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# Mental Health Professionals use of Evidence Based Practice: Does the Theory of Planned Behaviour aid our understanding, and is training in Implementation Intentions effective?

By

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## Declaration

I hereby declare that this thesis has been submitted for the award of Doctorate in Clinical Psychology at the University of Sheffield. It has not been submitted for any other qualification or to any other academic institution.

# Word Count

**Literature Review**

| | |
|---|---|
| Without references and tables | 7,972 |
| Including references and tables | 9,449 |

**Empirical Study**

| | |
|---|---|
| Without references and tables | 7,962 |
| Including references and tables | 8,575 |

**Total**

| | |
|---|---|
| Without references and tables | 15,912 |
| Including references and tables | 18,024 |

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## Abstract

Mental health professionals (MHPs) do not routinely deliver evidence-based practice (EBP) despite significant efforts aiming to identify the best available evidence and to disseminate research findings. This thesis aimed to contribute to bridge the research-practice gap by conducting a meta-analysis and two empirical studies.

The first part of this thesis reports on a meta-analysis, reviewing 11 studies. This meta-analytic study evaluated the relationship between the Theory of Planned Behaviour (TPB), intentions and behaviours towards using EBPs in MHPs. The TPB determinants (i.e., attitudes, subjective norms and perceived behavioural control) had moderate to strong sample-weighted average relationships with MHPs intentions to use EBPs. Participants' country at recruitment and client age group were found to moderate the relationship between subjective norms and intentions. Important limitations included the lack of behavioural measures, large inconsistency between studies, and studies' methodological issues. Implications for clinical practice and recommendations for future research are provided.

The second part of this thesis reports two studies. The aim of these studies was to develop and evaluate the feasibility of a training programme for MHPs to prompt their patients to use a particular EBP, implementation intentions. Implementation intentions are self-regulatory strategies that have been shown to help mental health service users to achieve their goals, but MHP do not use this technique routinely in their clinical practice. The first study developed a novel training programme on implementation intentions. The second study evaluated the feasibility of delivering the training to trainee Psychological Well-being Practitioners (TPWPs). In Study 1, a non-systematic review of the literature on implementation intentions and consultation with 25 experts revealed the training content met the criteria established a priori and experts' feedback was integrated into the training content. In Study 2, 69 TPWPs took part in the

training workshop. Participants significantly increased their theoretical and practical knowledge on implementation intentions and reported using implementation intentions significantly more frequently six-months after the training. Three-percent of participants reported using implementation intentions in their clinical practice before the training, compared to 44% of participants six-months after the training. Qualitative analyses revealed participants found the training acceptable and helpful. Specific recommendations were made for future training sessions. Limitations of self-reported measures and lack of observable competence are discussed, along with future research recommendations and potential implications for the Improving Access for Psychological Therapies services.

The two parts of this doctoral thesis contribute to the understanding of the use of EBP among MHPs. Findings suggest that attitudes, subjective norms, and perceived behavioural control are useful to understand MHPs intentions to use EBP, and that a single workshop in a particular EBP can influence MHPs' clinical practice.

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# Part one: Literature Review

## Does the Theory of Planned Behaviour help to understand mental health professionals use of evidence-based practice? A meta-analysis

**Abstract**

**Objective**: Despite significant efforts aiming to bridge the gap between research and practice in healthcare, a majority of mental health professionals (MHPs) do not routinely deliver evidence-based practice (EBP). The Theory of Planned Behaviour (TPB) may be particularly well suited to understand this phenomenon, as one of the most influential models for the prediction of human behaviour. This meta-analysis aimed initially to review all the studies where the TPB has been used to understand or predict MHP's use of EBP. A second aim was to estimate the average relationships between the TPB determinants (i.e., attitudes, subjective norms, and perceived behavioural control), intentions, and behaviour.

**Method**: A systematic search of three databases (Embase, Medline, and PsycInfo) was conducted. Studies were eligible: if participants were exclusively MHPs; focused on the use of an EBP, defined as having been investigated through at least one published study; and, the TPB was used as the main model to understand MHPs use of EBP. Hunter-Schmidt random-effects models were used to calculate the sample-weighted average relationships. Heterogeneity analyses and moderator analyses were conducted regarding design, sample, and conceptual characteristics. The quality of the studies was appraised using standardized tools.

**Results**: Eighteen studies with 3,036 participants met eligibility criteria. Of these, 11 studies with 1,703 participants were included in the meta-analysis. Most of the studies did not include a measure of behaviour; hence only behavioural intentions were investigated. Attitudes (A), subjective norms (SN), and perceived behavioural control (PBC) had moderate-to-strong sample weighted average relationships with MHPs' intentions to use EBP ($r+_{A}$= .47, $r+_{SN}$ = .44, $r+_{PBC}$ = .42). Subjective norms had a slightly stronger relationship with intentions to use EBP compared to previous literature. Large heterogeneity was found across the TPB determinants. The only

significant moderators found were participants' country at recruitment and client age group, in the relationship between SN and intentions. The standardized quality criteria highlighted methodological issues.

**Conclusions**: These findings provide evidence encouraging the use of the TPB for understanding the intentions of MHPs to use EBP. However, further research with measures of behaviour is needed to understand and guide efforts towards the adoption of EBP in MHPs.

**Practitioner points:**

- The TPB appears to be a useful model to understand why some MHPs intend to use EBP and others do not.
- Theoretical models explaining the adoption of EBP in mental healthcare would benefit from including the TPB determinants, particularly SN and PBC which are often missing from theoretical models.
- The lack of behavioural measures of the use of EBPs is a key limitation of the present review.
- The limited quality and large inconsistency found across studies and relationships limit the ability to generalize the results.

# Introduction

## The gap between research and practice

The discrepancy between available research and healthcare practice "is not just a gap, but a chasm" (Institute of Medicine, 2001, p.1). In mental health, despite the significant progress made identifying evidence-based mental health interventions (National Institute for Health and Clinical Excellence [NICE], 2014), the majority of mental health professionals (MHPs) do not routinely deliver evidence-based practice (EBP; Aarons, 2004; Bledsoe et al., 2007; Hogan, 2003; Weissman et al., 2006). The lack of adherence to EBP has received much attention in recent years, as these deviations have shown to be associated with poorer outcomes for clients (Addis & Waltz, 2002; Cukrowicz et al., 2011).

Significant efforts have been invested to bridge the research-practice gap, such as Improving Access to Psychological Therapies (IAPT), NICE guidelines, National Child Traumatic Stress Network and Veterans Health Administration (McHugh & Barlow, 2010). In addition, the newly established research field of Dissemination and Implementation has focused on finding ways to bridge the gap, and reduce from the 15 to 20 years it normally takes for healthcare research to be translated into policies and routine practice (Brownson, Colditz, & Proctor, 2012).

With significant resources invested to reduce the research-practice gap, it is important to understand why MHPs may choose to adopt or drift from EBP. Provision of information or didactic training alone, regardless of the quality of training, has been shown to have little impact on MHPs' behaviours (Davis, Thomson, Oxman, & Haynes, 1995). Damschroder et al. (2009) reviewed the published Dissemination and Implementation theories, and identified one of the major domains across theories was the individual characteristics of MHPs. Specifically, individuals' attitudes (e.g., 'I think using exposure is beneficial for patients'), knowledge (e.g., 'I know what exposure is'),

skills (e.g., 'I know how to implement exposure with patients'), and self-efficacy (e.g. 'I think I am capable to implement exposure with patients') were some of the most widely researched in the theories of individual change.

However, there remains insufficient information about which individual variables are important, and how they influence MHPs' behaviours (Damschroder et al., 2009). More research is also needed to identify which theories link the individual variables together into explanatory models that effectively predict behaviour (Beidas & Kendall, 2010). Understanding why MHPs implement EBP may help identify targets for future interventions and provide further guidance to ongoing efforts aiming to bridge the research-practice gap.

**The Theory of Planned Behaviour**

The Theory of Planned Behaviour (TPB; Ajzen, 1988, 1991) is one of the most widely researched and most influential models used to predict human behaviour (Armitage & Conner, 2001; Ajzen, 2011). As the dominant theory that accounts for the relationship between cognitions and behaviour (Cooke & Sheeran, 2004), the TPB may be particularly well-suited to understand and make predictions about why some MHPs may choose to follow EBP and why others do not.

The TPB proposes that the proximal determinant of a person's behaviour is their intention (Ajzen, 1991). Behavioural intentions are the self-instructions to perform certain behaviour (e.g., 'I intend to use exposure for my clients with anxiety'; Triandis, 1980) and reflect the motivation of an individual to achieve the behaviour (Gollwitzer, 1990). The TPB proposes that intentions are a function of three determinants: attitudes, subjective norms (SN), and perceived behavioural control (PBC). Attitudes are the individual's positive or negative evaluation of performing a behaviour (e.g., 'For me to use exposure with my clients would be good'). SN are the individual's perception of the social pressure from significant others to perform or not to perform the behaviour (e.g.,

'Most of my colleagues think I should use exposure with my clients'). PBC is the individual's perception of the ease or difficulty of performing the behaviour (e.g., 'It will easy for me to use exposure with my clients'). The TPB, shown in Figure 1, is an extension of a prior theory called the Theory of Reasoned Action (TRA; Fishbein & Ajzen, 1975). TRA included attitudes and SN as determinants, and the TPB expanded to include PBC as a factor that influences intentions and the behaviour directly.

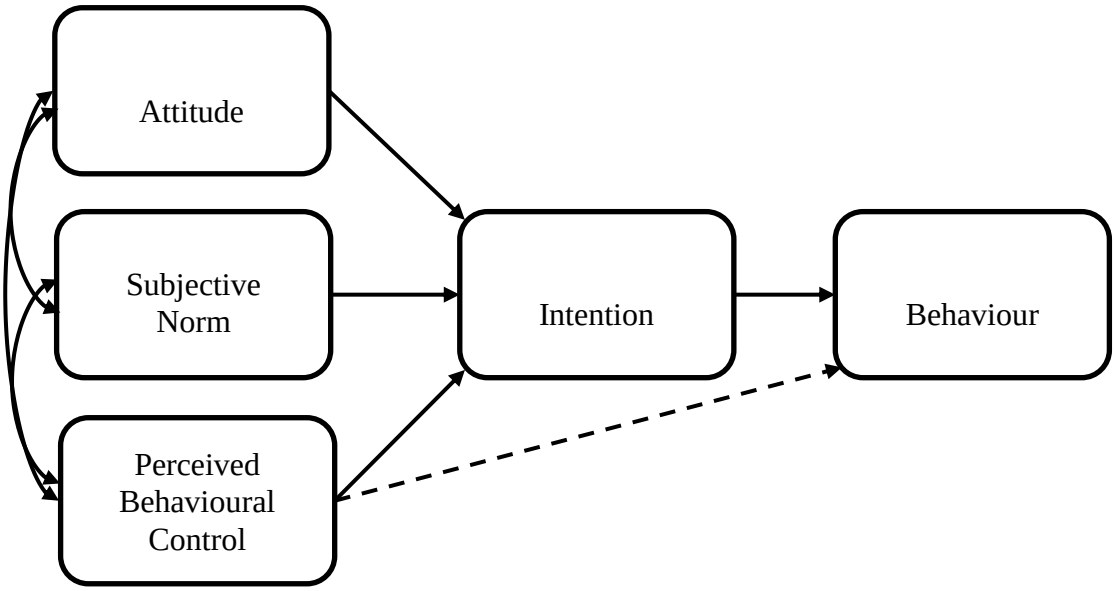


*Figure 1*. Theory of Planned Behaviour (Ajzen, 1988, 1991).

Diverse meta-analyses have shown that the TPB provides a good prediction of intention and behaviour across behaviours. For example, a meta-analysis of 10 meta-analyses (422 studies in total) found that intentions accounted for 28% of the variance in behaviour (Sheeran, 2002). A meta-analysis of 185 independent studies found that attitudes, SN and PBC accounted for 39% of the variance in intentions (Armitage & Conner, 2001). From the three determinants of the TPB, SN has been consistently found to be the weakest predictor (Armitage & Conner, 2001). Based on accumulated evidence across the literature, the combined correlation between intentions and attitudes ranged from .45 to .60; the combined correlation between intentions and SN ranged

from .34 and .42 and the combined correlation between intentions and PBC ranged from .35 and .54 (Ajzen, 2005; Albarracin, Johnson, Fishbein, & Muellerleile, 2001; Armitage & Conner, 2001; Godin & Kok, 1996; Hagger, Chatzisarantis, & Biddle 2002; McEachan, Conner, Taylor & Lawton, 2011; Sheeran & Taylor, 1999; Trafimow, Sheeran, Conner, & Finlay 2002).

There are diverse factors that have been found to influence the relationship between the determinants of the TPB, intentions and behaviours. These factors need consideration when examining the relationship between the TPB and EBP in MHPs. Armitage and Conner's (2001) meta-analysis found the following moderators: the measure of behaviour (the TPB determinants accounted for more variance in self-report behaviour than objective behaviour), measure of intentions (the TPB determinants accounted for more variance of desires than self-predictions or behavioural intentions), conceptualization of PBC measure (self-efficacy and PBC accounted for more variance in intentions than perceived control over behaviour), and the number of items (SN multiple-item measure had stronger correlations with intention than SN single-item measures).

Another review of healthcare professionals' intentions and behaviours using mainly the TPB (Godin, Bélanger-Gravel, Eccles, & Grimshaw, 2008) found that the prediction of intention varied across: type of professionals (e.g., physicians versus nurses); behaviours (e.g., compliance with guidelines versus documentation); study sample size (i.e., sample $\geq$ 150 participants predicted intention better than smaller sample sizes); psychometric qualities (i.e., higher quality measures predicted intention better than poorer quality); and, similar to previous findings, behavioural measure (i.e., self-report predicted behaviour better than objective measures). Therefore, where possible, these variables were investigated as potential moderators in the present study.

**The Theory of Planned Behaviour and Evidence-Based Practice**

A systematic review of 78 studies (Gordin et al., 2008) that explored healthcare professionals' intentions and clinical behaviours, found the TPB was the most often cited social cognitive theory. Social cognitive theories explained 59% of the variance in intentions and 31% of the variance in behaviour. Furthermore, Eccles et al. (2006) reviewed 10 studies examining the relationship between healthcare intentions and clinical behaviour and found the variance explained by intentions was similar to non-healthcare professionals. Other research (e.g., Thompson-Leduc, Clayman, Turcotte, & Legare, 2015) has also proven the usefulness of the TPB to explain the use of specific EBPs.

Some research has examined the application of the TPB in the field of EBP within mental healthcare. Burgess, Chang, Nakamura, Izmirian, and Okamura (2017) proposed that the TPB offered a useful way to facilitate the adoption of EBP in youth mental health and therefore, created a standardized TPB-based instrument for MHPs and stakeholders. Another study (Casper, 2007) compared the effects of two continuing education classes for MHPs. During one class, the facilitator aimed to improve participants' attitudes, SN and PBC along with didactic teaching on using a specific assessment tool. The other class consisted of the didactic teaching alone. The class that applied the principles of the TPB showed significant improvements over time in clinical behaviours compared to a control group (Casper, 2007).

The only review to date that has reviewed the literature using the TPB to understand or modify health professionals' behaviours found 20 eligible studies, of which only two studies included MHPs (Perkins et al., 2007). Furthermore, there were some methodological limitations in their review, including the lack of: clearly defined inclusion and exclusion criteria; consideration of the grey literature; and meta-analytic statistics to explore if the combined effect sizes were similar to the wider literature.

Hence, a comprehensive systematic review and meta-analysis of the available evidence, where the TPB has been used to predict MHPs' adoption of EBP, would aid ongoing efforts to bridge the research-practice gap.

### Evidence-Based Practice in the present study

Any psychological intervention that had been investigated through at least one published study (in addition to the primary study reviewed) was considered to be an EBP in this review. This purposefully wide definition of EBP aimed to be inclusive of all studies that investigated MHPs use of particular interventions regardless of the extent to which such interventions were considered to be empirically supported under more stringent criteria (i.e., Chambless & Hollon, 1998). In addition, this definition recognized the gaps and limitations of the existing literature (American Psychological Association, 2006), and the controversies around identifying empirically supported treatments (Chambless & Ollendick, 2001).

### Aims

The aim of the present review was to investigate whether the TPB provides a useful framework for understanding MHPs use (or non-use) of EBP. This will be achieved by: (a) systematically identifying and reviewing all primary studies where the TPB has been used to understand or predict MHPs use of EBP; (b) estimating sample-weighted average relationships between attitudes, SN, PBC, intentions, and behaviour; and, (c) exploring potential moderators in the relationship between attitudes, SN, PBC, intentions to use EBP, and actual use of EBP.

## Method

### Search strategy

A preliminary scoping search was conducted to gain an overview of the literature and identify relevant search terms. The search strategy sought to identify studies referring to MHPs and the TPB. Studies focused on EBP were not explicitly

sought for at this stage, since imposing fewer restrictions on the search allowed for the inclusion of all potential EBPs.

Specific key terms were listed referring to MHPs and the TPB. The thesaurus, when a subject heading was available, and free text were used to ensure a thorough search. The search was conducted on 30th of December 2017, in the following databases and platforms: Embase via HDAS (Excerpta Medica Database – 1974 to December 2017), Medline via OvidSP (Ovid Medline Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid Medline Daily and Ovid MEDLINE 1946 to December 2017) and PsycINFO via OvidSP (PsycINFO 1806 to December 2017). No further limits were applied on the search. The complete search strategy can be found in Appendix A. In addition, to identify grey literature and reduce publication bias, the following strategies were employed: hand searching, cross-reference of all selected articles and online search in Open Grey (online system for grey literature).

**Eligibility criteria**

Studies were included if they met all of the following criteria: (1) participants were exclusively MHPs who routinely delivered a mental health related assessment or intervention; (2) the main focus of the study was to investigate factors that can be used to understand or predict the use or intentions to use an EBP using the TRA/TPB; (3) inclusion of an EBP; (4) the study comprised primary research; and (5) the title and abstract were available in English language and full text available in any language.

Studies were excluded if they met any of the following criteria: (1) reported on data and/or participants already included in the review (i.e., were not independent datasets); (2) EBP referred exclusively to medication administration, questionnaire administration, or referral behaviours (as these behaviours are not exclusive to MHPs and the aim of the study was to explore particular behaviours of MHPs); (3) a non-mental health professional (e.g., physician) delivered a mental health screening,

assessment or intervention; or (4) the study's main aim was to develop or validate an instrument or to examine attitudes towards a particular population (e.g., people with HIV) rather than a specific practice.

The Prisma diagram in Figure 2 shows the stepped search. The search in the three databases identified 1,051 papers that were potentially eligible for inclusion. In addition, 253 articles were identified through other sources. After removing duplicates, 876 articles were screened by title and abstract. Eight-hundred-twenty-three articles were excluded mainly because they did not focus on EBP, recruit a sample of MHPs, or were not primary research. Therefore, 53 articles were assessed for eligibility in full-text. Of these, 35 articles (66%) were excluded because the practice investigated did not meet the minimum inclusion criteria of having at least one published study to be considered an EBP ($n$ = 11; 31%); the sample was not comprised exclusively of MHPs ($n$ = 9; 26%); lack of direct measures of the TRA/TPB components ($n$ = 8; 23%); medication behaviours were the main focus ($n$ = 3; 9%); development of an instrument was the main focus ($n$ = 2; 5.5%); and, reported on same dataset as another study included in the review ($n$ = 2; 5.5%). In total, 18 articles met the inclusion criteria and were included in the qualitative review.

Of the 18 eligible studies, 13 studies included a measure of behavioural intention without any measure of actual behaviour, and five studies included a measure of intention as well as a measure of actual behaviour. However, of those five studies, only two of them reported correlation coefficients between the determinants of the TPB, intentions, and actual use of EBP. Given the scarcity of studies with sufficient information examining the relationship between the TPB and actual use of EBP in MHPs, it was decided to focus the present study on investigating the relationship between the determinants of the TPB and intentions to use EBP.

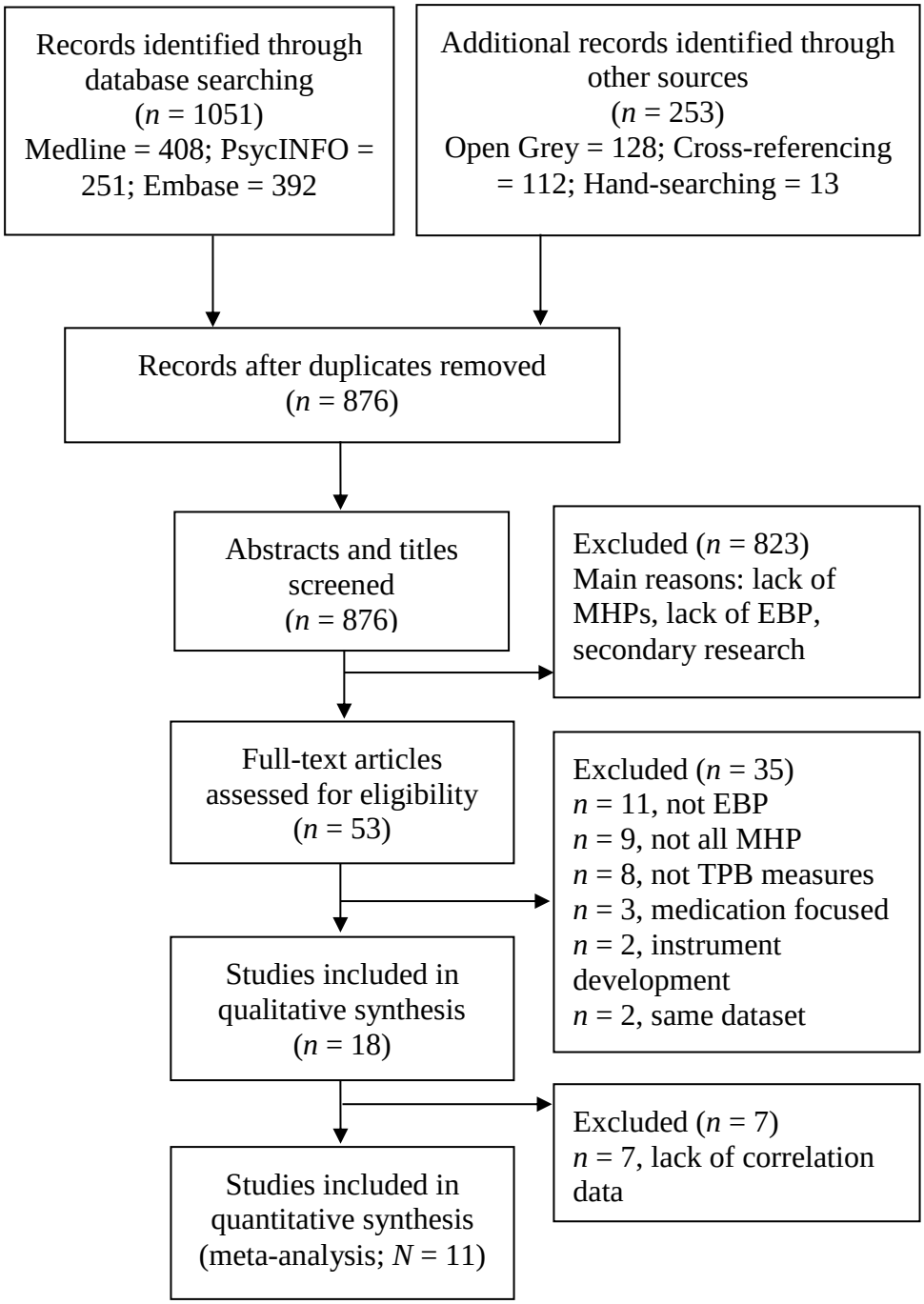


*Figure 2.* The Prisma Diagram (Moher, Liberati, Tetzlaff, & Altman, 2009) showing the flow of studies through the review.

