage of clients you prompted to form 'if-then' planning in the past month' was not normally distributed. Moreover, Shapiro-Wilk's test ($p < 0.05$) indicated the outcome variable was not normally distributed.

ITT_T3_Use_PrecentageHowManyPrompt

Completer			Frequency	Percent	Valid Percent	Cumulative Percent
yes	Valid	.00	15	42.9	45.5	45.5
		6.25	1	2.9	3.0	48.5
		8.00	1	2.9	3.0	51.5
		12.50	1	2.9	3.0	54.5
		13.33	1	2.9	3.0	57.6
		16.67	2	5.7	6.1	63.6
		20.00	2	5.7	6.1	69.7
		25.00	1	2.9	3.0	72.7
		33.33	2	5.7	6.1	78.8
		50.00	3	8.6	9.1	87.9
		57.14	1	2.9	3.0	90.9
		100.00	3	8.6	9.1	100.0
		Total	33	94.3	100.0	
	Missing		2	5.7		
	Total		35	100.0		


Histogram
Normal
Completer= yes
Mean = 21.58
Std. Dev. = 30.636
N = 33
Frequency
20
15
10
5
0
.00
20.00
40.00
60.00
80.00
100.00
ITT_T3_Use_PrecentageHowManyPrompt


Normal Q-Q Plot of ITT_T3_Use_PrecentageHowManyPrompt
Completer= yes
Expected Normal
3
2
1
0
-1
0
30
60
90
120
Observed Value

Appendix Y

Summary of Results from Exploratory Analysis Using Percentage of Clients Prompted to Form 'If-Then' Plans as a Dependent Variable

Predictors of the percentage of clients prompted to form 'if-then' plans in the past month at follow-up.

Perceived usefulness of 'if-then' planning, confidence in their use, and intentions to use 'if-then' plans. After adjustment for baseline scores, overall **s**core on the perceived usefulness of 'if-then' planning, confidence in their use, and intentions to use 'if-then' plans questionnaire did not predict change in the percentage of clients prompted to form 'if-then' plans in the past month ($\chi^2(2) = 2.98$, $p = .225$). The percentage of clients that participants intended to prompt in the month after training did not predict change in the percentage of clients prompted in the past month at follow-up ($\chi^2(2) = 3.20$, $p = .202$).

Therapist attitudes towards EBP. After adjustment for baseline scores, total score on the EBPAS did not predict change in the percentage of clients prompted to form 'if-then' plans in the past month ($\chi^2(2) = 3.46$, $p = .177$). Similarly, therapists' willingness to adopt new practices if required ($\chi^2(2) = 5.41$, $p = .067$), willingness to adopt EBP if perceived as intuitively appealing ($\chi^2(2) = 3.10$, $p = .212$), therapist's openness toward novel and/or innovative practices ($\chi^2(2) = 5.84$, $p = .054$) and the extent to which a therapist believes that their usual practice diverges from EBP ($\chi^2(2) = 3.11$, $p = .211$), were non-significant.

Satisfaction with training. After adjustment for baseline scores, overall satisfaction did not predict change in the percentage of clients prompted to form 'if-then' plans in the past month ($\chi^2(2) = 2.98$, $p = .225$). Similarly, clinicians' ease of using the training package ($\chi^2(2) = 3.84$, $p = .147$), training content ($\chi^2(2) = 2.82$, p

= .245), and ability to tailor training to personal needs ($\chi^2(2) = 2.82$, $p = .244$), were non-significant.

Appendix Z

Summary of Qualitative Comments to Open-Ended Questionnaire Items

Table Summarising Qualitative Comments to Open-Ended Questionnaire Items have been removed for confidentiality reasons.