Of the 18 eligible articles, 11 reported at least one correlation between the TRA/TPB determinants (i.e., attitudes, SN and PBC) and intentions to use an EBP, or the correlation coefficients were obtained following contact with the authors (see Missing Data). Therefore, 11 articles were included in the meta-analytic review.

**Coding procedures**

All of the extraction and coding of data was undertaken by the author of the present review, who had experience conducting meta-analyses. The exception was the quality appraisal, where an independent rater with a Psychology PhD and experience conducting meta-analyses appraised half of the studies.

For each study, the following characteristics were coded: (a) the country in which the empirical data was collected; (b) the sample size; (c) the nature of the population, type of metal health professional (e.g. mental health nurse, psychologist); (d) the EBP in question (e.g., smoking cessation); (e) the theory used (i.e., TRA or TPB); (f) correlation coefficient representing the relationship between attitudes, SN and/or PBC and behavioural intention to use the EBP; and (g) percentage of variance of intentions accounted by the TRA/TPB model if reported. In addition, for moderator analyses, further data regarding sample, design and conceptual characteristics was coded (see Moderator Analyses).

**Coding rules.** Due to the diverse nature of the designs employed by the primary studies, the following rules were developed to ensure consistency in the extraction of data and calculation of the relationships. Where studies included several measures of attitudes, SN and/or PBC without reporting a combined correlation coefficient, the measure that was most closely related to the TRA/TPB constructs according to Ajzen (2005) was used (e.g., Drori, Guetta, Ben Natan, & Polakevich, 2014, measured both attitudes towards the population and attitudes towards the EBP, hence only the latter measure was used; $n = 2$). Where studies included measures that deviated considerably

from the TRA/TPB constructs, the measure was not included (i.e., Brothers et al., 2015, with regards to PBC measure, the authors included only the participant's supervisor's report on controllability of the behaviour instead of measuring the participant's perception of control as reflected by PBC; *n* = 1).

Where studies included both direct measures (i.e., asking participants directly about their overall perspective) and indirect measures (i.e., asking participants about their beliefs about the consequences of the behaviour, and the corresponding positive or negative outcome evaluation of each belief) of attitudes, SN and/or PBC, only the direct measures were included (e.g., Wilson, 1998 measured both normative beliefs and SN, but only the latter was included in the review; *n* = 2). The reason for only including direct measures is that research guidelines (Francis et al., 2004) recommend algebraically combining each behavioural belief with its corresponding outcome expectancy and computing an overall measure. To compute this would require access to the complete data set. In addition, Francis et al. (2004) recommended using direct measures when both direct and indirect are inaccessible.

Where studies included multiple EBPs (e.g., Foy et al., 2007, measured MHPs beliefs about three key behaviours involved in the evidence-based disclosure of dementia; *n* = 2) the mean was computed, as to include the same participants more than once would threaten the validity of the meta-analysis. Where studies included longitudinal measures reflecting the change in the TRA/TPB constructs due to an intervention, the baseline data were used when available to avoid potential effects of an intervention, and if unavailable the post-intervention data was used (*n* = 3).

Where studies reported the use of the TRA or the TPB, but a construct from the alternative theory was used, this was classified according to what was actually measured (i.e., Amole et al., 2012 stated that they used the TRA as a framework, however they measured PBC, and hence this study was classified as using the TPB; *n* = 1). Finally,

when an article was reported in a language other than English ($n$ = 1), online translators were used to determine if the study was suitable for inclusion in the review. If the full texts of the article needed to be considered or it was included in the review, then the a priori plan was to find a native language speaker with background akin to psychology to translate the article in full. However, no articles met the criteria to require translation.

**Missing data**. When data reported in the studies did not include correlation coefficients ($n$ = 8), an attempt was made to contact the respective authors via email. One author was unable to be contacted (Wilson, 1998; had passed away), six were emailed using the contact details from the paper and one was emailed with contact details retrieved through an online search. One of the authors responded (Hanbury, Wallace, & Clark, 2009) and their data was included in the meta-analysis. No further responses were received.

To reduce potential sampling error due to the exclusion of articles without correlation coefficients reported, attempts were made to impute missing data. Following Peterson and Brown's (2005) method, standardized beta coefficients were converted to correlation coefficients. However, ANOVA analogue tests showed significant differences between studies with imputed data and those without imputed data in the dependent variable of attitudes but not in the dependent variables of SN and PBC. In the latter, studies showed large heterogeneity without imputed data and remained with large heterogeneity with imputed data. As imputed data seemed to introduce more potential bias, it was decided not to include imputed data in the meta-analytic review.

**Data analysis**

Most statistical analyses were undertaken using IBM SPSS version 24 with Wilson's macros (2018) for meta-analysis in SPSS and Meta-Essentials (Suurmond, van Rhee, & Hak, 2017).

**Pre-analysis transformations.** Before any analyses, the correlation coefficients between each of the TRA/TPB determinants and the EBP were transformed into Fisher's exact *z* scores. Fisher's (1921) *z* transformation converts the sampling distribution of the correlation into a roughly normal distribution and makes the variance of the distribution independent of the correlation (Silver & Dunlap, 1987). The transformation was computed in SPSS using the following formula:

$ES_{Zr} = .5 \ln\left[\frac{1+r}{1-r}\right]$. In addition, Hedge's inverse variance weight was also calculated ($w = n - 3$), as a measure of relative weight for each study, following Armitage and Conner's (2011) meta-analysis. The combined weighted mean Fisher's *z* scores were then converted back to *r* scores for reporting the results.

**Sample-weighted average relationship.** The sample-weighted average and confidence intervals for the relationship between intentions and attitudes, SN and PBC were calculated using with SPSS macros (Wilson, 2018), which follow the Hunter and Schmidt (1990) random effects procedure. Hunter-Schmidt method tends to provide more accurate results than the other commonly used method by Hedges and Vevea (Fields, 2005; Schmidt, Oh & Hyes, 2009). The random-effects model assumes that the true population effect size varies from one study to another and the summary effect is therefore an estimate of the mean of the distribution of effect sizes (Borenstein, Hedges, Higgins, & Rothstein, 2009). Relationship magnitudes were classified according to Cohen's (1992) guidelines, where correlations of .10 were weak, .30 were moderate and .50 were strong. Forest plots in Excel were used to create a visual representation of the individual and combined relationships.

**Heterogeneity.** Heterogeneity tests were used to examine the null hypothesis that all studies were evaluating the same effect (Higgins, Thompson, Deeks, & Altman, 2003), and identify if the variation in findings was due to chance alone (i.e., the effect

sizes are homogeneous) or if there were genuine differences in the results of the studies (i.e., the effect sizes are heterogeneous). The *Q* heterogeneity statistic and $I^2$ were computed as indices of heterogeneity for each combined effect size. The *Q* statistic (i.e. Cochran's *Q*) was provided by Wilson's (2018) SPSS macros and the *Q* statistic was converted to $I^2$ index using the following formula: $I^2 = \left(Q - {}^{df}/_{Q}\right) \times 100\%$ (Borenstein et al., 2009). The *Q* statistic is the sum of the squared deviation of each study's estimate effect from the combined estimate effect weighting each study's contribution, which provides a measure of variation (Borenstein et al., 2009). $I^2$ index is a relative measure of the degree of inconsistency across studies which may provide a better test for heterogeneity than the *Q* statistic (Higgins et al., 2003). A larger $I^2$ indicates more heterogeneity.

**Moderator analyses**. In an effort to account for the likely heterogeneity, this study explored the impact of several potential moderator variables that may account for variability. Most potential moderators were based on the factors that have previously been found to influence the relationship between the TPB determinants and intentions (Armitage & Conner, 2001; Godin et al., 2008). Moderators were classified into three main categories, as moderators pertaining to the: (i) sample; (ii) design of the study; and (iii) conceptual characteristics.

Sample characteristics included: (a) the type of MHPs (grouped according to the studies found); (b) the country where the sample was recruited from; and (c) the sample size (under 150 participants and over 150 participants, according to Godin et al.'s findings, 2008). Design characteristics included: (a) study design (cross-sectional and longitudinal) and (b) publication status (published and unpublished). Conceptual characteristics included: (a) the nature of the EBP in question (grouped according to the studies found); (b) type of intentions classified as: behavioural intentions (e.g., 'I intent to perform x behaviour'), self-predictions (e.g., 'I will perform x behaviour), desires

(e.g., 'I want to perform x behaviour'), a combination of those or not specified, following Armitage and Conner's criteria (2001); (c) type of PBC classified as: exclusively PBC (e.g., 'Whether or not I perform x is entirely up to me'), self-efficacy (e.g., 'I believe I have the ability to perform x'), or a combination (Armitage & Conner, 2001); and (d) number of items for A, SN, PBC and intentions (multiple item and single item; following Armitage and Conner's findings, 2001).

All of the moderators were categorical variables and therefore the analyses were conducted using the random effects *Q*-test based on analysis of variance estimated via non-iterative method of moments (Chen, Manning, & Dupuis, 2012) and computed using Wilson's SPSS Macros (2018). The significance of the between category *Q*-statistic indicated if the moderator accounted for a significant proportion of the variability across the effect sizes or not.

The minimum number of studies to run moderator analyses in the present review was two studies representing a given level of the moderator, despite guidelines advocating for a minimum of four studies (Fu et al., 2011). Two studies per subgroup was deemed sufficient, given the moderator analyses were post-hoc exploratory variables, mostly based on previously known moderators, and the number of studies included in the overall meta-analysis was already small. The potential moderator variables that had insufficient studies representing a given level of the moderator were: (a) number of items of attitudes, SN and PBC; (b) psychometric qualities; and (c) behavioural measure.

**Publication bias.** Two analyses tested for potential publication bias. First, a *Q*-test based on analysis of variance was used to compare effect size estimates between published and unpublished studies. Second, a funnel plot was drawn with the effect size on the x-axis and the standard error on the y-axis, the plot was examined for asymmetry and used Egger's regression (Egger, Smith, Schneider, & Minder, 1997) to formally test

this. If asymmetry was found, Duval and Tweedie's (2000) Trim and Fill method was used to trim (i.e., remove) the asymmetric studies in the outlying parts of the funnel, re-compute the effect size until it is symmetrical, and fill (i.e., impute) a mirror image for each study to help correct the variance (Borenstein et al., 2009).

### Quality Ratings

The Critical Appraisal Skills Programme (CASP, 2017) checklists were used to appraise systematically the quality of each study. The aim was to provide an analytical evaluation of the quality of the studies, using a particular method to minimise bias. This information is vital to ascertain if the results of a study can be believed (i.e., are valid and reliable) and if they are likely to transfer appropriately to other environments (Katrak, Bialocerkowski, Massy-Westropp, Kumar, & Grimmer, 2004). The CASP tools were divided into three broad sections regarding validity, results and relevance to local practice. The specific CASP tool used to appraise most of the studies was the cohort checklist as, although this was designed for longitudinal studies, it was the closest to cross-sectional research. In addition, the case control and randomized control trial checklists were used for studies accordingly to their methodology. Each CASP checklist contained 11 to 12 questions to make help make sense of a study, with an early-cut off where, if either of the first two or three questions were not satisfactory, the remaining questions did not need to be answered. The specific questions for each checklist can be found in Appendix B. The author of the present review appraised all of the studies ($k$ = 18), and an independent researcher appraised 50% ($k$ = 9), of the studies using a random online system to allocate studies. Inter-rater reliability was calculated using Cohen's (1960) kappa and found to be moderate; $\kappa = .58$, $p < .05$.

## Results

A total of 18 studies were eligible with $N$ = 3,036 MHPs as participants, ranging from 30 to 506 participants per study. Of these, only 11 studies with $n$ = 1,703 MHPs as

participants reported the correlation coefficients between one or more of the TRA/TPB determinants and intentions to use EBP, and were therefore included in the meta-analysis. A summary of the studies is shown in Table 1. The type of MHPs' work across a range of contexts and client groups were: generic workers ($k$ = 6, 33%), youth workers ($k$ = 4, 22%), substance abuse workers ($k$ = 2, 11%), mental health students ($k$ = 2, 11%), older adult workers ($k$ = 1, 6%), and social workers ($k$ = 1, 6%). The EBP referred to substance use techniques ($k$ = 4, 22%), health interventions in mental health settings ($k$ = 4, 22%), adherence to guidelines ($k$ = 3, 17%), generic use of EBP ($k$ = 2, 11%) and self-help interventions ($k$ = 2, 11%). Most studies included less than 150 participants ($k$ = 12, 67%) and had a predominantly female sample ($k$ = 17, 94%). Studies tended to be cross-sectional ($k$ = 13, 72%), published ($k$ = 13, 72%), and conducted in Western English-speaking countries ($k$ = 16, 89%). All of the studies contained self-report measures.

Five studies measured actual use of EBP, one of which used independent observations of behaviour and four used self-reported measures. Of the five studies, two reported correlations between intentions to use EBP and self-reported actual use of EBP, $r$ = .52 (Fields, 2008) and $r$ = .96 (Klaybor, 1998). These correlations were stronger than those found previous literature (Gordin et al., 2008). However, the two studies were cross-sectional and intentions were reported at the same time as behaviour. In addition, the only study (Hanbury et al., 2009) which measured independent observation of an EBP, via audit data, did not report if intentions predicted use of an EBP. Rather, Hanbury et al. (2009) found that following an interactive education intervention, actual behaviour did not change.

The percentage of variance in intentions to use EBP explained by determinants of the TPB varied from 9% to 70%. However, some studies reported the variance explained by the TPB in combination with other variables (e.g., past behaviour).

Table 1

*Summary of studies evaluating the use of the TRA/TPB to predict the intention to use EBP in MHPs*

| Authors (Year) | Country | *n* | Population | EBP | Theory | Correlations coefficients | | | Variance | CASP |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | A | SN | PBC | | |
| Amole et al. (2012) | USA | 30 | Psychiatric nurses | Smoking cessation | TPB | .56 I P | .35 I NS P | .58 I P | - | 1 |
| Blankers et al. (2016) | Neatherl ands | 506 | Mental health workers | Smoking cessation | TPB | | | | - | 7 |
| Brothers et al. (2015) | USA | 62 | MHPs | Biobehavioural intervention (BBI) for cancer patients | TPB | .36 P | - | .39 P | 22%+ P | 4 |
| Davis (2005) | USA | 124 | Substance use counsellors | Non-confrontational counselling | TRA | | | - | 32% | 5 |
| Drori et al. (2014) | Israel | 100 | Inpatient psychiatric nurses | Creative group activities | TRA | .37 | .24 | - | 40%+ | 7 |
| Faulkner and Biddle (2001) | UK | 394 | Mental health practitioners | Promotional of physical activity | TPB | .50 | .45 | .55 | 61% | 7 |
| Fields (2008) | USA | 125 | Youth MHPs | Involvement of parents in treatment | TPB | .49 | .25 | .45 | 30% | 6 |
| Foy et al., (2007) | UK | 398 | Older people mental health provider | Disclosure of dementia diagnosis | TPB | .43 a | .57 a | .34 a | 29%+ | 7 |
| Garner et al. (2001) | USA | 95 | Youth substance use therapists | A-CRA/ACC treatment for substance use | TPB | .42 P | .17 NS P | .01 NS P | 9% | 6 |
| Hanbury et al. (2009) | UK | 50 | Community MHPs | Adherence to suicide prevention guideline | TPB | .43 | .78 | .36 | 58% | 6 |

Table 1.

*(continued)*

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Ince et al. (2015) | UK | 82 | Community MHPs | Adherence to schizophrenia guidelines | TPB | | | - | 7 |
| Kelly et al. (2012) | Australia | 106 | Residential substance abuse workers | EBP (general) | TPB | .36 | .60 | .52 | 41% | 7 |
| Klaybor (1998) | USA | 249 | Clinical Social workers | DSM-IV for assessment and treatment | TPB | .36 [a] | .19 [a] | .31 [a] | 26%+ [a] | 6 |
| Levy (2011) | UK | 94 | IAPT PWP trainees | CBT self-help materials | TPB | .77 | .60 | .65 | 70%+ | 1 |
| Meissen et al. (1991) | USA | 168 | Graduate psychology and social work students | Self-help groups | TRA | | | - | 56% | 5 |
| Tasca et al. (2014) | Canada | 68 | Psychotherapists | Use of psychotherapy research | TPB | | | | 47% | 1 |
| Wilson (1998) | USA | 284 | School psychologists | Consultation model | TPB | | | | 46% | 6 |
| Wykes (2016) | USA | 101 | Youth mental health providers | Weight-loss intervention | TPB | | | | 48% | 7 |

*Note.* Variance = variance in intentions accounted by TRA/TPB; CASP = total number of 'yes' answers in CASP rating scales; A= Attitudes; SN = Subjective Norms; PBC = Perceived behavioural control; [P] = Correlations post-intervention; + = Regression model included other variables beyond the TRA/TPB (e.g. past behaviour, demographics); [I] = Indirect measure; [a] = Average of different EBPs. All correlations are significant at $p<.05$, unless indicated by [NS] (non-significant).

**Relationships between determinants and intentions to use Evidence-Based Practice**

**Attitudes.** The sample-weighted average relationship between attitudes and intentions was $r+ = .47$, 95% CI[.36, .56], $p < .001$, ($k = 11$; $n = 1670$). This indicated that MHPs' attitudes had, on average, a strong relationship with their intentions to use EBP. The forest plot (Figure 3) showed visually a roughly symmetrical distribution around the sample-weighted average relationship with the exception of the study by Levy (2011). Despite this apparent distribution, the heterogeneity statistic was significant $Q$ (10) = 33.46, $p < .001$; $I^2 = 70.11\%$. Levy's (2011) relationship was over two standard deviations from the weighted mean and was therefore considered an outlier. When removing the study by Levy (2011), the heterogeneity became non-significant $Q(9) = 7.72$, $p = .561$; $I^2 = 0\%$, suggesting that the relationships were mostly consistent across studies with the exception of an outlier.

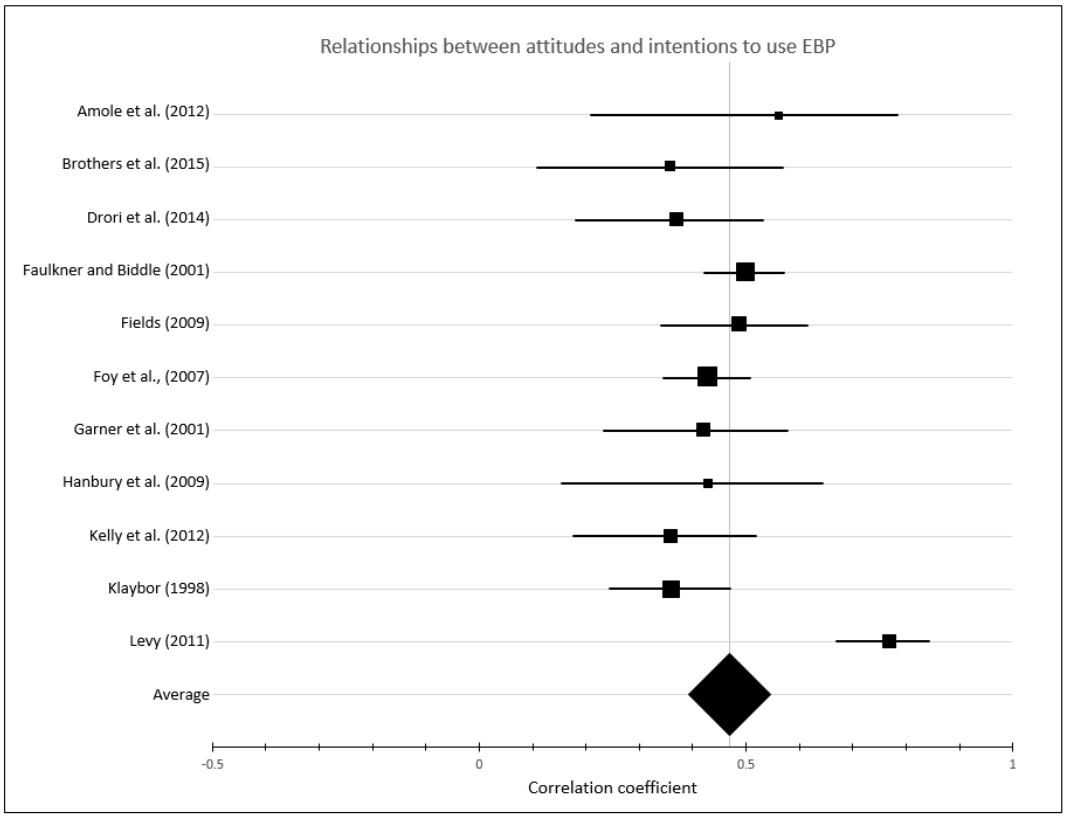


*Figure 3.* Forest plot showing the relationships between MHPs' attitudes toward EBP and their intentions to use EBP.

**Subjective Norms.** The sample-weighted average relationship between SN and intentions was $r+ = .44$, 95% CI[27, .59], $p < .001$, ($k = 10$; $n = 1641$). MHPs' SN had a moderate to strong relationship with intentions to use EBP. However, the forest plot (Figure 4) suggested that there was large inconsistency between studies, without significant outliers. This inconsistency was corroborated by the homogeneity statistic, $Q(9) = 75.74$, $P < .001$; $I^2 = 88.12\%$. This finding suggests the relationships from the primary studies were heterogeneous.

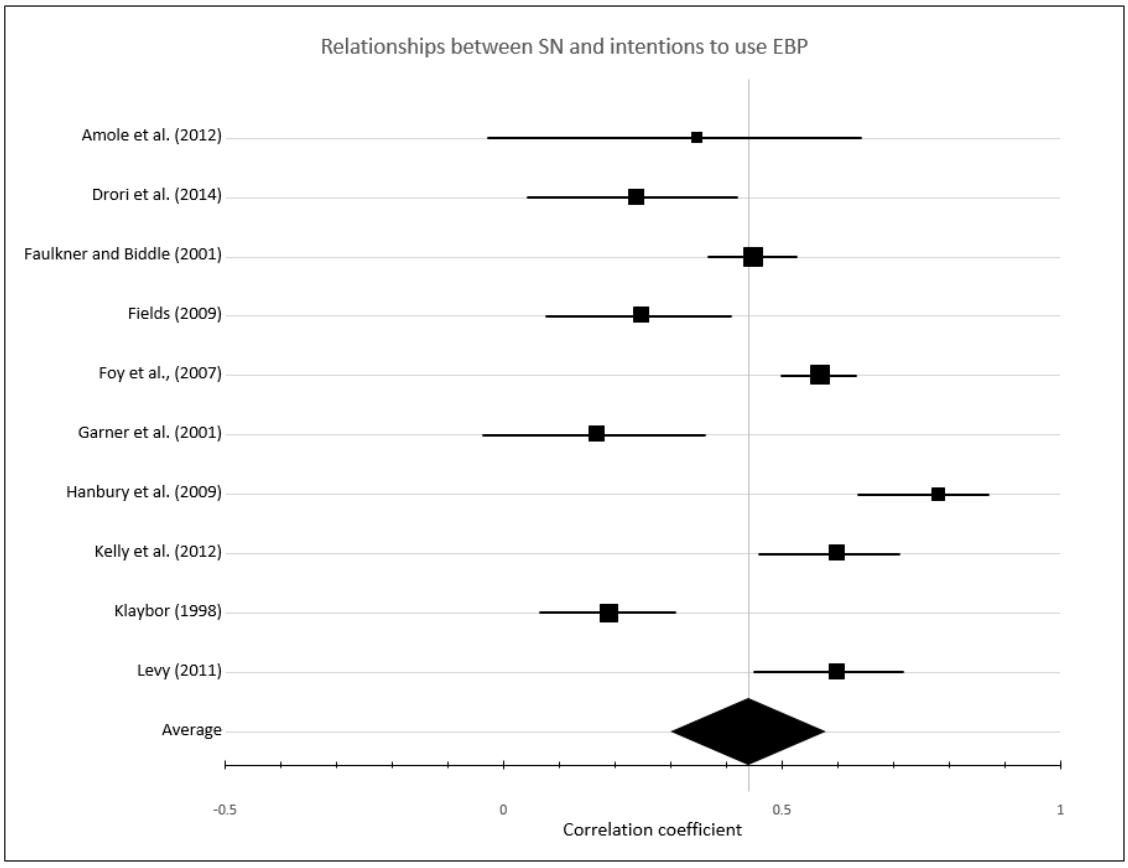


*Figure 4*. Forest plot showing the relationship between MHPs' SN toward EBP and their intentions to use EBP.

**Perceived Behavioural Control.** The sample-weighted average relationship between PBC and intentions was $r+ = .42$, 95% CI[.29, .54], $p < .001$, ($k = 10$; $n = 1603$). MHPs' PBC had a moderate to strong relationship with their intentions to use EBP. The forest

plot in Figure 5 shows some inconsistency between studies. The homogeneity statistic was significant $Q(9) = 49.63$, $p < .001$; $I^2 = 81.86$ % suggesting that the relationships derived from the primary studies were heterogeneous. The relationship coefficients from the studies by Garner et al. (2001) and Levy (2011) were significant outliers at $p < .05$. However, the heterogeneity remained significant when removing these studies, $Q(7) = 22.06$, $p < .01$; $I^2 = 68.27$ %.

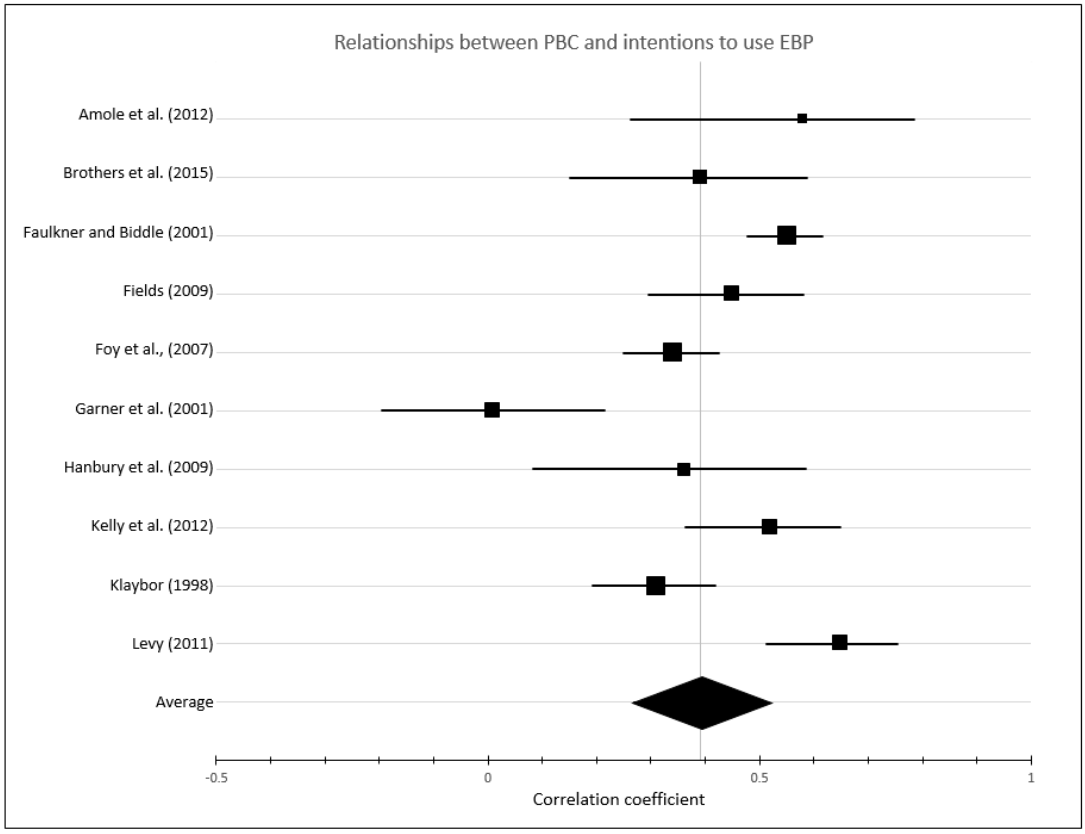


*Figure 5*. Forest plot showing the relationship between MHPs' PBC toward EBP and their intentions to use EBP.

**Moderator analyses**

Table 2 shows the findings of the moderator analyses. Only two variables were found to significantly moderate the relationship between SN and intentions to use EBP; both reflecting sample characteristics. First, the relationship between SN and intentions

to deliver EBP was stronger among generic mental health workers ($r+ = .58$), than among substance abuse workers ($r+ = .28$) and youth mental health workers ($r+ = .22$; $Q(5) = 7.59$, $p < .05$). Second, the relationship between SN and intentions to deliver EBP was stronger among studies where MHPs were recruited in the UK ($r+ = .64$) than among studies where MHPs were recruited in the USA ($r+ = .22$; $Q(7) = .24.44$, $p < .001$).

None of the design and conceptual characteristics moderated the relation between attitudes, SN, PBC, and intentions; nor did the remaining the sample characteristics.

Table 2

*Moderator analyses as predictors of intentions to use EBP in MHPs*

| | | | | *Attitudes* | | | | SN | | | | *PBC* | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Type | Moderator | Categories | *K* [a] | *k* [b] | $r_z$ | 95% CI | *Q* | *k* [2] | $r_z$ | *95% CI* | *Q* | *k* [2] | $r_z$ | *95% CI* | *Q* |
| Sample | MHPs group | Generic | 6 | 4 | .52 | .44 - .61 | .70 | 3 | .58 | .40 - .76 | **7.59*** | 4 | .45 | .27 – 63 | 1.47 |
| | | Youth | 4 | 2 | .50 | .36 - .63 | | 2 | .22 | 0 - .43 | | 2 | .26 | .01 - .51 | |
| | | Substance use | 2 | 2 | .44 | .27 - .62 | | 2 | .28 | .03 - .54 | | | | | |
| | | Student | 2 | | | | | | | | | | | | |
| | | Older adults | 1 | | | | | | | | | | | | |
| | | Social workers | 1 | | | | | | | | | | | | |
| | Country | USA | 9 | 5 | .46 | .31 - .61 | 1.94 | 4 | .22 | .10 -.35 | **24.44*****| 5 | .35 | .18 - .52 | 2.23 |
| | | UK | 5 | 4 | .61 | .46 - .76 | | 4 | .64 | .53 - .76 | | 4 | .53 | .36 - .71 | |
| | | Australia | 1 | | | | | | | | | | | | |
| | | Canada | 1 | | | | | | | | | | | | |
| | | Netherlands | 1 | | | | | | | | | | | | |
| | | Israel | 1 | | | | | | | | | | | | |
| | Sample size | Under 150 | 12 | 9 | .53 | .42 - .65 | .43 | 8 | .47 | .29 - .65 | .03 | 8 | .44 | .30 - .59 | 0.01 |
| | | 150 or above | 6 | 3 | .46 | .30 - .62 | | 3 | .44 | .18 - .71 | | 3 | .43 | .23 - .64 | |
| Design | Study design | Cross-sectional | 13 | 8 | .52 | .41 - .63 | .29 | 8 | .45 | .28 - .62 | .15 | 7 | .49 | .36 - .61 | 1.85 |
| | | Longitudinal | 5 | 4 | .46 | .27 - .65 | | 3 | .52 | .16 - .21 | | 4 | .32 | .12 - .52 | |
| | Publication status | Article | 13 | 9 | .47 | .36 - .57 | 2.07 | 8 | .50 | .33 - .67 | .67 | 8 | .41 | .26 - .55 | 0.65 |
| | | Dissertation | 5 | 3 | .61 | .44 - .78 | | 3 | .37 | .10 - .64 | | 3 | .51 | .30 - .72 | |

Table 2. *(Continued)*

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Substance use | 4 | 2 | .49 | .31 - .67 | 2.57 | 2 | .25 | -.10 -.59 | 2.32 | 2 | .21 | -.01 -.46 | 3.59 |
| | | Health | 4 | 3 | .50 | .43 - .56 | | 2 | .57 | .27 - .86 | | 3 | .47 | .32 - .62 | |
| | | Adherence to guidelines | 3 | 2 | .39 | .28 - .50 | | 2 | .55 | .23 - .87 | | 2 | .34 | .14 - .54 | |
| | EBP | Generic | 2 | 2 | .44 | .29 - .59 | | 2 | .53 | .21 - .86 | | 2 | .45 | .23 - .66 | |
| | | Self-help | 2 | | | | | | | | | | | | |
| | | Consultation | 1 | | | | | | | | | | | | |
| | | Creative group | 1 | | | | | | | | | | | | |
| | | Involve parents | 1 | | | | | | | | | | | | |
| | | Combined | 8 | 6 | .46 | .36 - .39 | .03 | 5 | .36 | .15 -.57 | .67 | 6 | .41 | .17 - .67 | 0 |
| Conceptual | Type of intention | Beh. intention | 5 | 4 | .48 | .34 - .61 | | 4 | .50 | .24 - .75 | | 3 | .41 | .27 - .56 | |
| | | Not specified | 4 | | | | | | | | | | | | |
| | | Self-prediction | 1 | | | | | | | | | | | | |
| | | Desires | 0 | | | | | | | | | | | | |
| | | Combined | 11 | | | | | | | | | 7 | .50 | .37 - .62 | 3.45 |
| | Type PBC | PBC | 4 | | | | | | | | | 3 | .26 | .03 - .48 | |
| | | Self-efficacy | 1 | | | | | | | | | | | | |
| | Items for intention | Multiple item | 15 | 10 | .51 | .41 - .61 | .08 | 9 | .49 | .34 - .65 | 1.01 | 10 | | | |
| | | Single item | 3 | 2 | .47 | .20 - .74 | | 2 | .29 | -.07 -.65 | | 1 | | | |
| | Items for predictor | Multiple item | 18 | 12 | | | | 11 | | | | 11 | | | |
| | | Single item | 0 | 0 | | | | 1 | | | | 0 | | | |

*Note*. $Q$ = Q-statistic between-subgroups analogue to ANOVA; $r_z$ = Fisher's z correlation coefficient. [a] Total number of studies within moderator category, from the overall 18 studies. [b] Total number of studies within the moderator category, from the 11 studies. * $p < .05$; ** $p < .01$, *** $p < .001$

**Publication bias**

The moderator analyses in Table 2 showed there were no significant differences between the relationships found with regards to publication status between intentions and attitudes (between $Q(1) = 2.18$, $p = .14$), intentions and SN (between $Q(1) = .77$, $p = .38$), and between intentions and PBC ($Q(1) = .43$, $p = .51$).

Funnel plots are shown in Figure 6. Visual inspection of the attitudes funnel plot (Figure 6a) revealed a roughly symmetrical distribution, and Egger's test was non-significant ($p = .73$) indicating lack of bias. Visual inspection of the SN funnel plot (Figure 6b) revealed an asymmetrical distribution, however, Egger's test was non-significant ($p = .97$) indicating lack of bias. Visual inspection of the PBC funnel plot (Figure 6c) similarly revealed roughly symmetrical distribution, and Egger's test was non-significant ($p = .98$) indicating lack of bias. Given the statistical tests revealed symmetry in the funnel plot, the trim and fill procedure was not utilized. Overall these results suggest lack of publication bias.

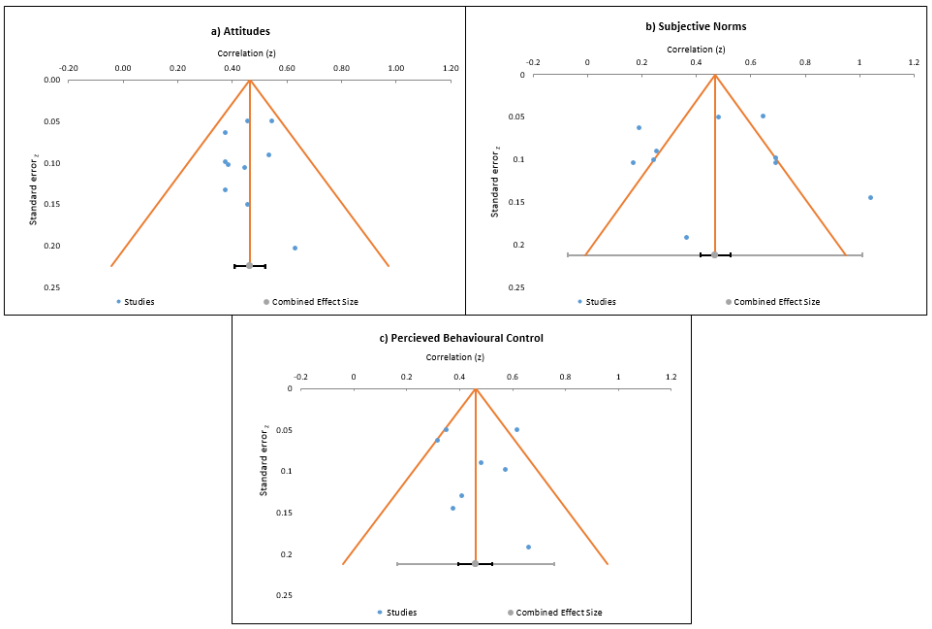


*Figure 6.* Funnel plots showing the relationship between MHPs' TRA/TPB determinants and their intentions to use EBP.

**Quality Assessment**

None of the studies met all the quality criteria set by CASP checklists (2017). The results to each question can be found in Appendix B. Three studies did not meet the minimum criteria for validity at screening due to lack of a clearly focused issue and lack of acceptable recruitment (Amole et al., 2012; Levy, 2011; Tasca et al., 2014). The results of these three studies were compared to the rest of the studies, to explore if there was any relationship between meeting the minimum quality criteria and the strength of the findings. However, there was no clear relationship found between quality and findings in these studies, as Levy's (2011) results were outliers with regards to attitudes and PBC, Tasca et al's (2014) correlations were not reported, and Amole et al's (2012) relationships were all within normal ranges compared to the other studies included in this review.

Most of the studies failed to provide objective measurements of behaviour or follow-ups, recruited their participants through a convenience sample compromising the ability to generalize the results, and failed to consider power leading to potential Type II errors. However, most of the studies addressed a clearly focused question, their measures followed recommended guidelines suggesting high validity in measurements, and their results mostly fit within wider available evidence.

Overall, the quality assessment suggests that were some methodological problems in the findings of the primary studies (and thus of this review in general) that limit their ability to generalize to the wider MHP's population and need consideration when interpreting the results.

## Discussion

This is the first meta-analytic review to investigate the evidence using the TPB to understand MHPs use of EBP. A systematic review of three databases and additional search of grey literature revealed 876 articles for screening. As most of the studies

identified lacked a behavioural measure of EBP use, the review focused on the relationship between the TPB determinants and the intention to use EBPs. From the 18 eligible primary studies identified, 11 studies with 1,703 participants were included in the meta-analytic review.

The random-effects models showed that attitudes, SN and PBC had moderate to strong sample-weighted relationships with MHPs intentions to use EBP ($r+_{A}$= .47, $r+_{SN}$ = .44, $r+_{PBC}$ = .42). However, there was significant heterogeneity in the relationships between SN and intention and PBC and intention (but not in the relationships between attitudes and intention). Exploratory moderator analyses considering sample, design and conceptual characteristics revealed that the relationship between SN and intention to use EBP was moderated by the type of the MHP and the country in which the participants were recruited. However, it should be recognised that most of the moderator analyses were likely to be underpowered due to the relatively small number of primary studies that were included in each moderator category.

**Findings compared to wider literature**

The sample-weighted average relationships between attitudes and intentions, and between PBC and intentions were largely comparable to prior studies with non-MHP samples, while the sample-weighted average relationship between SN and intentions was relatively larger. Armitage and Conner's (2001) meta-analysis of the relationship between the TPB constructs and intentions and behaviour included 185 independent studies with any population and any behaviour. They found similar average relationships between attitudes and intention ($r+$ = .49 compared to $r+$ = .47 in the present review), and between PBC and intentions ($r+$ = .43 compared to $r+$ = .42 in the present review). However, the relationship between SN and intentions reported by Armitage and Conner (2001) was smaller ($r+$ = .34 compared to $r+$ = .44 in the present review). Armitage and Conner (2001) concluded that SN was the weakest predictor of

intentions, and another more recent meta-analysis with 237 studies had similar findings (McEachan et al., 2011).

The greater importance that SN seemed to have in MHPs' intentions to use EPB may be due to small number of studies or may suggest SN has a particular role in this field. In support of the present findings, a recent systematic review (Thompson-Leduc et al., 2015) found SN was the TPB determinant most frequently and significantly associated with intentions of health professionals to engage in shared decision-making behaviours between a patient and their healthcare provider. However, other reviews have not supported this idea. For example, Perkins et al.'s (2007) review of health professionals found SN were the strongest predictor of health professionals' behaviours in only three of the 20 studies reviewed. Overall, these results merely warrant further exploration into the role that SN may have in MH's intention to adopt EBP.

**Inconclusive results: heterogeneity and moderators**

A large amount of heterogeneity was to be expected given prior research (Armitage & Conner, 2001). However, while the relationship between SN and PBC and intentions had large heterogeneity, the relationship between attitudes and intention was homogeneous. A potential explanation for the homogeneity found in the relationship with attitudes, with the exception of an outlier, is that the type of behaviour is homogeneous (i.e., the intentions to use EBP), as the type of behaviour has been found to moderate the relationship between the TPB determinants and intentions (McEachan et al., 2011). This explanation is limited, as it does not account for the fact that SN and PBC had large heterogeneity, where the behaviour was also homogenous.

With regards to moderators, the only significant moderators were found in the relationship between SN and intentions to use EBP. The relationship between SN and intentions was stronger among generic mental health workers than among youth workers. The difference between the perceived social norms in adult and child services

may be a reflection of the timeline of diverse efforts towards the adoption of EBP. Adult services in general have been investing more resources for a longer time than children's services. Therefore, the beliefs about others' attitudes towards the adoption of EBP may be more important to predict adult services' intentions to use EBP. For example, IAPT officially started for working age adults and a few years later the government announced an extension for children and young people (Shafran, Fonagy, Pugh, & Myles, 2014). In addition, the relationship between SN and intentions to use EPB was stronger among British MHPs than American MHPs. Prior studies have found cultural differences in the relationships between the TPB variables (e.g. Pavlou & Chai, 2002; Hagger et al., 2007), and SN was even found to be a stronger predictor of intentions in the collectivist culture of Japan compared to Britain (Abrams, Ando, & Hinkle, 1998). Cho and Lee (2015) also found differences in SN of health behaviours between USA and Korea. However, no comparison has been made to the researchers' knowledge between America and Britain. Overall, the present review highlights the potential impact that age and culture may have on understanding the relationship between SN and MHPs' intentions to use EBP. Future research on how SN may impact on intentions and actual use of EBP across the patients' lifespan and across countries may help to clarify this relationship.

While most moderators were not found to be significant, most of the moderation analyses in the present review were likely to have inadequate power, which can potentially lead to false negative results (Burke, Sussman, Kent, & Hayward, 2015). In addition, the meta-analysis by McEachan et al. (2011) also noted that regardless of the high power (with 237 studies), and despite controlling for past behaviour and the several moderators found, these remained large amounts of heterogeneity unexplained between studies, potentially indicating unknown moderators or an inconsistent nature of the phenomenon.

**Clinical and Theoretical Implications**

The findings of the present review suggest that the TPB is a helpful framework for understanding the intentions of MHPs to use EBP(s) and therefore to guide further dissemination and implementation efforts in mental health. An advantage of the TPB is that it provides a clear framework from which to intervene to promote EBP (Perkins et al., 2007). Specifically, the TPB may help identify clearly which key cognitions for a particular population need to be targeted by interventions designed to promote the use of EBP. For example, Casper's research (2007) conducted an elicitation study to obtain information on the key cognitions of their intended population under the TPB framework. Casper (2007) then delivered an intervention targeting those key cognitions to strengthen the intentions of delivering a specific EBP and compared it to a standard class on the EBP. Participants in the class with the TPB intervention self-reported using the EBP significantly more than the standard class at a three-month follow-up (Casper, 2007).

Given the moderate to strong relationships between SN and intentions and PBC and intentions found in the present review, PBC and particularly SN could be valuable additions to future theoretical models guiding EBP in MHP. The systems-contextual perspective (Beidas & Kendall, 2010) states that for the adoption of EBP four levels need to be addressed: therapist variables, organizational support, and quality of training and client variables. Therapist variables include attitudes towards EBP, but the variables of SN and PBC were not explicitly mentioned in the model. Another comprehensive model called the Therapist Training Evaluation Outcomes Framework (Decker, Jameson & Naugle, 2011) proposed that EBP training should include attitudes amongst other variables, without explicit mention of the other components of the TPB. Similarly, the literature on therapist drift (Waller, 2009) includes attitudes as a variable that needs addressing for the adoption of EBP (Waller & Turner, 2016), but not SN and PBC.

The implication for mental health services is to create policies and organizational cultures that promote the determinants of the TPB towards the adoption of EBP. For example, positive attitudes towards EBP can be promoted by giving rewards to staff (e.g., rewarding the use of EBP financially; Garner et al., 2011). SNs, where all staff should be seen to approve of and endorse EBPs, could be promoted by ensuring supervision includes discussion of EBP, having regular meetings guided by a senior member of staff to discuss providers' use of EBP, NICE guidelines, recent research papers and their clinical application. Promoting a perceived sense of behavioural control over their use of EBP could be achieved by providing simple, easy to use guidelines about the specific EBP promoted. MHPs themselves would benefit from discussing with their peers and supervisors about which EBPs they use (in an effort to increase SN), what they have found helpful about using such EBPs (in an effort to increase attitudes) and troubleshooting some of the regular barriers (in an effort to increase PBC).

**Limitations and Future Directions for Research**

A key limitation is that most studies lacked a measure of actual behaviour, which limits the ability to generalize the results to the adoption of EBP. The relationship between intentions and behaviour is reliable and consistent but far from perfect. A meta-analysis of 47 experimental studies showed that a medium-to-large change in intention led to a small-to-medium change in behaviour (Webb & Sheeran, 2006), and similar findings have been shown in health professionals (Eccles et al., 2006). Further, Beidas and Kendall's review (2010) concluded that most training programmes designed to promote EBP produced a change in MHPs' knowledge and attitudes, but not in MHPs' actual behaviour, their adherence to treatments, competency or skills. Hence, the TPB may be helpful for understanding intentions, but may be insufficient on its own to guide the adoption of EBP, where normally more contextual and organizational

variables need to be addressed. Future research should aim to measure behaviour, at least through self-report. However, when feasible, observed behaviour measures (e.g., client's outcome data, video recording of sessions or audit data) would improve the validity of the results, as self-report may be prone to self-assessment bias (e.g., Parker & Waller, 2015).

Another key limitation is the correlational analysis of the studies, which makes it impossible to draw a causal conclusion. For example, positive intentions might lead to positive attitudes rather than vice versa. Some experimental research has failed to find the causal relationship of behaviour change based on the TPB (Sniehotta, 2009). Future research would benefit from longitudinal controlled experiments to test if interventions targeting the TPB determinants in MHPs effectively alter the behaviours corresponding to EBP.

The characteristics of the studies reflect other limitations of the present review: the eligible studies were not representative of all MHPs or of all EBPs. The majority of the studies focused on EBP related to substance use and physical health, despite them not being the most prevalent disorders (Steel et al., 2014). The definition of EBP adopted in the present review was purposefully very wide, to avoid missing any potential studies, yet this is also led to the limitation that some of the studies lacked a wide evidence base. For example, a specific consultation model in schools (Wilson, 1998) and a biobehavioural intervention for cancer patients (Brothers et al., 2015) are not included in NICE guidelines as recommended treatments for their target population. Furthermore, the practices with the most accumulated evidence base for the most common mental health disorders (e.g. exposure for anxiety; Olatunji, Cisler, & Deacon, 2010) were not part of the practices investigated. Similarly, the moderator analyses were underpowered due to the small number of studies. More high quality primary studies are needed to investigate the adoption of specific EBP promoted by NICE

guidelines and potential moderators.

An additional limitation is that the overall methodological quality of the studies did not meet satisfactory quality standards, compromising the ability to generalise of the results. Further, the missing data from the six eligible studies without correlation coefficients reported might be a systematic source of bias. Imputation of the data was attempted, but this seemed to introduce further bias. The lack of measurement consistency between studies is inherent to the TPB. Although guidelines have been proposed (Francis et al., 2004), measurement inconsistency still poses a major challenge for synthesizing research findings (Burgess et al., 2017).

Finally, due to time constraints, the coding of the present review was undertaken solely by the author of this review. Future research would benefit from having an independent coder to ensure valid and reliable extraction of the data. In addition, there might be other studies that have investigated factors related to the TPB in the adoption of EBP without having the explicit framework of the TPB, as it overlaps substantially with other theories about behaviour change. However, those studies were systematically excluded from the present review. Future research that may integrate those additional studies might provide a wider understanding of why MHPs choose to adopt –or not to adopt– EBP. Further research is also needed to clarify the potential role nationality/culture and type of MHP might have on SN and the relationship between those and intentions to use EBP, as well as actual use of EBP. Once there is enough high quality primary research with a measure of behaviour, future reviews may investigate potential moderators of intentions and behaviour that may then guide further experimental studies aimed at bridging the gap between research and practice in mental health.

## Conclusion

Overall, the findings of the present review provide initial evidence encouraging the use of the TPB for understanding the intentions of MHPs to use EBP. However, the limited collection of studies, the lack of behavioural measures, and unsatisfactory quality are sticking given the amount of resources invested in promoting the adoption of EBPs in MH.

## References

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* Studies included for review.

**Appendix A: Full search strategy and records identified**

| **Embase via HDAS** | | | | |
|---|---|---|---|---|
| ***Concept*** | ***Terms*** | ***Search*** | ***Exact search terms used*** | ***Records (n)*** |
| Mental health professionals | Mental health personnel | 1 | exp "mental health care personnel"/ | 1663 |
| | | 2 | "mental health personnel".ti,ab,if | 105 |
| | | 3 | exp "mental health worker*"/ | 52412 |
| | | 4 | "mental health worker".ti,ab,if | 902 |
| | | 5 | "mental health professional*".ti,ab,if | 6295 |
| | | 6 | “mental health provider*”.ti,ab,if | 1279 |
| | | 7 | “mental health practitioner*”.ti,ab,if | 727 |
| | Psychologist | 8 | exp psychologist/ | 10719 |
| | | 9 | psychologist*.ti,ab,if | 20,667 |
| | | 10 | exp psychotherapist/ | 5,890 |
| | | 11 | psychotherapist*.ti,ab,if | 4,564 |
| | | 12 | exp "psychologist,clinical"/ | 5250 |
| | | 13 | “clinical psychologist*”.ti,ab,if | 2395 |
| | Counsellor | 14 | exp counselor/ | 518 |
| | | 15 | “counselor*”.ti,ab,if | 7967 |
| | | 16 | “counsellor*”.ti,ab,if | 2857 |
| | Clinician | 17 | clinician*.ti,ab,if | 250686 |
| | Therapist | 18 | therapist*.ti,ab,if | 51457 |
| | Psychiatrist | 19 | exp psychiatrist/ | 22093 |
| | | 20 | psyciatrist*.ti,ab,if | 35417 |
| | Psychiatric Staff | 21 | “psychiatric staff*”.ti,ab,if | 259 |
| | | 22 | exp "psychiatric nursing"/ | 15509 |
| | | 23 | "psychiatric nurs*".ti,ab,if | 4480 |
| | Attitudes of mental health professionals | 24 | exp "health personnel attitude"/ | 165728 |

| | | | |
|---|---|---|---|
| Theory of planned behaviour | 25 | exp "theory of planned behaviour"/ | 1166 |
| | 26 | exp "theory of reasoned action"/ | 100 |
| | 27 | ("theory of planned behavio*").ti,ab,if | 2933 |
| | 28 | ("theory of reasoned action").ti,ab,if | 503 |
| Combined | 29 | 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 | 585,308 |
| | 30 | 25 or 26 or 27 or 28 | 3,463 |
| | 31 | 29 and 30 | 392 |
| **PsycINFO via OvidSP** | | | |
| ***Concept*** | ***Terms*** | ***Search*** | ***Exact search terms used*** | ***Records (n)*** |
| Mental health professionals | Mental health personnel | 1 | exp mental health personnel/ | 48124 |
| | | 2 | “mental health personnel”.mp. | 11105 |
| | | 3 | "mental health worker*".mp. | 1754 |
| | | 4 | "mental health professional*".mp. | 15048 |
| | | 5 | “mental health provider*”.mp. | 2016 |
| | | 6 | “mental health practitioner*”.mp. | 2616 |
| | Psychologist | 7 | exp psychologists/ | 30461 |
| | | 8 | psychologist*.mp. | 89954 |
| | | 9 | exp psychotherapists/ | 17194 |
| | | 10 | psychotherapist*.mp. | 18439 |
| | | 11 | exp clinical psychologists/ | 2796 |
| | | 12 | “clinical psychologist*”.mp. | 7205 |
| | Counsellor | 13 | exp counselors/ | 12655 |
| | | 14 | counselor*.mp. | 43107 |
| | | 15 | counsellor*.mp. | 3622 |
| | Clinician | 16 | exp clinicians/ | 8946 |
| | | 17 | clinician*.mp. | 85005 |

| | | | | |
|---|---|---|---|---|
| | Therapist | 18 | therapists/ | 10135 |
| | | 19 | therapist*.mp. | 85632 |
| | Psychiatrist | 20 | exp psychiatrists/ | 11071 |
| | | 21 | psychiatrist*.mp. | 40033 |
| | Psychiatric staff | 22 | exp psychiatric hospital staff/ | 1269 |
| | | 23 | “psychiatric staff*”. mp. | 326 |
| | | 24 | exp psychiatric nurses/ | 3169 |
| | | 25 | "psychiatric nurs*". mp. | 4916 |
| | Attitudes of mental health professionals | 26 | exp health personnel attitudes/ | 21278 |
| Theory of Planned Behaviour | | 27 | exp reasoned action/ | 1801 |
| | | 28 | "theory of planned behavio*".mp. | 4133 |
| | | 29 | "theory of reasoned action".mp. | 1259 |
| Combinations | | 30 | 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 | 357399 |
| | | 31 | 27 or 28 or 29 | 5524 |
| | | 32 | 30 and 31 | 251 |
| **Medline via OvidSP** | | | | |
| ***Concept*** | ***Terms*** | ***Search*** | ***Exact search terms used*** | ***Records (n)*** |
| Mental health professionals | Mental health personnel | 1 | exp Mental Health Services/ | 95089 |
| | | 2 | “mental health personnel”.mp | 103 |
| | | 3 | "mental health worker*".mp. | 752 |
| | | 4 | "mental health professional*".mp. | 5244 |
| | | 5 | “mental health provider*”.mp. | 1126 |
| | | 6 | “mental health practitioner*”.mp. | 625 |
| | Psychologist | 7 | psychologist*.mp. | 14165 |
| | | 8 | psychotherapist*.mp. | 2795 |
| | | 9 | “clinical psychologist*”.mp | 1573 |

| | | | | |
|---|---|---|---|---|
| | Counsellor | 10 | Counselors/ | 96 |
| | | 11 | “counselor*”.mp | 7095 |
| | | 12 | “counsellor*”.mp | 2003 |
| | Clinician | 13 | clinician*.mp. | 204892 |
| | Therapist | 14 | therapist*.mp. | 35911 |
| | Psychiatrist | 15 | psychiatrist*.mp. | 24636 |
| | Psychiatric staff | 16 | exp Personnel, Hospital/ | 88977 |
| | | 17 | "psychiatric staff*".mp. | 226 |
| | | 18 | exp Nursing Staff, Hospital/ | 43628 |
| | | 19 | "psychiatric nurs*".mp. | 18106 |
| | Attitudes of mental health professionals | 20 | exp "Attitude of Health Personnel"/ | 150861 |
| Theory of Planned Behaviour | | 21 | "theory of planned behavio*".mp. | 2784 |
| | | 22 | "theory of reasoned action".mp. | 510 |
| Combination | | 23 | 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 | 586035 |
| | | 24 | 21 or 22 | 3210 |
| | | 25 | 23 and 24 | 408 |

* mp = title, abstract, heading word, table of contents, key concepts, original title, tests & measures]
** ti,ab,if = title, abstract, keyword

## Appendix B: CASP Quality Ratings

### CASP (2017) Cohort Questions

1. Did the study addressed a clearly focused issue?
2. Was the cohort recruited in an acceptable way?
3. Was the exposure accurately measured to minimise bias?
4. Was the outcome accurately measured to minimise bias?
5. (a) Have the authors identified all important confounding factors?

   (b) Have they taken account of the confounding factors in the design and/or analysis?
6. (a) Was the follow-up of the subjects complete enough?

   (b) Was the follow-up of subjects long enough?
7. What are the results of this study?
8. How precise are the results?
9. Do you believe the results?
10. Can the results be applied to the local population?
11. Do the results of this study fit with other available evidence?
12. What are the implications of this study for practice?

## CASP Ratings

Table 3

*Quality Assessment using CASP Checklists*

| | | | Yes/No/CT CASP questions | | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Study** | **CASP Tool** | **Rater** | **1** | **2** | **3** | **4** | **5** | **6** | **9** | **10** | **11** | **'yes'** |
| Amole et al. (2012) | Cohort | 1 | ✓ | ✗ | | | | | | | | 1 |
| Blankers et al. (2016) | Cohort | 1 | ✓ | ✓ | CT | ✓ | ✓ | CT | ✓ | ✓ | ✓ | 7 |
| Brothers et al. (2015) | Cohort | 1 | ✓ | ✓ | ✓ | CT | ✗ | ✗ | CT | ✗ | ✓ | 4 |
| | | 2 | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | CT | ✓ | ✓ | 6 |
| Davis (2005) | Cohort | 1 | ✓ | ✓ | CT | ✓ | ✗ | CT | ✓ | ✗ | ✓ | 5 |
| Drori et al. (2014) | Cohort | 1 | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | ✓ | ✓ | ✓ | 7 |
| | | 2 | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | 6 |
| Faulkner and Biddle (2001) | Cohort | 1 | ✓ | ✓ | CT | ✓ | CT | ✓ | ✓ | ✓ | ✓ | 7 |
| | | 2 | ✓ | ✓ | CT | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 8 |
| Fields (2008) | Cohort | 1 | ✓ | ✓ | CT | ✓ | ✗ | CT | ✓ | ✓ | ✓ | 6 |
| Foy et al., (2007) | Cohort | 1 | ✓ | ✓ | CT | ✓ | ✓ | ✗ | ✓ | ✓ | ✓ | 7 |
| | | 2 | ✓ | ✓ | CT | CT | ✓ | ✗ | ✓ | CT | ✓ | 3 |
| Garner et al. (2001) | Case Control | 1 | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | ✓ | CT | ✓ | 6 |
| Hanbury et al. (2009) | Cohort | 1 | ✓ | ✓ | CT | ✓ | CT | CT | ✓ | ✓ | ✓ | 6 |
| Ince et al. (2015) | RCT | 1 | ✓ | ✓ | ✓ | ✗ | ✓ | ✓ | ✓ | CT | ✓ | 7 |
| Kelly et al. (2012) | Cohort | 1 | ✓ | ✓ | ✓ | ✓ | CT | ✗ | ✓ | ✓ | ✓ | 7 |
| | | 2 | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ | ✓ | ✓ | 8 |
| Klaybor (1998) | Cohort | 1 | ✓ | ✓ | CT | ✓ | CT | CT | ✓ | ✓ | ✓ | 6 |
| Levy (2011) | Cohort | 1 | ✓ | CT | | | | | | | | 1 |
| | | 2 | ✓ | ✗ | | | | | | | | 1 |
| Meissen et al. (1991) | Cohort | 1 | ✓ | ✓ | N/A | ✓ | CT | N/A | ✓ | ✓ | CT | 5 |
| Tasca et al. (2014) | Cohort | 1 | ✓ | CT | | | | | | | | 1 |
| | | 2 | ✓ | ✗ | | | | | | | | 1 |
| Wilson (1998) | Cohort | 1 | ✓ | ✓ | N/A | ✓ | CT | N/A | ✓ | ✓ | ✓ | 6 |
| | | 2 | ✓ | ✓ | ✗ | ✓ | CT | ✗ | ✓ | ✓ | ✓ | 6 |
| Wykes (2016) | Cohort | 1 | ✓ | ✓ | N/A | ✓ | ✓ | N/A | ✓ | ✓ | ✓ | 7 |
| | | 2 | ✓ | ✓ | ✗ | CT | ✓ | CT | ✓ | ✓ | ✓ | 6 |

*Note.* Questions 7, 8 and 12 were qualitative questions, hence the answers were not included in this table.
✓ = Yes; ✗ = No; CT = Can't tell; N/A = Not applicable.

**Part two: Empirical Study.**

# Training mental health professionals to use implementation intentions with their patients: A mixed methods study

**Abstract**

**Objective**: Prior research has shown that implementation intentions helps mental health service users achieve their goals, but mental health professionals (MHPs) do not use this technique routinely in their own clinical practice. This study aimed to evaluate the feasibility of delivering a training programme for MHPs to prompt their patients to form implementation intentions. To achieve this aim, two studies were conducted, one to create the novel training programme, and the second to evaluate its effectiveness.

**Method**: Study 1 used a non-systematic review of the literature on implementation intention and a consultation with 25 experts to develop the training content. Study 2 used mixed methods to evaluate the feasibility of delivering a three-hour workshop on implementation intentions to 69 trainee Psychological Well-being Practitioners (TPWPs) from the Improving Access to Psychological Therapies (IAPT) services. Participants were asked to complete measures at pre-training, post-training, one-month follow-up and six-months follow-up. Self-report measures were used to investigate awareness and use of implementation intentions, theoretical and practical knowledge on implementation intentions, potential predictors of their use, acceptability, and views of the training.

**Results**: Experts in Study 1 reported that the training met the criteria established a priori to continue with the feasibility training, and most of their feedback was integrated into the novel programme. Participants in Study 2 significantly increased their theoretical and practical knowledge on implementation intentions after the training. Two participants (3%) reported using implementation intentions with in average 1% of their patients before the training, compared with 17 participants (44%) that reported using implementation intentions with in average 13% of their patients (7 patients) six-months after the training. Statistical tests revealed a large association ($r$ = .59). None of the predictor variables were related to the use of implementation intentions, but these

analyses were underpowered. Qualitative exploratory analyses revealed that participants found the training acceptable and helpful. Specific recommendations were made to improve future training sessions.

**Conclusions**:

This study was the first to create a training programme for MHPs to prompt their patients to form implementation intentions, and to find feasible the delivery of such training via a workshop to IAPT low-intensity psychological-treatment providers. The training was limited by use of self-report measures, and future research may investigate the effects of training on MHPs' skills and patients' outcomes, and potential cost-effectiveness of integrating the training into IAPT's curriculum.

**Practitioner points:**

- Implementation intentions are self-regulation strategies that help mental health service users achieve their goals, but MHPs do not use them routinely in their clinical practice.
- A single training workshop for low-intensity psychological-treatment providers in implementation intentions can influence their clinical practice.
- The study was limited by the use of self-report data, and lack of any behavioural measure or measure of competence.
- The knowledge questionnaires created for the present study presented issues with regards to validity and reliability, further limiting the results.

# Introduction

## Effective Training on Evidence-Based Practice

Evidence-based practices (EBPs) have been significantly underutilized in routine mental healthcare (Becker, Zayfert, & Anderson, 2004; Finley et al., 2015; Waller, Stringer, & Meyer, 2012). The drift from EBP in mental health has been found to have a profound detrimental impact in patients' outcomes (Addis & Waltz, 2002; Cukrowicz et al., 2011) and healthcare systems' effectiveness (Weissman et al., 2006).

To bridge the research-practice gap, researchers (e.g., Sholomskas et al., 2005) have investigated how to effectively train mental health professionals (MHPs) in EBPs. Effective training generally includes: an initial didactic workshop, where a treatment is described and demonstrated; followed by experiential training, monitoring, and sustained supervision to ensure adequate levels of competence (Beidas & Kendall, 2010; Fairburn & Cooper, 2011; Rakovshik & McManus, 2010).

To ensure training is effective, Miller (1990) developed a framework for assessing clinical skills that Muse and McManus (2013) adapted for cognitive behavioural therapy (CBT). Figure 1 shows Muse and McManus' (2013) framework, where four hierarchical competence levels are necessary to train and assess MHPs. At level one, MHPs should possess relevant theoretical knowledge, defined as a sound understanding of the principles and context of a particular CBT intervention, and can be evaluated by knowledge-based multiple-choice questionnaires. At level two, MHPs should demonstrate having practical knowledge, which is the ability to use the theoretical knowledge to implement the intervention. This level can be evaluated through clinical vignettes. At level three, MHPs should demonstrate they have the shills to apply the knowledge in clinical situations, and is commonly evaluated through standardized role-plays. At level four, MHPs should demonstrate appropriately and

effectively delivering the intervention in their clinical practice. Evaluation at level four generally includes patients' outcomes and rating of treatment sessions.

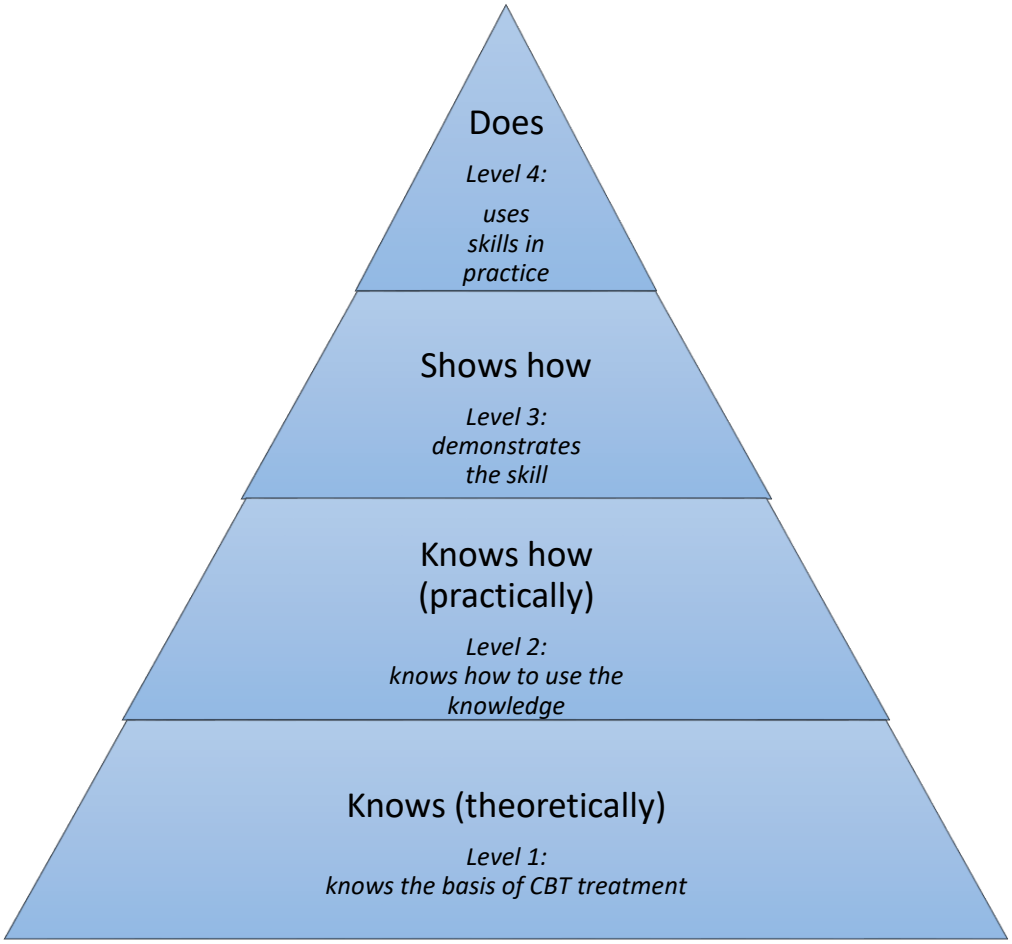


*Figure 1.* CBT hierarchical competence framework (Muse & McManus, 2013).

Following Muse and McManus' (2013) model, the present study sought to evaluate the feasibility of training MHPs on a particular EBP; implementation intentions. As a feasibility study, the training's first two levels of competence were evaluated, along with a self-report measure at level four. If successful, further research would be indicated to evaluate the other competency levels.

**An Evidence-Based Practice: Implementation Intentions**

An implementation intention (Gollwitzer, 1999) is a self-regulatory strategy that takes the form 'If I encounter X situation, I will perform Y behaviour'. Implementation intentions specify a critical condition or a good opportunity (in the if-part) and link it to

a goal-directed response (in the then-part; Gollwitzer, 1999). Therefore, implementation intentions specify when, where, and how a person will perform their intentions. Models of goal pursuit, such as the model of action phases (Heckhausen & Gollwitzer, 1987) have identified that in certain phases, implementation intentions are most effective (Gollwitzer & Sheeran, 2006).

The evidence-base for implementation intentions is well established across behaviours. A meta-analysis pooling data from 94 independent tests showed a medium to large effect size of implementation intentions on goal attainment ($d+ = .65$; Gollwitzer & Sheeran, 2006). To date, implementation intentions been mostly used in physical health settings (Hagger et al., 2016). However, Toli, Webb, and Hardy (2016) conducted a meta-analysis to investigate the effect of forming implementation intentions among samples with mental health service users. The results from 28 experimental studies showed that forming implementation intentions had a large-size effect ($d+ = .99$) on goal achievement across people with diverse mental health issues.

Implementation intentions seem particularly relevant for mental health service users, as they tend to have exacerbated difficulties in goal attainment (Corrigan, Larson, & Rüsch, 2009). However, to date, mental health service providers do not routinely use implementation intentions. Further, Ross (2018) examined therapists' transcripts and found that therapists naturally identified opportunities and goal directed responses. However, therapists did not link those components into 'if-then plans'. Ross (2018) concluded that training was needed for therapists to use implementation intention with their patients. Further, prior research that has incorporated implementation intentions to CBT interventions successfully (Fritzche, Schlier, Oettingen, & Lincoln, 2016; Varley, Webb, & Sheeran, 2011).

Only one study to date (i.e., Martin, Slade, Sheeran, Wright, & Dibble, 2011) has trained health professionals to use implementation intentions with their patients. In

this study, medical staff aiming to increase adherence to contraception with teenage women were trained to use implementation intentions. Training was a one-day session developed and delivered by the researchers. The content included a theoretical background explanation, interactive role-plays and didactic teaching to identify situational cues and barriers (Martin et al., 2011). A follow-up study investigated professionals' experiences delivering implementation intentions and found the technique was perceived as a positive strategy to promote contraception (Martin, Sheeran & Slade, 2017). As no research to date has focused on training MHPs on implementation intentions, the present study evaluated the feasibility of training a particular group of MHPs within the Improving Access to Psychological Therapy (IAPT) services.

**Psychological Well-being Practitioners**

The largest provider of front-line psychological therapies in the United Kingdom (UK) is IAPT provided by the National Health Service. IAPT begun as an effort to bridge the research-practice gap, and their practitioners are trained in EBPs. IAPT provides stepped-care where each patient[1] is assigned to primary care, low-intensity intervention or high-intensity intervention, dependent on diagnosis and severity. Within the IAPT low-intensity interventions at step two, psychological well-being practitioners (PWPs) are trained through a year-long postgraduate diploma to provide guided CBT self-help for patients experiencing common mental health problems (e.g., mild to moderate depression and anxiety). During their postgraduate diploma, students are referred to as Trainee Psychological Wellbeing Practitioners (TPWPs).

[1] IAPT services use the term 'patient' to refer to mental health service users. Therefore, this term is used throughout the present study.

### Aims and hypotheses

The overall aim of this research was to develop and evaluate the feasibility of a training programme for TPWPs to prompt their patients to form implementation intentions. In order to meet the overall aim two studies were conducted.

The aim of Study 1 was to develop a high-quality training programme that would enable MHPs to understand and to use implementation intentions with their patients. In order to develop the training, this study also aimed to investigate the components of implementation intentions required to train MHPs to use this technique.

The aims of Study 2 were: (a) to evaluate the feasibility of delivering the training programme to TPWPs; and (b) to evaluate how TPWPs view the training programme and to assess how it might be improved. The hypotheses were: (a) following the training session, TPWPs will improve in theoretical and practical knowledge on forming implementation intentions; (b) following the training session, TPWPs will prompt their patients to form implementation intentions significantly more frequently compared to before the training; and (c) higher theoretical and practical knowledge, acceptability of training, attitudes, self-efficacy and intentions post-training will be associated with an increased use of implementation intentions at follow-up. In addition, qualitative analyses explored what were the TPWPs views of training, what participants found helpful and how the training could be improved.

## General method

### Design

A non-systematic review of the literature on implementation intentions and qualitative consultation with experts in the field were used to develop the training programme (Study 1). A repeated measures study and qualitative thematic analysis were used to evaluate the feasibility of delivering the training to TPWPs (Study 2).

### Ethical considerations

The University of Sheffield's Department of Psychology Research Ethics Committee granted ethical approval with reference number 012149 (Appendix A).

## Study 1

### Method

**Participants.** A convenience sample of 25 participants were recruited. Participants were eligible if they fulfilled either of the following criteria: (i) formed part of the Synergy Expert Group convened to discuss the research and practice on implementation intentions (Hagger et al., 2016); or (ii) were identified as an expert by another expert.

**Recruitment.** The recruitment used an opportunistic sampling method. The 32 authors from an expert group on implementation intentions (Hagger et al., 2016) were invited to participate. Dr Thomas Webb, an expert in implementation intentions, identified 37 other experts. A total of 69 experts were identified. Despite attempts made to contact all experts, valid and current email addresses were only found for 59 authors.

**Procedure.** The author of the present study and another Trainee Clinical Psychologist, Andrew Horan (AH), collaborated for the development of the content and consultation with experts. Subsequently, each person developed separate training modalities. Appendix B contains a detailed division of responsibilities.

A non-systematic review of the existent literature was conducted to summarize the components of implementation intentions needed to train MHPs. Based on this review, the author and AH proposed a training content outline (Appendix C), which included the following: (a) goal setting; (b) intention-behaviour gap; (c) model of action phases; (d) implementation intentions; (e) comparison with SMART goals (f) how to form implementation intentions; (g) when to use them; (h) practice role-plays or case

vignettes; and (i) forming implementation intentions about using implementation intentions.

An email was then sent to the participants (Appendix D) with the training outline and online form (Appendix D). Data was collected at a single time-point online via Qualtrics. The online form contained an information sheet and requested informed consent (Appendix E), provided a summary of the training (Appendix C), and contained a questionnaire to obtain feedback on the training (Appendix F).

Using the experts' feedback, the author and AH revised and improved the content of the training and agreed on a final training outline. The theoretical and practical questionnaires were constructed based on Muse and McManus' (2013) initial two levels of competency. The author then developed a face-to-face training programme, while AH developed an online training programme.

**Measures.** To elicit constructive and directed feedback, experts were asked to respond to a four-item questionnaire (Appendix F). Participants were asked to rate on a five-point Likert scale the extent to which training would provide MHPs with an understanding of implementation intentions, and with everything they need to use them in clinical practice. Each item's score ranged from 'completely disagree' (score 1) to 'completely agree' (score 5), where a higher score (maximum 5) indicated better quality. The third item asked participants if the training could be improved (yes/no answer) with a space to explain. The aim of this third item was to promote constructive feedback rather than rate the training. Finally, participants were asked to write which sections should be part of the training and in which order.

**Data analysis.**

***Qualitative data***. Descriptive statistics (mean and standard deviation) were calculated to analyse data for the initial two items. An a priori decision was made that if experts rated the training content as 'good enough', defined as a mean score above 2.5

(≥ 50%) in the first two questions, the training content may be used in the feasibility study. If the experts did not rate the training as 'good enough', the researchers would modify the training programme and seek experts' feedback for a second time. Regardless, the training content would be improved using experts' feedback.

***Qualitative data.*** Data from the third and fourth items and additional comments were evaluated case-by-case, until the researchers reached a collaborative decision. No specific qualitative methodology was followed given the aim was to improve the training rather than analyse participants' experiences. The decision for each specific comment was to: (a) modify an aspect of the training; (b) discard due to disagreements; or (c) add to the training.

**Results**

From the 69 experts identified, 59 (86%) were invited to participate via email. From those, 25 participants begun the questionnaire, and 12 participants completed the questionnaire (Figure 2).

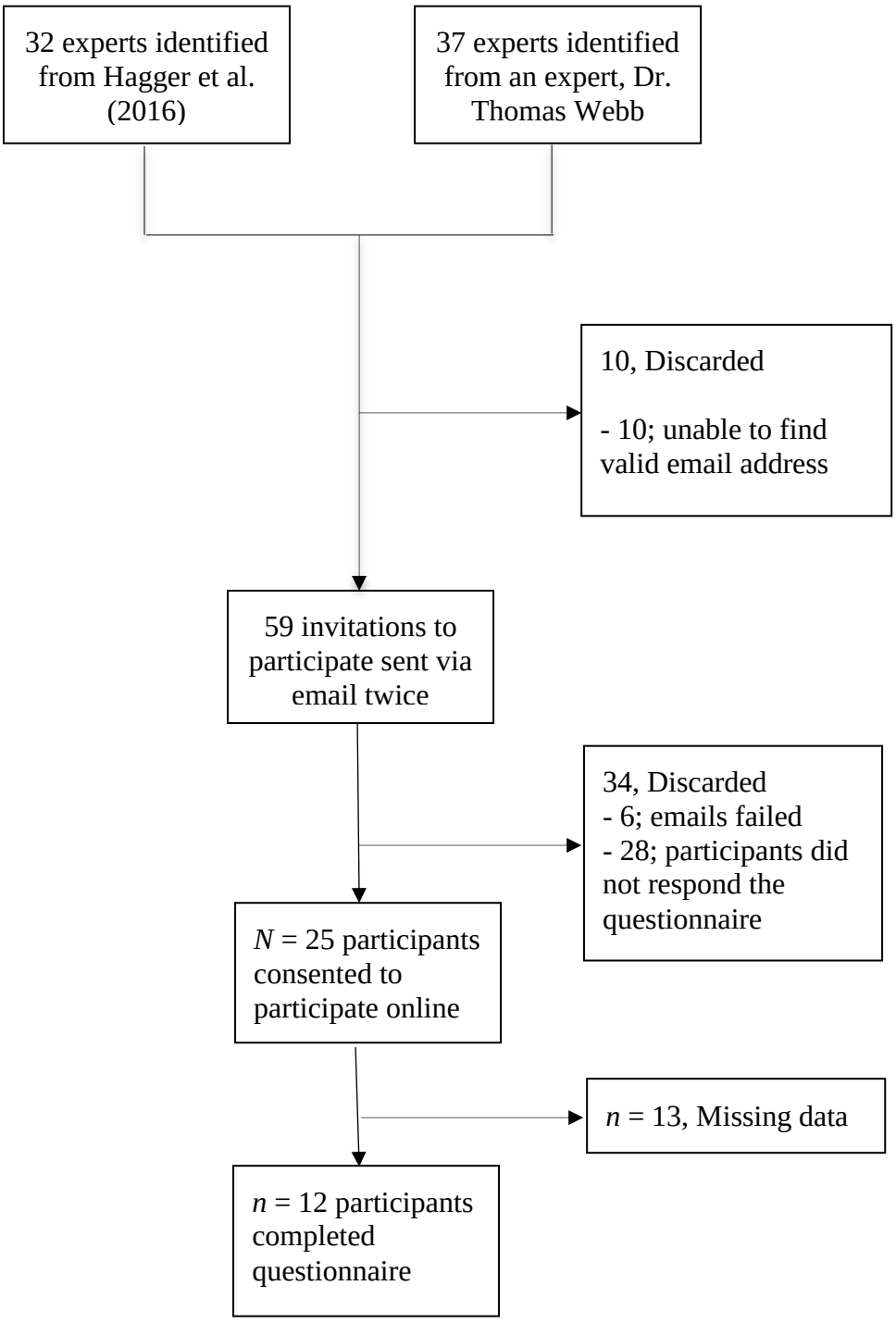


*Figure 2:* Flow chart outlining participant recruitment

**Quantitative data.** Experts reported a mean score of 4 (SD = 1.22) indicating the training would mostly enable MHPs to understand the underlying theory. Similarly, experts reported a mean score of 3.92 (*SD* = 1.19) indicating the training would mostly provide MHPs what they need to use them in clinical practice. Both mean scores met the criteria for training content be considered 'good enough'.

**Qualitative data.** Appendix G shows each comment verbatim and the decision reached collaboratively. Most comments consisted of positive feedback, requests for clarifications, suggestions on presentation, suggestions to include further research, or suggestions to add specific content. Most suggestions were incorporated into the training which implied minor changes, or consisted of positive feedback. The rest of the suggestions were discarded mainly because they were beyond the scope of training. The only major change was the removal of SMART goal settings. Experts pointed out that SMART goals were complementary to implementation intentions rather than an alternative way for goal planning (i.e., SMART goals may identify a goal and implementation intentions may create a strategy to achieve it).

**Contents of the training programme**

The final training content outline is shown in appendix H. Based on the outline, the author prepared a training presentation (Appendix I) and a handout (Appendix J). The training was tailored for TPWPs delivered via a three-hour interactive workshop.

The specific training content included: (a) group discussion on patients' motives for seeking treatment; (b) individual reflection and discussion in pairs about personal unsuccessful experiences of goal striving; (c) didactic teaching about the intentions-behaviour gap (Sheeran, 2002; Gollowitzer & Sheeran, 2006); (d) group discussion on patients' exacerbated difficulties in goal attainment (Corrigan et al., 2009); (e) didactic teaching about the model of action phases (Heckhausen & Gollwitzer, 1987); (f) didactic teaching about implementation intentions with personal and clinical examples;

(g) individual work forming their own implementation intentions; (h) didactic teaching about the evidence-base of implementation intentions in mental health (Toli et al., 2016) and their mechanisms (Aarts & Dijksterhuis, 2000; Webb & Sheeran, 2004); (i) group discussion about examples of implementation intentions; (j) didactic step-by-step guide to form implementation intentions; (k) didactic teaching regarding when implementation intentions are more likely to be effective; (l) demonstration role-play with the facilitator as the therapist and a participant as a patient; (m) role-plays between participants; (n) individual work to form implementation intentions about using implementation intentions; (o) group discussion about PWP's specific use of implementation intentions; and (p) summary of key learning points.

## Study 2

### Method

#### Participants.

*Sample size.* Using G*Power (Faul, Erdfelder, Lang, & Buchner, 2007), a priori analyses were used to calculate the required sample size for the central hypotheses 1 and 2, and post-hoc analyses were used to compute the achieved power of hypothesis 3 (Appendix K). Based on paired-samples t-test and assuming a medium-sized effect ($d$ = 0.50) of training on MHPs' knowledge of implementation intentions (a conservative estimate based on Myles & Milne, 2004; hypothesis 1) and similarly on MHPs self-reported percentage of use of implementation intentions (hypothesis 2), a two-tailed α level of 0.05 and power of .80 measured at two-time points, the sample size required was 34 participants. Data from 69 participants was collected for hypothesis 1, and data from 40 participants was collected for hypothesis 2, ensuring statistical tests were adequately powered. Post-hoc power analysis assuming the largest correlation effect size found ($r$ = .28), an α level of 0.05, and a sample size of 39 participants, yielded an achieved power of .43, suggesting hypothesis 3 was insufficiently powered.

**Recruitment**. An opportunistic sampling method was used. Two cohorts of TPWPs, undergoing their course at The University of Sheffield, took part in the training as part of their mandatory teaching. A total of 70 TPWPs attended a training session, 26 TPWPs from cohort one, and 44 from cohort two.

*Inclusion and exclusion criteria.* Participants were eligible if they were TPWPs and had taken part in the training session on implementation intentions.

**Procedure.** Each of the cohorts participated separately in one of the two training session, delivered in accordance with the findings of Study 1. Data was collected at four time points: pre-training (immediately before training), post-training (immediately after training), first follow-up (one-month post-training) and second follow-up (six months after training). Participants generated a code for the author to match their data.

The study originally aimed to collect the first follow-up data only, but due to issues a second follow-up was sought. The first follow-up data was potentially misleading, as 42% of the participants ($n$ = 16) reported they had not had the opportunity to use implementation intentions. The reason was that some participants had not yet begun seeing patients for treatment (where it was appropriate to use implementation intentions). Rather, participants had only seen patients for assessments (where it was not appropriate to use implementation intentions, due to practical time constraints of their structured single-session assessment). Hence, the main outcome variable was the second six-months follow-up.

Participants were briefed about the study, given an information sheet and, if in agreement, asked to sign the informed consent form (Appendix L). From the 70 TPWPs who took part in the training sessions, one participant (1%) did not take part in the study. Additional information sheets and informed consent forms were given for the second follow-up (Appendix M).

Pre-training and post-training data were collected via paper questionnaires. For both follow-ups, data were collected via online and paper versions for participants to choose their preferred method. For the first follow-up, an email was sent to the addresses provided. For the second follow-up, the course coordinator forwarded an email to all TPWPs. Paper copies were handed out where possible to TPWPs during a teaching day at their university.

*Service user involvement/Pilot session***.** The training session and measures were piloted with a convenience sample of six Trainee Clinical Psychologists naive to implementation intentions. The aim was to elicit feedback and identify any issues. Participants were asked to complete measures and provide written feedback. The session was video-recorded and observed by supervisors. Service users reported high satisfaction, and proposed minor changes which were incorporated to the training.

**Measures.** The questionnaires are shown in Appendix N organized by the data collection points: pre-training, post-training and follow-ups. Questionnaires at the two follow-ups were the same.

*Demographics.* At pre-training, participants were asked to specify their age, gender, highest level of education completed, time delivering psychological interventions (in months), and number of patients they had worked with in the past month.

*Pre-training awareness of implementation intentions.* At pre-training, participants' indicated if they had heard of implementation intentions (yes/no answer), and if so, what and where. Participants rated in a ten-point Likert scale to what extent they knew about implementation intentions, and how to use them with their patients. Responses ranged from "not at all" (score 0) to "completely" (score 10), where a higher score (maximum of 20) indicated more awareness of implementation intentions.

*Therapists' view of the training***.** At post-training, participants' views and acceptability of the training were measured with the adapted Training Acceptability Rating Scale (TARS; Davis, Rawana, & Capponi, 1989; Myles & Milne, 2004), previously used to evaluate mental health training (Ekers, Dawson, & Bailey, 2013; Milne, Keegan, Westerman, & Dudley, 2000) with high internal consistency ($\alpha = .99$) and test retest reliability ($r = .83$).

The scale consisted of ten quantitative items and three qualitative items. The quantitative items asked participants to rate overall aspects of the training such as satisfaction. Each item was rated on a four-point Likert scale ranging from "not at all" (score 0) to "a great deal" (score 3), except for a reverse scored item about potential harm. The total score ranged from 0 to 30, where a higher score indicated higher acceptability of training. The Cronbach alpha in this study was $\alpha = .85$, indicating high internal consistency. The qualitative items asked participants about helpful aspects of training, any recommended changes and comments.

*Theoretical knowledge of implementation intentions.* At pre-training and post-training, participants completed a five-item multiple-choice questionnaire. Items asked participants about goal pursuit, when implementation intentions are likely to be effective, what they are, and what each part of implementation intentions should describe. Each quantitative item was scored as '1' for the only correct answer, and '0' for any incorrect responses. The total score ranged from '0' to '5' where a higher score indicated higher theoretical knowledge of implementation intentions. Cronbach's alpha at pre-training was $\alpha = .58$, at post-training was $\alpha = .57$, indicating moderate internal consistency.

*Practical knowledge of implementation intentions.* At pre-training and post-training, participants completed three case vignettes assessing how to apply implementation intentions in clinical practice, two using multiple-choice and one open-

ended question. Items asked about the components of implementation intentions and appropriateness of use. Each multiple-choice case vignette was scored '1' for the only correct answer or '0' for any incorrect responses. The last case vignette included five items, which the same scoring criteria for the following items: (a) inclusion of 'if'; (b) inclusion of 'then'; (c) correct order; (d) inclusion of a situational cue; and (e) inclusion of a goal directed response. The total score ranged from '0' to '7' where a higher score indicated higher practical knowledge of implementation intentions. Cronbach's alpha at pre-training was .62, and at post-training was .24 indicating fair to moderate internal consistency.

*Self-reported use of implementation intentions.* At pre-training and follow-ups, participants were asked to specify the number of patients they had worked with in the past month, and the number of patients they had prompted to form implementation intentions. The percentage of patients was calculated by dividing those numbers.

Participants were also asked with how many of their patients in the past month it would have been appropriate to form implementation intentions. The aim was to control for patients where implementation intentions were not suitable (e.g., patients seen only at assessment). The percentage of suitable patients was calculated by dividing the number of patients prompted to form implementation intentions, by the number of patient it would have been appropriate to do so.

*Predictors of implementation intentions.* At post-training, participants were asked to rate three items based on Elliot and Armitage's (2006) study. Items inquired about the usefulness of implementation intentions (i.e., attitudes), confidence using them (i.e., self-efficacy), the strength of their intentions. These items were rated on an 11-point Likert scale where '0' was 'not at all' and '10' was 'strongly agree'. Participants were also asked to report the percentages of their patients with which they intended to use implementation intentions with. The two last items both measured

intentions. Hence, the scores were standardized and combined into a single variable. Higher scores indicated more positive attitudes, higher self-efficacy and stronger intentions towards using implementation intentions.

**Data analysis.** Data was analysed using IBM SPSS version 24.

*Distribution of data.* The distribution of the data was assessed by generating histograms and Shapiro-Wilks test statistic. Where variables did not meet the assumption for normality, non-parametric tests were used.

**Characteristics of the sample.** The demographics, clinical experience, pre-training awareness and use, and pre-training theoretical and practical knowledge scores were analysed by calculating descriptive statistics (mean and standard deviation, or median, and percentages).

**Pre-training preliminary analyses.** To explore if pre-training characteristics were associated with the main dependent variable (i.e., use of implementation intentions at six-months follow-up), correlations were conducted. If any pre-training characteristics were found to be associated, they were controlled for in subsequent analyses.

**Missing data.** To handle missing data, the Last Observation Carried Forward (LOCF) method was used. Using LOCF, participants' missing data were imputed with the last available observed value, under the assumption data was missing at random (Shao & Zhong, 2003). To explore potential effects of missing data, all statistical analyses were conducted with and without LOCF. Significant differences between these indicated potential effects of missing data.

**Hypothesis 1**. Paired samples t-tests or Wilcoxon signed-rank tests were used to compare the pre-training theoretical and practical knowledge scores and with the post-training scores. Effect sizes from Wilcoxon signed-rank test were calculated using the same procedure as the Mann-Whitney U-test, by dividing the absolute standardised test

statistic *z* by the square root of the number of observations $n$ over the two time periods, $r_w = {|z|}/{\sqrt{n}}$ (Pallant, 2007). To avoid confusion with Pearson correlation coefficient, in the current research the Wilcoxon effect size has been referred to as $r_w$. The Wilcoxon signed rank test effect size magnitude can be interpreted according to Cohen's (1992) correlation magnitude criteria (Pallant, 2007). This effect size is very useful for situations where the differences between two group comparison are ordinal or arbitrary scale unit as occurs in a Wilcoxon signed rank test (Conroy, 2012). However, this effect size $r_w$ does not equate to Pearson or Spearman correlation effect sizes, neither of which would not be appropriate for ordinal or signed rank data (Conroy, 2012; Pallant, 2007).

**Hypothesis 2.** Descriptive statistics were calculated to describe participants use of implementation intentions. To test hypothesis 2, a *t*-test or Wilcoxon test was used to determine if there were significant differences in the percentage of patients prompted to form implementation intentions at pre-training and six-months follow-up. A one-way ANOVA or Friedman test was used to examine changes at pre-training, one-month follow-up and six-months follow-up.

**Hypothesis 3.** Correlations were calculated for all potential explanatory variables and percentage of patients prompted to form implementation intentions at six-months follow-up. If significant correlations were found, regression analyses were conducted controlling for pre-training variables found to be significant in preliminary analyses.

**Exploratory analyses: Therapist's views of the training and improvements.** Descriptive stats were calculated to analyse the quantitative items of TARS. The qualitative feedback was analysed using thematic analysis following Braun and Clarke's (2006) phases. The epistemological position adopted was an essentialist/realist

approach, which assumes there is an accurate reality in the data. Data was collected from online/paper questions and verbatim responses were used by the researcher.

The detailed methodology of the thematic analysis undertaken can be found in Appendix O, and a summary of this process is provided next. Data was read repeatedly for data immersion. Initial codes were generated from the data. Themes were generated by combining the different codes, and checked against the original data. Given the significant overlap in themes across original questions, the final themes were grouped into two main questions: (a) what did participants found helpful in the training? and (b) how could the training be improved?

## Results

**Characteristics of the sample.** Seventy participants took part in the training, from which 69 participants (99%) completed pre-training and post-training questionnaires, and 40 participants (59%) completed the six-months follow-up. See figure 3 for a visual representation of participants' flow.

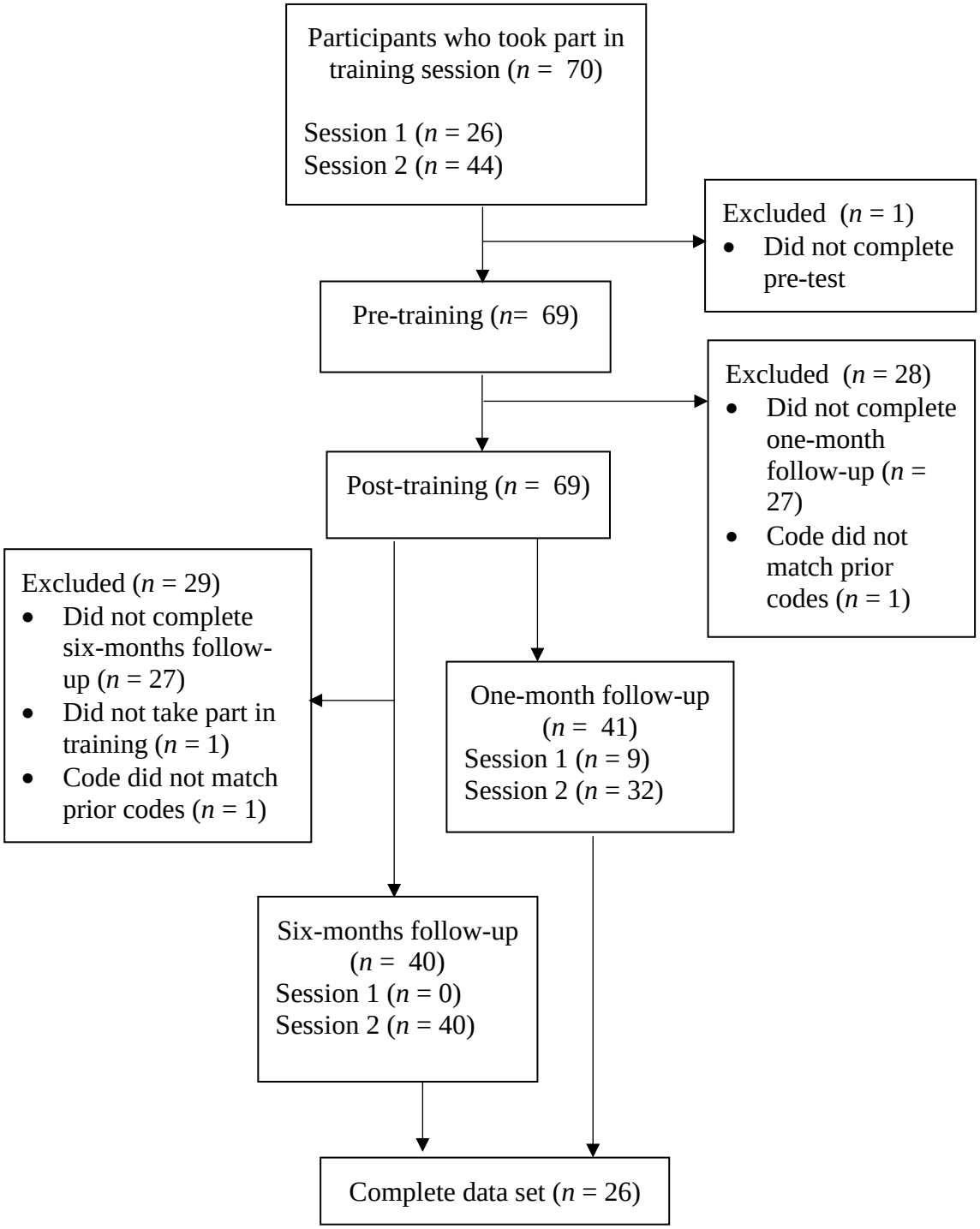


*Figure 3:* Flow chart outlining participant flow

**Demographics and clinical experience.** The mean age was 27.72 years (*SD* = 6.17 years). The sample was predominantly female (*n* = 60; 87%). The highest level of education completed was mostly bachelor's degree (*n* = 38; 55.1%), followed by master's degree (*n* = 25; 36.2%), qualifications below a bachelor's degree (*n* = 5; 7.2%) and post-graduate diploma (*n* = 1; 1.4%). The mean time delivering psychological interventions was 13 months (*SD* = 31.43 months).

The number of patients that participants worked with at pre-training varied from 0 to 80, with a mean of 15.57 (*SD* = 23.46) patients. At the one-month follow-up, participants worked with the same range of patients as pre-training and a mean of 11.93 (*SD* 15.80) patients. At the six-month follow-up, all participants were working with patients. The number of patients they worked with ranged from 3 to 80, with a mean of 25.74 (*SD* = 21.43) patients.

**Pre-training awareness, use and knowledge of implementation intentions.** Eight-four percent (*n* = 58) of participants reported having not heard of implementation intentions at pre-training. The majority of the participants were unaware of what forming implementation intentions involved (mean = .90, *SD* = 1.73); and did not know how to prompt their patients (mean = .54, *SD* = 1.37). Two participants reported having used implementation intentions with their patients in the previous month.

Participant's mean score on the theoretical knowledge questionnaire was 2.97 points (*SD* = 1.38), and on the practical knowledge questionnaire was 5.39 points (*SD* = 1.57). Both scores were above what would be expected of naïve participants (≥50%).

**Distribution of data.** According to histograms and skewness values, the non-normally distributed variables at $p < .001$ were: pre-training awareness and use, theoretical and practical knowledge, acceptability, attitudes, self-efficacy, intentions, and percentage of patients prompted to use implementation intentions. Only pre-training

theoretical knowledge scores were normally distributed. Hence, non-parametric measures were employed for all tests.

**Preliminary analysis.** As shown in Table 1, pre-training demographics, clinical experience, awareness, use and theoretical knowledge were not significantly associated with the use of implementation intentions at six-months follow-up. Practical knowledge of implementation intentions was significantly associated with use of implementation intentions at six-months follow-up ($r_s = .40$, $p < .05$). Participants with higher levels of knowledge on how to form implementation intentions before training were more likely to use them after training.

Table 1

*Correlations between pre-training variables and main outcome variable*

| Category | Variable | $r_s$ |
|---|---|---|
| Demographics | Age | .04 |
| | Gender | .18 |
| | Education | .02 |
| | Time delivering interventions | .11 |
| | Number of patients | .25 |
| Awareness | Heard of them | .08 |
| | Know what they involve | .28 |
| | Know how to prompt a patient | .09 |
| Use | Percentage of patients prompted | .30 |
| | Use with at least one patient | .11 |
| Knowledge | Theoretical | .15 |
| | Practical | .40* |

*Note.* Correlations with percentage of patients prompted to form implementation intentions at six-months follow-up. $r_s$ = Spearman's rho correlation.
* = p < .05; ** = p < .01; *** = p < .001

**Hypothesis 1: Trainee Psychological Well-being Practitioners' knowledge will improve following a training session.**

The scores of the theoretical and practical knowledge questionnaires before and after training are shown in Table 2.

**Theoretical knowledge.** A Wilcoxon signed-rank test revealed a statistically significant increase in theoretical knowledge from pre-training to post-training ($z$ = -5.50, $p$ < .001), with a moderate to large uncontrolled effect size ($r_w$ = .47).

**Practical knowledge.** A Wilcoxon signed-rank test revealed a statistically significant increase in practical knowledge from pre-training to post-training ($z$ = - 3.67, $p$ < .001), with a moderate uncontrolled effect size ($r_w$ = .32).

**Missing data**. There was one participant with missing data in the post-training theoretical and practical knowledge questionnaires. Using the LOCF method to impute the data, the results remained exactly the same.

**Summary.** Overall these findings support hypothesis 1; immediately following a training on implementation intentions, participants increased their knowledge on implementation intentions with at least a moderate uncontrolled effect size.

Table 2

*Knowledge on implementation intentions before and after training.*

| | Theoretical knowledge | | Practical knowledge | |
|---|---|---|---|---|
| | Pre | Post | Pre | Post |
| *n* | 69 | 68 | 66 | 68 |
| Median | 3 | 5 | 5 | 7 |

**Hypothesis 2: Trainee Psychological Well-being Practitioners' will use implementation intentions more frequently post-training.**

**Descriptive statistics on the use of implementation intentions with at least one patient.** As shown in table 3, before training 2.90% of the participants reported prompting at least one of their patients to form implementation intentions, compared to 32.5% of the participants at the one-month follow-up and 43.6% of the participants and the six-months follow-up.

At the six-months follow-up, from those who reported using implementation intentions with at least one patient, participants used implementation intention with a mean of 7.29 patients (*SD* = 8.36), representing in average 28.71% of their caseload (*SD* = 30.11%). Further, 15 out of the 17 participants that used implementation intentions more than once (i.e. with at least two of their patients).

Table 3

*Use of implementation intentions with at least one patient over time*

| | Pre-training | 1st FU | 2nd FU |
|---|---|---|---|
| Participants' caseload | *n* (%) | *n* (%) | *n* (%) |
| At least one patient [a] | 2 (2.9%) | 13 (32.5%) | 17 (43.6%) |
| No patients [b] | 67 (97.1%) | 27 (67.5%) | 22 (56.4%) |
| Total | 69 (100%) | 40 (100%) | 39 (100%) |

*Note*. Pre-training = immediately before the training; 1st FU = First follow-up one month after the training; 2nd FU = Second follow-up six months after the training.

**Percentage of patients prompted to use implementation intentions.** Table 4 shows the mean percentage of patients prompted to use implementation intentions changed from 0.68% at pre-training to 11.20% at one-month follow-up and 12.52% at six-months follow-up. The mean was preferred over the median, despite being non-normally distributed, since the median was cero at all-time points despite a slight change in the data.

Counting only the patients where participants thought it was appropriate to form implementation intentions, the percentage of patients prompted was 33.08% at first follow-up, and 24.05% at second follow-up. Participants reported they intended to use implementation intentions with over half of their patients after the training (55.57%), which was much higher than the overall use at follow-ups and the use where appropriate.

Table 4

*Percentage of patients prompted to form implementation intentions over time*

| | Patients prompted [a] | | | | Appropriate patients [b] | |
|---|---|---|---|---|---|---|
| | Pre | Post Intent [c] | 1st FU | 2nd FU | 1st FU | 2nd FU |
| *n* | 68 | 49 | 40 | 39 | 26 | 24 |
| Mean % | 0.68 | 55.57 | 11.20 | 12.52 | 33.08 | 24.05 |
| (SD %) | (5.58) | (26.50) | (25.25) | (24.29) | (44.79) | (35.56) |

*Notes*. Pre = immediately before the training; Post Intent = immediately after the training session; 1st FU = First follow-up one month after the training; 2nd FU = Second follow-up six months after the training.
[a] = percentage of patients that participants prompted to use implementation intentions from the overall number of patients that participants worked with in the past month.
[b] = percentage of patients that participants prompted to use implementation intentions from the total number of patients that participants reported it would have been appropriate to use implementation intentions with in the past month.
[c] = intentions to use implementation intentions rather than actual use.

**Statistical tests of self-reported use of implementation intentions.** A Wilcoxon test determined there was a significant increase in percentage of patients prompted to use implementation intentions ($n$ = 38; $z$ = -3.62, $p$ < .001) from pre-training to six-months follow-up, with a large uncontrolled effect size ($r_w$ = .59).

Using complete data sets ($n$ = 26), a Friedman test determined there was a significant difference between the percentage of patients that participants prompted to use implementation intentions at pre-training, one-month follow-up and six-months follow-up, $x^2$ (2) = 14.09, $p \leq .001$. Post-hoc analyses with Bonferroni corrections revealed there was a significant increase between pre-training use of implementation intentions and six-months follow-up ($z$ = -2.50; $p$ < .05) with a moderate to large uncontrolled effect size ($r_w$ = .49). No significant differences were found between pre-training and one-month follow-up or between follow-ups.

**Missing data.** Using the LOCF method, a Wilcoxon test determined there was a significant increase in the percentage of patients that participants prompted to use implementation intentions from pre-training to six-months follow-up ($n$ = 68; z = -4.374, $p$ < .001), with a large uncontrolled effect size ($r_w$ = .53).

**Summary**. Overall these findings support hypothesis 2, as a large and significant increase was found in the use of implementation intentions from pre-training to the six-months follow-up.

**Hypothesis 3: Increased knowledge, acceptability, attitudes, self-efficacy and intentions will be associated with increased use of implementation intentions at follow-up.**

As shown in Table 5, none of the potential predictors at post-training regarding theoretical and practical knowledge, acceptability, attitudes, self-efficacy or intentions were correlated with the use of implementation intentions at six-months follow-up.

**Missing data.** Using the LOCF method, the correlation coefficients between the potential predictors and use of implementation intentions at six-months follow-up were non-significant and similar in values (Table 5).

**Summary.** Hypothesis 3 was not supported. Knowledge, acceptability, attitudes, self-efficacy and intentions were not associated with the use of implementation intentions at six-months follow-up.

Table 5

*Correlations between post-training variables and main outcome variable*

| Categories | Post-training variable | $r_s$ | $r_s$ with LOCF |
|---|---|---|---|
| Knowledge | Theoretical knowledge | .03 | .10 |
| | Practical knowledge | .01 | -.03 |
| Acceptability | TARS | -.11 | .00 |
| TPB | Attitudes | .05 | .16 |
| | Self-efficacy | .10 | .10 |
| | Intentions | .27 | .15 |

*Note.* Spearman's rho correlation with percentage of patients prompted to use implementation intentions at six-months follow-up. $r_s$ with LOCF = using LOCF method to impute missing data.

**Exploratory analyses: What were Trainee Psychological Well-being Practitioners' views of the training and how can the training programme be improved?**

**Acceptability.** The mean TARS score was 24.99 (*SD* = 5.48). Each item's mean is shown in Table 6. Participants selected between 'quite a lot' (2) and a 'great deal' (3) to most questions (e.g., lack of harm to patients, competency of the facilitator and effective way of relating with the group), suggesting high acceptability of the training.

Table 6

*Training Acceptability Rating Scale (Davis et al., 1989) mean scores per item*

| Item | Mean | SD |
|---|---|---|
| Satisfied with the training | 2.34 | 0.61 |
| Covered the topics it set out to cover | 2.68 | 0.53 |
| Facilitator related to the group effectively | 2.76 | 0.46 |
| Facilitator was motivating | 2.71 | 0.49 |
| Training improved my understanding of implementation intentions | 2.46 | 0.61 |
| Training helped develop the skills to use implementation intentions | 2.07 | 0.58 |
| Training made me more confident in my clinical skills | 1.76 | 0.76 |
| I expect to make use of what I have learnt in training | 2.15 | 0.70 |
| The facilitator was competent | 2.79 | 0.41 |
| The training could result in disruption or harm to patients (score reversed) | 2.82 | 0.42 |
| **Total** | 24.99 | 5.48 |

**Qualitative feedback**. The responses to each of the questions are shown verbatim in Appendix P alongside their initial codes, time point (e.g., pre-training), and original question. Appendix Q shows the in-depth thematic analysis summarized below. Figure 4 shows a visual representation of the themes and subthemes of helpful aspects of training and of using implementation intentions. Similarly, figure 5 shows the themes and subthemes of aspects of training that participants found in need of improvement.

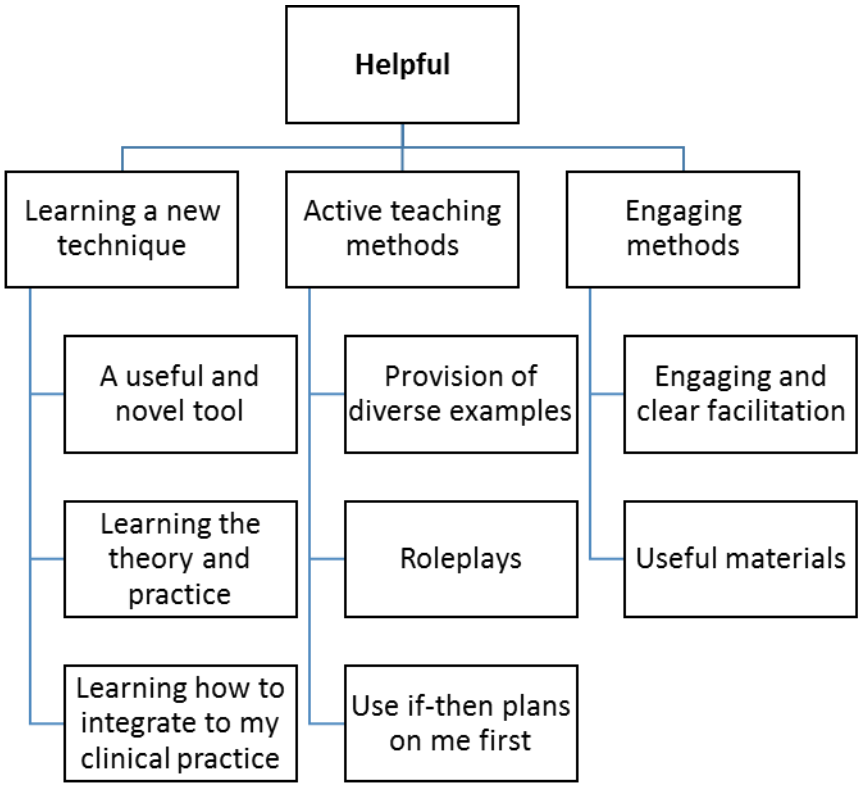


*Figure 4.* Qualitative themes from the helpful aspects of training/implementation intentions.

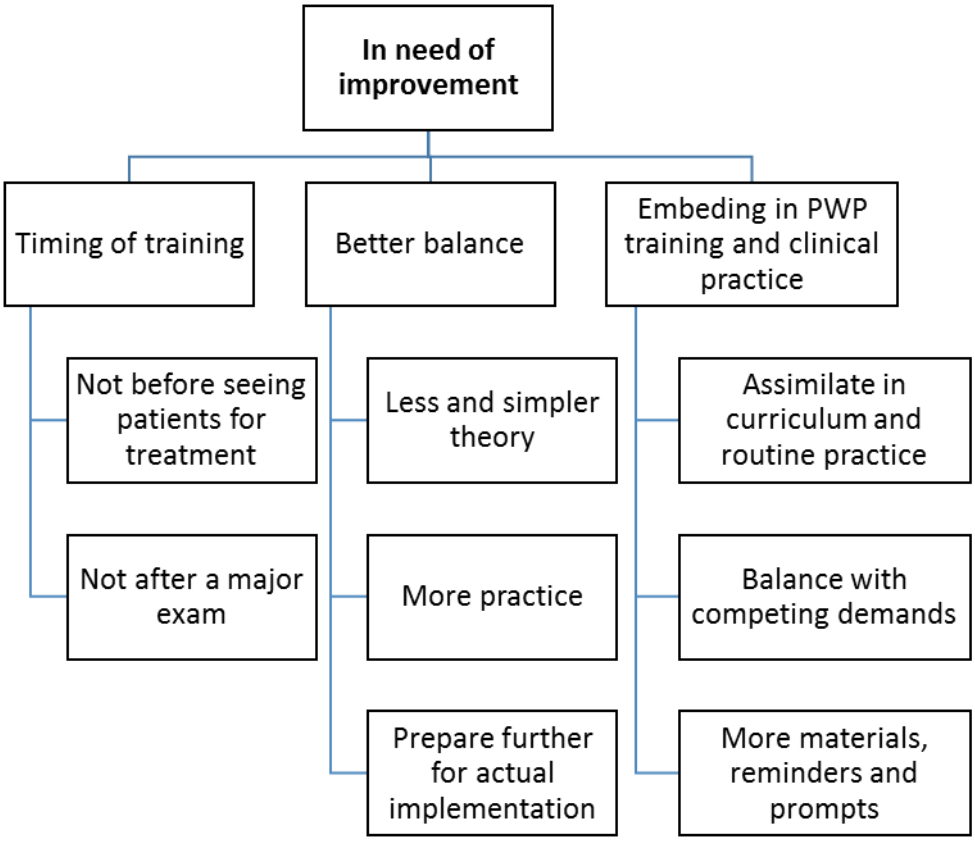


*Figure 5.* Qualitative themes from the aspects of training in need of improvement.

***Helpful aspects of training/implementation intentions.***

*Learning a new technique: Learning the theory and practice of a useful and novel technique and integrating it into my clinical practice*. *P*articipants expressed enthusiasm over implementation intentions because it was novel, useful for their patients to achieve their goals, and for their clinical practice (e.g., 'I loved acquiring a new tool to use that is very simple'). At follow-up, participants specified some situations where implementation intentions had been helpful, including overcoming barriers, creating safety plans, and looking for opportunities.

*Active teaching methods: Providing and demonstrating a variety of realistic examples and using them on me first.* Most participants mentioned the use of diverse examples aided their learning. The facilitator's demonstration helped participants relate to their clinical practice, and further role-play between participants consolidated their learning (e.g., 'role-playing, [was helpful to] put into practice what I've learnt'). Creating implementation intentions in their own personal lives was helpful to understand the technique and their patient's experiences.

*Engaging methods: Engaging and clear facilitation with useful materials*. Participants gave positive feedback about the facilitator, particularly the way of relating with the group which promoted learning (e.g., 'the facilitator was relatable and made the theory easy to understand'). Clear and simple materials and handouts further facilitated learning.

***Training aspects in need of improvement.***

*Timing of the training: not before seeing patients or after a major exam!* Participants expressed inability to relate to some of the material, as some had not begun seeing patients for treatment and hence had not had the opportunity to use implementation intentions (e.g., 'I feel really sorry that your training came too early in our programme, I like the implementation intentions but haven't started seeing patients

yet'). At six-months follow-up some participants mentioned they had forgotten about them by the time they begun treatments. Participants also had an exam the day before the training, consisting of role-play. Consequently, participants felt fatigued and less able to engage with training.

*Better balance: less and simpler theory, more practice and more preparation for clinical practice.* Participants reported the theory explanation lasted too long, and wished the time was invested in further practice, mainly amongst themselves (e.g., '[I recommend a] presentation better paced, so that we had more opportunity to practice role-plays'). At both follow-ups few participants reported not using implementation intentions because they lacked confidence and experience, and suggested further practice to increase their confidence.

*Embedding into Psychological Well-being Practitioners' training and clinical practice: Assimilate into curriculum, balance with competing demands and provide more materials.* Participants reported a lack of fit between the rest of their course and this training. Particularly, over lack of sufficient time due to competing demands, and lack of integration with their routine clinical practice. Specific suggestions given were having implementation intentions as a key component in their course, include them as part of their competency scale, discuss in supervision, have external reminders, and have more worksheet and prompts (e.g., '[It would be helpful] having it [implementation intentions] as a key component of PWPs treatment planning taught on the course').

**Summary**. Participants found the training generally acceptable. Learning about implementation intentions and practicing was helpful. Participants suggested improvements with regards to the timing of the training, having more practice and embedding the technique into PWPs wider training and clinical practice.

## Discussion

The study was the first to develop and evaluate the feasibility of training MHPs to prompt their patients to form implementation intentions. In Study 1, through a review of the literature and consultation with 25 experts, the training programme for MHPs on implementation intentions was developed. Study 2 evaluated the feasibility delivering the training to 69 TPWPs. Overall, the training was acceptable and participants reported using implementation intentions with their patients significantly more frequently six-months after the training.

### Components of mental health professionals' training on implementation intentions

Based on Study 1, the following components were selected to train MHPs on how to use implementation intentions with their patients: (a) goal setting in clinical contexts; (b) the intention-behaviour gap; (c) the model of action phases; (d) what are implementation intentions, and how, when, why and where are they most likely to be effective; (e) practice, examples and role-play; and (f) forming implementation intentions about using implementation intentions.

In Study 2, participants found the examples, role-plays and use of implementation intention on themselves as helpful. The only research to have previously trained physical health professionals to use implementation intentions with their patients (Martin et al., 2011) reported also using role-plays and examples, but failed to specify if participants were encouraged to form their personal implementation intentions. Regardless, social cognitive theories support the value of enactive learning (i.e., learn by doing; Schunk, 2012) and research on how to avoid drift from CBT has proposed that MHPs should apply CBT principles on themselves (Waller & Turner, 2016). Hence, the use of personal examples seems particularly relevant.

**Increased knowledge on implementation intentions**

Hypothesis 1 was supported, as immediately following the training session, participants increased their theoretical knowledge and practical knowledge with at least a moderate uncontrolled effect size. TPWPs gained slightly more theoretical knowledge than practical knowledge. A potential explanation is that practical knowledge was higher at pre-training than theoretical knowledge, leading to less change. Another explanation is that therapists naturally used some components of implementation intentions, but they were not aware of the specific technique or theoretical background as was found in a previous study (Ross, 2018).

A review of 55 studies about training therapists in EBP (Herschell, Kolko, Baumann, & Davis, 2010) found that most studies included non-standardized knowledge tests. Further, knowledge has been considered to be a key aspect of therapists' competence training (Fairburn & Cooper, 2011). Overall, an increase in knowledge about using implementation intentions demonstrates initial effectiveness of training.

**Increased use of implementation intentions in clinical practice**

Hypothesis 2 was supported, as following a training session participants significantly improved the frequency with which they used implementation intentions in clinical practice. Two participants (3%) used implementation intentions with an average 1% of their patients before training, compared with 17 participants (44%) used implementation intentions with in average 13% of their patients six-months after training, in average 7 patients per participant. Of those that used implementation intention with at least one client, they did so with approximately a third of their overall patient caseload. This implies that over 100 patients used implementation intentions after two three-hour workshops to their therapists.

Statistical tests revealed large uncontrolled effect size from pre-training to six-months follow-up. Further, the large magnitude of the effect remained assuming missing data had remained stable. Given the novelty of the training, the effect could not be compared to the wider literature. The lack of use of implementation intentions naturally (i.e., before training) was consistent with prior research (Ross, 2018).

**Lack of association found with potential moderators**

Hypothesis 3 was not supported, as no predictors were found to be correlated with use of implementation intentions in clinical practice at six-months follow-up. Previous literature would suggest that knowledge (Fairburn & Cooper, 2011), acceptability of training (Proctor et al., 2011), attitudes (Armitage & Conner, 2001), self-efficacy (Stajkovic, & Luthans, 1998) and particularly intentions (Sheeran, 2002) would predict the use of an EBP, contrary to the findings in this study. A potential reason was that the analyses were underpowered, which may lead to type II errors (Banerjee, Chitnis, Jadhav, Bhawalkar, & Chaudhury, 2009). Other potential moderators, such as patients' diagnosis and severity (Beidas & Kendall, 2010) were not explored.

**Trainee Psychological Well-being Practitioners' views of the training and recommendations for future training**

Exploratory analyses of TPWPs' views revealed that participants found the training generally acceptable and helpful. Participants found helpful the opportunity to learn a new and useful technique, the active teaching methods with examples and role-plays, and engaging facilitation with clear materials provided.

Based on participants' feedback, the specific recommendations to improve future training sessions on implementation intentions for TPWPs are to: (a) embed implementation intentions into PWPs' curriculum and competencies, supervision, and routine clinical practice; (b) provide a single-workshop for TPWPs once they have

begun delivering treatment; (c) during training, provide an engaging overview of implementation intentions and focus on practicing with examples, a demonstrative role-play and peer role-plays; and (d) provide materials for TPWPs and their patients with summaries and prompts.

Prior research about how to effectively implement EBP in healthcare have found that comprehensive, multi-level strategies are most effective (Damschroder et al., 2009; Fixsen, Naoom, Blase, & Friedman, 2005; Kitson, Harvey, & McCormack, 1998). The only domain where training seemed to have an influence was at the individual level.

**Limitations and future research**

The main outcome variable (i.e., use of implementation intentions with patients) was self-report without objective measures. Prior research comparing self-report versus observed use of EBP found that therapists overestimated the extent to which they implemented EBP (Hogue et al., 2015), which may limit the reliability of the present results. In addition, MHPs competence using implementation intentions was not measured, limiting the validity of the results. Future research may evaluate the latter two competency levels in Muse and McManus' (2013) framework (i.e., demonstrate the skill, and use the skill in practice) through standardized role-plays and session recordings, potentially using the coding framework created by Toli (2014).

Further, while Toli et al.'s (2016) meta-analysis provided evidence of the benefits of implementation intentions in clinical samples, this was not measured in the present study. Future research may utilize patients' routinely collected data to test if similar effects are found in IAPT, as well as cost-effectiveness of training, and potential use in high-intensity treatment and other treatment modalities.

Additional issues with the measures limited the validity and reliability of the results. The knowledge questionnaires had pre-training scores higher than would be expected of naïve participants (over 50%, perhaps a problem of recognition or cueing;

Muse & McManus, 2013) and lacked a follow-up to determine if knowledge was maintained. Future research may adequately assess the psychometric properties of the knowledge questionnaires, improve them, and implement at follow-ups.

With regards to qualitative data, the written feedback limited the quantity and quality of the data. In addition, the researcher analysing the data was also the facilitator of the training, which may have led to inadvertent bias. External validity measures such as inter-rater reliability or reflexivity were not utilised due to time constraints and the epistemological position taken. Future qualitative research may employ, separate researchers and facilitators of training, and explore in depth why participants may or may not choose to use implementation intentions. In addition, the qualitative analysis of the experts' feedback would have benefited from a more systematic approach to analyse experts' feedback, such as the Delphi Method (Linestone & Turoff, 1975).

Other limitations included the lack of power for the moderator analyses and the lack of other potential moderators. Future research on moderators should ensure a sample size large enough for adequate power and should examine additional moderators related to the therapist, the patients and the wider organization.

Finally, communicating to TPWPs that implementation intentions were not appropriate to use in assessment sessions, only in treatment, was a decision made by the researchers due to practicalities (i.e., PWPs have a time-limited structured assessment). However, there is no evidence to say implementation intentions may not be used in assessments, and patients that drop out after assessment may benefit from this technique. Future research may investigate if it would be appropriate, feasible, and effective to use implementation intentions in assessments.

**Implications for theory and clinical practice**

A major clinical implication of this study is the potential integration of implementation intentions into IAPT courses. While further research is needed, few

additional resources would be needed to integrate this training on to TPWPs' postgraduate course. Therefore, the training has the potential of becoming a cost-effective add-on to current low-intensity treatments delivered by IAPT providers throughout the UK. The Sheffield course has already integrated the training into their curriculum for TPWPs next year.

Further, this research contributes by providing the first guidelines for those training MHPs to prompt their patients to form implementation intentions, which may be used by any mental health providers or organizations. The training materials can also be made available via publication and online platforms for any MHP to learn how to use implementation intentions in their clinical practice.

**Conclusion**

This study was the first to develop a training for MHPs to use implementation intentions with their patients, and to find feasible the delivery of such training via a workshop to TPWPs. These results encourage further research on TPWPs' competence using implementation intentions and potential integration of this technique into IAPT. Effective training of MHPs in implementation intentions can contribute towards current efforts aiming to bridge the research-practice gap, while helping patients bridge their intention-behaviour gap.

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# Appendix A: Ethical Approval

The University Of Sheffield.

Downloaded: 06/03/2017
Approved: 06/03/2017

Paulina Gonzalez Salas Duhne
Registration number: 150123761
Psychology
Programme: Doctorate in Clinical Psychology

Dear Paulina

**PROJECT TITLE:** Training clinicians to help their clients form implementation intentions: A mixed methods study
**APPLICATION:** Reference Number 012149

On behalf of the University ethics reviewers who reviewed your project, I am pleased to inform you that on 06/03/2017 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 012149 (dated 05/02/2017).
- Participant information sheet 1026887 version 1 (27/01/2017).
- Participant consent form 1026890 version 1 (27/01/2017).

The following optional amendments were suggested:

*Please take note of the following suggested amendment from a reviewer: A well thought through application, my only suggestion is that it might be a good idea to provide participants with a deadline for withdrawing to avoid anyone withdrawing after data analysis.*

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. Detailed Division of Responsibilities

<table>
<tr><th></th><th>Andrew Horan</th><th>Paulina Gonzalez</th></tr>
<tr><td>Review literature to summarize:<br>- core components of implementation intentions (theoretical model, why, when and how it works)<br>- clinical applications of implementation intentions (how to use it in clinical practice)</td><td>Review literature on Core components of implementation intentions</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 implementation intentions</td><td>Practical knowledge questionnaire on implementation intentions planning (multiple-choice questionnaire)</td><td>Theoretical knowledge on implementation intentions (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>
<tr><td>Evaluate feasibility of training (including recruiting participants and delivering training)</td><td>Internet-based training</td><td>Workshop-based</td></tr>
<tr><td>Write-up and publish results</td><td>Internet-based training</td><td>Workshop-based</td></tr>
</table>

## Appendix C. Study 1. Proposed content outline

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 patients 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 patients have at the start of therapy (e.g., to decrease anxiety during exams).

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 patients are likely to fact striving to achieve their goals.

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 patient is at, distinct strategies may be adequate to help the patient achieve their goal.

4. Implementation intentions: What they are, how they work, and their evidence-base

This section of the training will explain what implementation intentions are, how they work, and their evidence base in clinical practice.

We will explain that implementation intentions 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 implementation intentions 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 implementation intentions has been shown to help service users with a range of mental health difficulties to achieve their goals (Toli, Webb, & Hardy, 2015). However, implementation intentions 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 implementation intentions can and have been used in clinical practice.

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 patient's goal is: Specific, Measurable, Attainable, Realistic, and Time-bound (Dorn, 1981). The training will discuss the similarities between SMART goal setting and implementation intentions (e.g., that they both involve being specific about the desired goal). The training will discuss the differences between SMART goal setting and implementation intentions (e.g., that SMART goals lack an 'if-then' clause).

Clinicians will be asked to reflect on how they commonly set goals with their patients and the advantages and disadvantages of different techniques. The training will suggest that implementation intentions might be a valuable complement to SMART goal setting.

6. Learning how to form implementation intentions

This section of the training will further explain the crucial elements of implementation intentions 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 patient form implementation intentions.

7. When it is appropriate to use implementation intentions

This section of the training will explain when it is appropriate to use implementation intentions.

We will suggest that implementation intentions should be formed when the patient is in the pre-actional phase (i.e., once they have identified a clearly defined goal). Implementation intentions are not suitable when patients 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 implementation intentions.

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 implementation intentions.

8. Practice: role-play or vignettes

This section of the training will provide role-plays and vignettes to reinforce clinicians' knowledge of implementation intentions and to provide them with the opportunity to practice helping patients to form implementation intentions.

9. Forming an implementation intention to use implementation intentions with your patients

This section of the training will ask participants to form their own implementation intention to prompt their patients to form implementation intentions

For example, clinicians might be prompted to make the plan 'If the patient identifies a clear goal that they are motivated to achieve, then, I will help them form an implementation intentions to support this goal.'

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 patients to form implementation intentions can be an effective strategy to help them to achieve their goals.

2. The implementation intentions 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.

## Appendix D. Study 1. Emails sent to experts

**First email**

Dear (Forename) (Surname),

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 patients 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: (survey link)

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

Follow the link to opt out of future emails:
${l://OptOutLink?d=Click here to unsubscribe}

**Second reminder email**

Dear (Forename) (Surname),

Thanks to all those who filled in the questionnaire. Your responses have been really interesting and useful.

For those who haven't had the chance, it would be great if you could complete the questionnaire within the next week.

If you would like to participate in this study, please click here. It should take you less than **15 minutes**.

Or copy and paste the URL below into your internet browser: (survey link)

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

Follow the link to opt out of future emails:
${l://OptOutLink?d=Click here to unsubscribe}

## Appendix E. Study 1. Information Sheet and Informed Consent

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

Department of Psychology
University of Sheffield
Western Bank
Sheffield S10 2TN UK

7th March 2017

INFORMATION FOR PARTICIPANTS

Title of Research Project: Training clinicians to help their patients to form implementation intentions

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 patients to form implementation intentions - namely, specific implementation intentions 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 implementation intentions. Individuals were identified if they took part in the Synergy Expert Group for recommendations on implementation intentions (Hagger et al., 2016), have published at least three articles focused on implementation intentions, 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 implementation intentions, 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 patients 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 implementation intentions. 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 for Experts**

Title of Research Project: Training clinicians to use implementation intentions with their patients

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 F. Study 1. Questionnaires for experts

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 implementation intentions?**

| | 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 implementation intentions in clinical practice?**

| | The programme does not provide clincians with what they need | | | | The programme provides clincians 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 implementation intentions?**

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.

| Items | 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? | | |
| The intention-behaviour gap | | |
| Model of action phases | | |
| Implementation intentions: What they are, how they work, and their evidence-base | | |
| Current goal setting techniques in CBT: SMART goals | | |
| Learning how to form implementation intentions | | |
| When to use implementation intentions? | | |
| Practice: role-play or vignettes | | |
| Form implementation intentions about using implementation intentions with your clients | | |
| Additional section (optional) | | |
| Additional section (optional) | | |

**Finally, we would like to ask whether you have any teaching materials on implementation intentions (e.g. power point presentations, videos) that you are willing to share with the team?**

If so, please email your materials to **ahoran1@sheffield.ac.uk**

## Appendix G. Study 1. Qualitative feedback and decisions made

Removed for confidentiality reasons

**Appendix H. Study 1. Outline of the components of training**

<table>
<tr><td colspan="2" rowspan="2">Contents of the training</td><td colspan="2">Examples of the method of delivery</td></tr>
<tr><td>Workshop training</td><td>Online training</td></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>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).<br><br>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).<br>Emphasise that despite these goals being realistic, practical and attainable, individuals still fail to achieve them (response to comment 7)<br>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.<br><br>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:<br>Intention to donate blood accounts for 48% of the variance in people who actually donate blood (Giles, McClenahan, Carnis, & Mallet, 2004).<br>Intentions to exercise account for 33% of the</td></tr>
</table>

| | | | |
|---|---|---|---|
| | | variance in people actually exercising (Smiehotta, Scholz, & Schwarzer, 2005).<br>Ask participants to imagine examples where they have struggled to translate an intention into action, then times when a client has done the same.<br>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). | |
| 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.<br>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)<br><br>Implementation intentions may be a useful strategy to help individuals achieve their goals during pre-actional phase.<br>II can be helpful for maintaining behaviour during the actional phase (response to comment 41)<br>SMART goal setting is complementary to implementation | 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.<br><br>Indication of pre-actional and actional phases as the appropriate phase to prompt people to form implementation intentions.<br>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.<br><br>Indication of pre-actional as appropriate phase to use implementation intentions. |

| | | | |
|---|---|---|---|
| | intentions (response to comment 25). | | |
| Implementation intentions | What are implementation intentions? (Gollwitzer, 1999)<br><br>Evidence base pointing to the effectiveness of implementation intentions in mental health settings (Toli, Webb, & Hardy, 2015).<br>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<br>Describe what problems implementation intentions can be designed to solve (e.g. getting started, staying on track) by exploring why people fail to accomplish goals (response to comment 20) | Interactive explanation with power point presentation about implementation intentions, their effectiveness and their mechanisms.<br>Describe appropriate situational cues and goal-directed responses with examples and common mistakes. (response to comment 22)<br><br>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)<br>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). | Text description of implementation intentions<br>Examples of implementation intentions.<br>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. |
| 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 | 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.<br><br>The video would depict a therapy session in which the patient has a specific goal in mind | |

| | | | |
|---|---|---|---|
| | 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.<br><br>How to help clients form implementation intentions? The concept, the reason for using it, and the practice; and what to use them for.<br>Perhaps include how implementation intentions 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) | (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 "implementation intention" to support their goal, specifying a cue-response link. | |
| When to use implementation intentions?<br><br>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.<br><br>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 still deciding what they would like to do.<br><br>Implementation intentions are not effective is when they are not motivated to achieve the respective | Open question to the group: when to use implementation intentions.<br><br>Power point displaying important reminders: identify a clearly defined goal intention and the person has identified that they are motivated to achieve the goal.<br><br>We will include handouts and apps that may reinforce the use of II (comment 79) in clinical contexts | 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.<br><br>Followed by bullet points with important reminders: identify a clearly defined goal intention with sufficient motivation. |

| | | | |
|---|---|---|---|
| | goal (as the findings of Sheeran et al., 2005, suggests that this undermines the efficacy of forming implementation intentions). | (comment 81). | |
| 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 implementation intentions | Form your own implementation intentions about forming implementation intentions with your clients (e.g. If the client identifies a clear goal which they are motivated to achieve, then I will help them make implementation intentions'? (Response to comment 52)<br>Ask clinicians to form their own plans in relation to their own | 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 implementation intentions (response to comment 22, 42, 55). | Open text box for participants to complete. |

| | | | |
|---|---|---|---|
| | 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)<br>Consider both opportunities and obstacles (response to comment 56) | | |
| Conclusion / Questions | Take home messages:<br>1. People can struggle to achieve goals, even if they are 'SMART'<br>2. Prompting clients to form implementation intentions can be an effective strategy to help them to achieve their goals.<br>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).<br>Space for final questions. | Described in-text |

## Appendix I. Study 1. Presentation for TPWPs' training session

### Using *If-then* planning in your clinical practice

Paulina Gonzalez Salas Duhne
Andrew Horan, Dr. Thomas Webb & Prof. Gillian Hardy

pgonzalezsalasduhne1@sheffield.ac.uk

1

### Overview

- Goals in clinical settings
- Goal intentions and goal achievement
- What is **'if-then' planning**?
- How to prompt patients to form if-then plans?
- Practice: Role play
- Questionnaires: pre + post + follow-up

Main aim: teach you how to use a technique to help your patients achieve their goals.

2

### Practicalities

- Break *(10.45 – 11.05am?)*
- Workshop: Interactive
- Exercises involve both yourself as a person and yourself as a professional
- Take care of yourself, only do what feels confortable
- Role play and work in teams

3

### Forms + Questionnaires

1. Information Sheet (for you to keep)

1. Consent Form

2. Questionnaires

**Parts 1 – 4 only**


4

### As a professional...


5

### Why do patients come for treatment?

6

## Why do patients come for treatment?

- Low mood
- Anxiety


## As yourself...

## A recent unsuccessful goal

- Try to think of a goal you recently set for yourself, and you did not achieve this goal.
- Share with your neighbour:
  - What was your goal?
  - Why do you think you did not achieve it?
  - If you were experiencing mental health difficulties, would it be any more/less difficult to achieve this goal?


*"Good resolutions are useless attempts to interfere with scientific laws. Their origin is pure vanity. Their result is absolutely nil."*

- Oscar Wilde, The Picture of Dorian Gray

## Intention vs. Achievement

**Goal Intention** **Goal Achievement**

What is the difference?

## Intention vs. Achievement

**Goal Intention**

- A person's expression of their goals
- "I intend to exercise"

**Goal Achievement**

- A person achieving their goal intention
- "I'm exercising regularly"

## Evidence-base...

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).

I want to exercise

↓

I am exercising regularly

## Intention-behaviour gap in people with mental health difficulties

Mental health service users tend to have exacerbated difficulties in goal attainment (Corrigan, Larsen, & Rüsch, 2009).

## Why is there an intention-behaviour gap?

*Why do we fail to accomplish our intentions?*

**4 Main Reasons**

(Gollwitzer & Sheeran, 2006)

1. Failing to get started
2. Getting derailed
3. Not calling a halt
4. Overextending oneself


The intention-behaviour gap is often a result of an inability to move beyond the current obstacle.

## Understanding more about how to successfully achieve a goal...

## Phases in goal pursuit: Model of action phases

(Heckhausen, 1991; Heckhausen & Gollwitzer, 1987)

| Predecisional | Preactional | Action | Postactional |
|---|---|---|---|
| People **deliberate** over which wishes to pursue and then **form a goal intention.** | **Initiate** goal-directed behaviours. People benefit from spelling out when, where and how to act. | Behaviour is **initiated** and **maintained** if necessary. Deal with interruptions and setbacks. | Outcome is **evaluated** against what was desired. Decide if further action is needed. |

## Phases in goal pursuit: Model of action phases

(Heckhausen, 1991; Heckhausen & Gollwitzer, 1987)

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| People **deliberate** over which wishes to pursue and then **form a goal intention.** | **Initiate** goal-directed behaviours. People benefit from spelling out when, where and how to act. | Behaviour is **initiated** and **maintained** if necessary. Deal with interruptions and setbacks. | Outcome is **evaluated** against what was desired. Decide if further action is needed. |

**Big gap!**


Helping bridge the gap intention - behaviour

**If-Then Planning**

## If-Then Planning

(Aka. Implementation intentions; Gollwitzer, 1999)

if then

- Technique to help bridge the gap between intention and action.
- Spells out what behaviour you intend to take in which context to achieve your goal.

## If-Then Planning

(Aka. Implementation intentions; Gollwitzer, 1999)

if then

| *Critical cue* | *Goal directed response* |
|---|---|
| • Critical **future situation**<br>• **When and where** to act | • **How** to act |

## If-Then Planning

(Aka. Implementation intentions; Gollwitzer, 1999)

**Goal: Exercise** if then

| *Critical cue* | *Goal directed response* |
|---|---|
| If it is Monday at 5pm, | Then I walk home taking the long route. |
| If I feel tired and don't feel like walking, | Then I will remember I feel better after walking and go immediately. |

## If-Then Planning

(Aka. Implementation intentions; Gollwitzer, 1999)

**Goal: Use breathing techniques** if then

| *Critical cue* | *Goal directed response* |
|---|---|
| If my heart starts to race, | Then I will begin using my breathing techniques. |
| If I put my seat belt on, | Then I will practice three deep breaths. |

## If...

Critical future situation (**when and where** to act)

- Place (e.g. at work, alone in my flat)
- Time (e.g. at 5pm, after breakfast)
- Internal state (e.g. if I feel sad, if I start worrying)
- A **good opportunity** (e.g. if someone starts talking to me)
- An anticipated barrier
  - Internal (e.g. feelings, thoughts; if I think I'm useless)
  - External (e.g. people, situations; if I see my ex-partner)

## Then…

**How** to act (goal directed **response**)

- Doing something (e.g. I will go to the gym)
- Not doing something (e.g. I will stop eating)
- Replacement behaviour (e.g. I will chew gum)
- Ignoring something (e.g. I will ignore those thoughts)
- Thinking of the reward / motivation (e.g. I remember I'm saving money for my holiday)

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## Intention - Behaviour

I know every afternoon when I get home, I eat unhealthy snack.
When I'm stressed, I tend to over eat.

Goal: **eat healthier**

If I'm coming home in the afternoon, then I will eat fruit and drink water.

If I'm feeling stressed, then I will do my breathing exercises.

26

## Your examples

Goal: do behavioural activation
- If I feel come home and feel depressed, then I ….. (write your own)

Goal: reduce my stress
- If I notice (write one early signs of stress), then I …. (write your own)

Goal: write your own
- If I (write your own), then I ….. (write your own)

27

## Implementation Intentions: Evidence Base

A meta-analysis with the results from 28 experimental studies showed that forming implementation intentions had **a large-size effect** (*d*, = 0.99, *N* = 1,636) on goal achievement across a range of mental health problems (Toli et al., 2015).


28

## How does if-then planning works?

- Accessibility of the specified cue
- Mental link between cue and response leads to strategic automaticity (delegates control)

(Aarts, Dijksterhuis & Midden, 1999; Webb & Sheeran, 2004; Aarts & Dijksterhuis, 2000; Webb & Sheeran, 2008)

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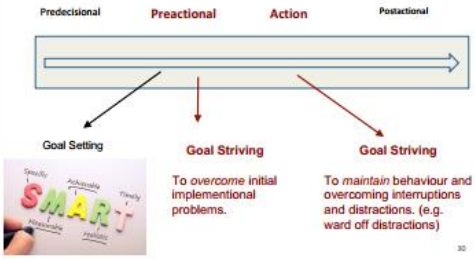
## When to use If-Then Planning?

Model of action phases

(Heckhausen, 1991; Heckhausen & Gollwitzer, 1987)




30

## Uses & Examples

### Getting started

- Don't know when, where or how to act
- Don't have the necessary resources
- Forgetfulness
- Opportunities don't seem to be available


## Uses & Examples


### Staying on Track

- Lack of motivation
- Difficulties maintaining the behavior
- Not completing a behavior as required to achieve the goal

## Uses & Examples

### Overcoming barriers / distractions

- Problems in the context, internal or external (triggers)
- Breaking old habits (substitute or suppress)

## How to form if-then plans?

1. Have a clear goal intention in mind
2. Think 'what is the very next step you need to take to accomplish this?'
3. Identify critical situational cues (*when, where to act?*), or barriers to act (*why have I failed before?*)
4. Form an If-Then Plan with one critical cue: *"**If** [cue], **then** [response]"*

## As yourself...

## Activity

In pairs, think about your original goals and work on the following steps:

1. I want to ..... The next step now, is to .....
2. Make a list of situational cues, anticipated barriers and how you can respond (goal directed response).
3. Make one If-Then plan.

## When are if-then plans **most likely to be effective**?

According to research…

- If the patient is in the pre-actional or actional phases and therefore has:
  - **One clear goal intention**
  - **A strong motivation to achieve the goal**
  - A goal which seems feasible and desirable
- If the plan involves doing a behaviour, rather than not doing (e.g. 'ignoring' instead of 'not responding' positive phrasing)
- If the goal intention is self-concordant (fits me)
- If the behaviour is hard to perform, and individual is struggling
- If the patient writes the if-then plans down, and repeats them
- If they use the exclamation mark!

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## Hence, when are if-then plans not appropriate?

According to research…

- Lack of a clear goal intention
- Lack of motivation

38

## **How** to use if-then plans with our patients?

1. Identify a clear goal intention within treatment
2. Identify what is the next step *collaboratively* (good opportunities and barriers)
3. Introduce if-then plans, explain briefly the process and rationale
4. Prompt the patient to form an if-then plan and write it down
5. Revise implementation next session.

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## Role-Play

- The patient has mild to moderate depression, and the PWP wants to use behavioural activation.
- The goal the client has chosen at this moment is to do his laundry at home.

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## Feedback

- As a patient how did it feel?
- As observers, what was helpful? What was unhelpful? What could be improved?

41

## Role-Playing in groups

- In groups of 2 or 3, role play a clinical session.
  - Patient, PWP and observer
- The patient is suffering from anxiety about talking in public and the PWP is using exposure.
- They are in the middle of their exposure hierarchy and the next step is 'talking in a small group'.
- Remember to explain the process, rationale and ask them to write down their if-then plan.
- Discuss afterwards the outcome and problems encountered.

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## Feedback and my own if-then plan

- Feedback to the group: patient, PWP and observer.
- How did it feel?
- What helped?
- What could be improved?

Now **write an if-then plan about your use of if-then planning with your patients!**

_____

_____

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## How if-then plans fit with PWP's low-intensity treatment?

- After setting SMART goals
- Behavioural activation homework
- Use of strategies for anxiety management / Exposure
- Use of sleep hygiene
- Use of cognitive restructuring and problem solving techniques / keeping diaries

**When else would it be appropriate?**

44

## Take home message

1. People can struggle to achieve their goals.
2. Prompting patients to form if-then plans can be an effective strategy to help them to achieve their goals.
3. If-Then plans are formed using 'if', followed by a good opportunity, and 'then' followed by goal-orientated response.

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## Checklist of If-Then Plans

- ❑ Do you have a clear goal intention and plan?
- ❑ Does it contain the words, If and Then?
- ❑ Does the if part identifies
  - ❑ When or Where?
  - ❑ A good opportunity or a potential barrier?
- ❑ Does the then part specifies
  - ❑ How to respond?

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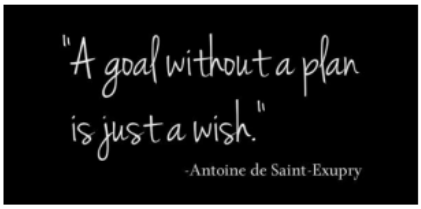
## Any questions?

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## Questionnaire - Parts 5 to 8 (the rest) + Consent form


There will be an online follow-up questionnaire sent in a month, please take 5 minutes to complete this!

You're free to go when you're done.

**Thank you!**

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**Appendix J. Study 1. Handouts for TPWPs' training**

## How to form implementation intentions?

1. What is my goal intention?

2. What is the very next step I need to take to accomplish this?'

3. Identify critical situational cues (*when, where to act? a good opportunity*), or barriers to act (*why have I failed before? what is stopping me?*)

4. Form implementation intentions: *"**If** [critical cue, a good opportunity], **then** [goal directed response, how will I respond to that good opportunity that helps me achieve my goal?]"*

## Appendix K: Study 2. Power analyses

A priori calculation for Hypothesis 1 and Hypothesis 2:

**t tests -** Means: Difference between two dependent means (matched pairs)
**Analysis:** A priori: Compute required sample size
**Input:** Tail(s) = Two
Effect size dz = .50
α err prob = 0.05
Power (1-β err prob) = 0.80
**Output:** Noncentrality parameter δ = 2.9154759
Critical t = 2.0345153
Df = 33
Total sample size = 34
Actual power = 0.8077775

Post-hoc calculation for Hypothesis 3:

**t tests -** Correlation: Point biserial model
**Analysis:** Post hoc: Compute achieved power
**Input:** Tail(s) = Two
Effect size |ρ| = .28
α err prob = 0.05
Total sample size = 39
**Output:** Noncentrality parameter δ = 1.8214577
Critical t = 2.0261925
Df = 37
Power (1-β err prob) = 0.4263911

## Appendix L: Study 2. Information Sheet and Informed Consent Form

The University Of Sheffield.

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Doctor of Clinical Psychology Programme
Clinical supervision training and NHS research training & consultancy.

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Amrit Sinha, Research Support Officer

### PARTICPANT INFORMATION SHEET

**Title of Research Project:** Training clinicians to use implementation intentions with their patients

**Name of Researcher:** Paulina Gonzalez Salas Duhne

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 evaluate how acceptable and effective a training workshop is for clinicians, on using implementation intentions with their patients.

**Why have I been invited?**

All Psychological Well Being Practitioners (PWPs) who are undertaking the Low-intensity IAPT training at the University of Sheffield and who are currently delivering therapy to patients have been invited to take part in this study.

**Do I have to take part?**

No, your participation in this study is completely voluntary. If you choose to participate you are free to withdraw at any point without giving a reason, and any data collected will be destroyed.

**What will happen to me if I take part?**

If you choose to take part in this research, then at the beginning of the teaching session on implementation intentions you will be asked indicate that you consent to taking part in the research and to generate a code that we can use to identify you while maintaining your confidentiality. The training workshop will explain the theoretical underpinnings of implementation intentions: why, how and when they are thought to be effective in helping patients to achieve their goals. We will then use role-play to explain how to use this technique with patients.

We will also ask you to complete three sets of questionnaires: before the training, immediately after and one-month after the training. The questionnaires ask about your knowledge of implementation intentions, and feedback from the training session.

**What are the possible benefits of this research?**

You may gain some knowledge about implementation intentions, which research suggests might help your patients to achieve 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 implementation intentions. You may potentially find this uncomfortable. However, your answers will be completely confidential and will not have any impact on your course. You're free to withdraw at any point.

**What will happen to my data and the results of the study?**

The information from the questionnaires will be treated in strict confidence through a code we will ask you to generate. This data will be kept securely in a password-protected computer and deleted at the end of the study. The anonymized data will be written up as part of my doctorate and may be published in a scientific journal.

We will also ask for your email to send the one-month follow-up questionnaire. Your email address will be kept separately from your responses, in a password-protected computer, and will be deleted at the end of the study.

**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. You can request this by sending an email to the researcher with the code you developed. If you make such request, any data collected will be destroyed.

**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 (pgonzalezsalasduhne1@sheffield.ac.uk). If should you prefer to call please call the Research Support Officer at (0114 2226650) who will relay the message to Paulina and she 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 University's Registrar and Secretary Dr Andrew West, Email: registrar@sheffield.ac.uk, Telephone: *0114 222 1051.*

This proposal has been reviewed and approved by the Research Ethics Committee in the

Department of Psychology at the University of Sheffield (reference number 012149).

## Informed Consent

**Title of Research Project:** Training Clinicians to use implementation intentions with their patients

**Name of Researcher:** Paulina Gonzalez Salas Duhne

I confirm that I have read and understand the information sheet dated (insert date) explaining the above research project and that I have had the opportunity to ask questions about the project. ☐

I understand that my participation is entirely voluntary, and that I am able to withdraw my participation and consent at any point without consequence. If I wish to do so, I will email the researcher to request this, using the code that I give next. ☐

I understand that the information that is collected during this study will be kept strictly confidential. I give permission for members of the research team to have access to my anonymised 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. ☐

I agree to take part in the above research project.

| _____ | _____ | _____ |
|---|---|---|
| Name of Participant | Date | Signature |
| _____ | _____ | _____ |
| Lead Researcher | Date | Signature |

## Appendix M: Study 2. Information Sheet and Informed Consent 2nd Follow-up

**Participant Invitation to Participate in Second Follow-up**

We would like to ask for your help evaluating the workshop you took part in about how to use implementation intentions with your patients. The workshop was delivered as part of the teaching programme for Psychological Well-being Practitioners for two cohorts on 9th August 2017, and on 24th November 2017. You were previously asked to complete a one-month follow-up, but we would like to ask you now to complete a second follow-up 6 to 9 months after taking part in the workshop. *The reason why we are asking participants to complete a second follow-up, is that many participants had not begun seeing patients by the time they completed the initial one-month follow-up and hence had not had the opportunity to use implementation intentions with their patients.*

If you agree to participate in this 6-9-month follow-up, you will be asked to complete the same follow-up questionnaire you were previously asked to complete, which would take no longer than 5 minutes.

All answers of your responses will be treated in strict confidence and you will not be identifiable in any reports that come out of the research. The project has been approved by Research Ethics Committee in the Department of Psychology at the University of Sheffield and is supervised by Professor Gillian Hardy and Dr Thomas Webb.

For further information, please read the Information Sheet enclosed.

If you have any questions or concerns, then please contact me, Paulina Gonzalez Salas Duhne (pgonzalezsalasduhne1@sheffield.ac.uk) or Professor Gillian Hardy (g.hardy@sheffield.ac.uk).

Many thanks,

Paulina Gonzalez (DClinPsy student)
pgonzalezsalasduhne1@sheffield.ac.uk


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27th April 2018

PARTICPANT INFORMATION SHEET

**Title of Research Project:** Second follow-up after training clinicians to use implementation intentions with their patients

**Name of Researcher:** Paulina Gonzalez Salas Duhne

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 evaluate how acceptable and effective a training workshop is for clinicians on using implementation intentions with their patients, 6 to 9 months after taking part in the workshop.

**Why have I been invited?**

All Psychological Well Being Practitioners (PWPs) who are undertaking the Low-intensity IAPT training at the University of Sheffield and who have taken part in the training session on Implementation Intentions have been invited to take part in this study.

The reason why we are asking participants to complete a second follow-up, is that many participants had not begun seeing patients by the time they completed the initial one-month follow-up and hence had not had the opportunity to use implementation intentions with their patients.

**Do I have to take part?**

No, your participation in this study is completely voluntary. If you choose to participate you are free to withdraw at any point without giving a reason, and any data collected will be destroyed.

**What will happen to me if I take part?**

If you choose to take part in this research, then you will be asked to complete a short questionnaire, which is exactly the same as the follow-up questionnaire you had previously been

asked to complete. I will ask how many patients you have been seeing and how many of those you have used implementation intentions with. In addition, I will inquire about potential helpful aspects and barriers you have encountered in your clinical practice.

**What are the possible benefits of this research?**

You may reflect about your use of implementation intentions in your clinical practice, which research suggests might help your patients to achieve 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 and use on implementation intentions. You may potentially find this uncomfortable. However, your answers will be completely confidential and will not have any impact on your course. You're free to withdraw at any point.

**What will happen to my data and the results of the study?**

The information from the questionnaires will be treated in strict confidence through a code we will ask you to generate. The code will only be used to link your current responses to your previous responses. All data will be kept securely in a password-protected computer and deleted at the end of the study. The anonymized data will be written up as part of my doctorate and may be published in a scientific journal.

**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. You can request this by sending an email to the researcher with the code you developed. If you make such request, any data collected will be destroyed.

**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 (pgonzalezsalasduhne1@sheffield.ac.uk). If should you prefer to call, please do so via the Research Support Officer at (0114 2226650) who will relay the message to Paulina and she 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 University's Registrar and Secretary Dr Andrew West, Email: registrar@sheffield.ac.uk, Telephone: *0114 222 1051.*

This proposal has been reviewed and approved by the Research Ethics Committee in the Department of Psychology at the University of Sheffield (reference number 012149).

## Informed Consent

**Title of Research Project:** Second follow-up to training clinicians to use implementation intentions with their patients

**Name of Researcher:** Paulina Gonzalez Salas Duhne

Please tick the boxes if you agree with the following statements:

I confirm that I have read and understand the information sheet dated 27th April 2018 explaining the above research project and that I have had the opportunity to ask questions about the project. ☐

I understand that my participation is entirely voluntary, and that I am able to withdraw my participation and consent at any point without consequence. If I wish to do so, I will email the researcher to request this, using the code that I give next. ☐

I understand that the information that is collected during this study will be kept strictly confidential. I give permission for members of the research team to have access to my anonymised 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. ☐

I agree to take part in the above research project.

| _____ | _____ | _____ |
|---|---|---|
| Name of Participant | Date | Signature |
| _____ | _____ | _____ |
| Lead Researcher | Date | Signature |

## Appendix N. Study 2. Questionnaires for training TPWPs

### Pre-training

### If-Then Planning Training Questionnaire

Thank you for agreeing to take part in this research. So that we can match your responses now to those you provide later on, please create a code that will enable us to find your data without asking for your name.

Please write the first two letters of your mother's maiden name, the day of the month you were born, and the first two letters of your father's given name.

For example, if your mother's maiden name was "Smith", you were born on the 28th of the month, and your father's name was "John", then your code would be SM28JO.

**Please write your code here** _____

**Part I.**

1. How old are you? _____ years ☐ Prefer not to say

2. What is your gender?

☐ Female

☐ Male

☐ Non-binary

☐ Prefer not to say

3. How long have you been delivering psychological interventions to patients?

_____ years _____ months

4. What is the highest level of education that you have completed?

- ☐ Bachelor's Degree
- ☐ Post-graduate Diploma
- ☐ Master's degree
- ☐ Doctoral degree (i.e. PhD, DClinPsy)
- ☐ None of the above. Please specify _____

**Part II.**

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?

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| I have no idea what forming an ‘if-then’ plan involves. | | | | | | | | | I have full knowledge of what an ‘if-then’ plan involves. | |

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

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 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 | |

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

_____ patients

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

_____ patients ☐ I don’t know

**Part III.**

Please tick ☑ one response in 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

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

☐ The predecisional and postactional ☐ The preactional and actional

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.

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

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

**Part IV.**

Please imagine that you are the PWP treating the patients in each of the following descriptions. Then answer the questions below.

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.

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.

Carol experiences panic attacks in 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:

_____

_____

**Please stop here.** You will be asked to complete the rest of the questions after the training.

**Part V. Post-training**

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

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

☐ The predecisional and postactional ☐ The preactional and actional

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.

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

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

**Part VI.**

Please imagine that you are the PWP treating the patients in each of the following descriptions. Then answer the questions below.

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.

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

Carol experiences panic attacks in 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:

_____

_____

**Part VII.**

The following questions focus on your impressions of the training session.
For each question, please circle the response that best expresses your opinion.

PLEASE CIRCLE ONE ANSWER.

1. Overall, how satisfied are you with the training?
Not at all A little Quite a lot A great deal

2. Did the training cover the topics that it set out to cover?
Not at all A little Quite a lot A great deal

3. Did the training facilitator relate to the group effectively?
Not at all A little Quite a lot A great deal

4. Was the training facilitator motivating? (e.g., energetic, attentive, and creative)
Not at all A little Quite a lot A great deal

5. Did the training improve your understanding of if-then planning?
Not at all A little Quite a lot A great deal

6. Did the training help you to develop the skills necessary to use if-then planning in your clinical practice?
Not at all A little Quite a lot A great deal

7. Has the training made you more confident in your skills as a clinician?
Not at all A little Quite a lot A great deal

8. Do you expect to make use of what you have learnt in the training?
Not at all A little Quite a lot A great deal

9. How competent was the training facilitator?
Not at all A little Quite a lot A great deal

10. Do you think that the training could result in disruption or harm to patients?
Not at all A little Quite a lot A great deal

What were the most helpful aspects of the training for you?

_____
_____
_____

What changes, if any, would you recommend? (e.g., content or delivery of the training)

_____
_____
_____

Do you have any other comments?

_____
_____
_____

**Part VIII.**

Below are a series of statements, please circle 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.

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| *Not at all useful (0)* | | | | | | | | | | *Extremely useful (10)* |

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

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| *Not at all confident (0)* | | | | | | | | | | *Extremely confident (10)* |

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

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| *Strongly disagree (0)* | | | | | | | | | | *Strongly agree (10)* |

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

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

_____@_____

**Thank you for your participation!**

If you wish to withdraw from this research at any time, then please email the researcher before the 10th December 2017 and provide the anonymous code that you created at the start of the questionnaire.

**One-month and six-months follow-up questionnaires**

## If-Then Planning Training

## Follow-up Questionnaire

Thank you for taking the time to complete a short follow-up questionnaire.
Do you remember a session you had about 'if-then' planning on (date)?

☐ Yes ☐ No

If you have selected **YES**, please continue on the **next page**.

If you selected **NO**, please **read** the text **below**.

Paulina Gonzalez facilitated a session on 'If-Then' planning (also known as implementation intentions) on (date, time, place). The session was part of the training course for Psychological Well-being Practitioners (PWPs) from the (specific) Cohort.
Forming if-then plans helps patients achieve their goals. The session was a training workshop for PWPs on what are if-then plans, and how to use them with patients.

During the session, all PWPs were asked to complete a questionnaire before and after training. Paulina, the facilitator, explained we would also be asking you to complete a follow-up questionnaire.

Do you remember taking part in this training session about 'if-then' planning?

☐ Yes ☐ No

If you have selected **YES**, please continue on the **next page**.

If you selected **NO**, you have indicated you do not remember taking part in the training session about 'if-then' plans delivered by Paulina Gonzalez (date). Hence, **you do not need to complete the rest of the questionnaire**.

Thank you for your time.

Thank you for agreeing to take part in this research. So that we can match your responses now to those that you provided before, please create the same code as before. This will enable us to find your data without asking for your name.

Please write the first two letters of your mother's maiden name, the day of the month you were born, and the first two letters of your father's given name.

For example, if your mother's maiden name was "Smith", you were born on the 28th of the month, and your father's name was "John", then your code would be SM28JO.

**Please write your code here** _____

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

☐ Yes ☐ No

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

_____ patients (write down the approximate number)

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

_____ patients (write down the approximate number)

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

_____ patients ☐ I don't know

5. Case Vignette. Next, we would like to ask you to think about how you might respond to a potential scenario that you might encounter with one of your patients.

*Imagine you're treating Leah, a client with mild depression. You're trying to help Leah using behavioural activation. During your sessions together, you prompt Leah to use if-then plans to help her achieve her goal of engaging in more activities.*

Please write below an if-then plan that would be helpful for your patient Leah.

_____
_____
_____

6. Have you encountered any barriers to using if-then plans? ☐ Yes ☐ No

If yes, please explain:

_____
_____
_____

7. Is there anything that would have helped you form 'if-then' plans with your patients more often? ☐ Yes ☐ No If yes, please explain:

_____
_____
_____

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

_____
_____
_____

**Thank you for your participation.**

## Appendix O. Study 2. Detailed Thematic Analysis Methodology

The responses from all open-ended questions at post-training, one-month follow-up and six-months follow-up were analysed using thematic analysis. Thematic analysis is a qualitative method that aims to identify, analyse, organize, interpret and report patterns (i.e., themes) in the data (Clarke & Braun, 2017). This methodology was selected because it provides systematic, in-depth and intricate interpretations of the data (Clarke & Braun, 2017).

The epistemological position adopted was that of an essentialist/naïve realist, which assumes there is a reality in the data and the researcher's role is to discover and report the experiences and the meanings of the phenomenon (Braun & Clarke, 2006). While this position has important limitations from a social constructivism perspective (Madill, Jordan, & Shirley, 2000), it was chosen given the narrow nature of the questions and the need to understand from an 'objective', inductive and data-driven perspective of the participants' experience of training in order to generate concrete recommendations for future training sessions.

The author undertook the thematic analysis process following the six phases outlined by Braun and Clarke (2006). During the first phase, to gain familiarity with the data, the data was read several times, and initial ideas regarding patterns and meanings were written alongside. The data did not require transcription since it was collected directly in a written from. At this stage, the responses from all participants were analysed separately per question or comments section, as this was the way the data was originally collected.

During phase two, initial codes were generated from the ideas developed in phase one, allowing as much as possible for codes to emerge from the data. Coding was done manually, aiming to code the entire data set in-line with a data-driven approach,

giving equal attention to each comment, with at least one code per comment and often identifying several codes per comment (Appendix P).

During phase three, the codes were analysed and collated into potential themes. An initial map was constructed with different levels and relationships between themes. The main themes that emerged at this phase were: the engaging, active and clear facilitation method; the novelty of the technique; the wrong timing of training; and the need for more practice.

During phase four, the potential themes collated were reviewed and refined by checking them against the codes and then back with the original data set. It became evident when comparing the themes with the codes that large overlap existed across questions. Hence, the researcher decided to collate consistent themes across questions. This decision allowed themes to gain further internal homogeneity and external heterogeneity, which Patton (1990) suggested is ideal in thematic analysis. The decision was then made to define two overarching themes: helpful aspects of training, and aspects in need of improvement. These two overarching themes were directly consistent with the original overall aims of the research, which were to evaluate what participants found helpful and how the training could be improved. Level two themes were also generated creating a hierarchical thematic map, and then all themes were compared with the entire data to see if they represented a coherent pattern. The data set was reread several times and the consistency and relationship between themes was revised. Incoherent themes or those that did not fit the actual data were reworked or discarded, until a coherent map that fitted the actual data was constructed. The overall map with due interpretation of what participants found helpful and what participants thought needed improvement was organized into meaningful clusters by the end of this phase. The map in Figure 4 and 5 depicts those themes and sub-themes, although their name and definition was worked on further in phase five.

During phase five, the aim was to identify the essence of each theme, to define, refine and name coherent themes with detailed analysis, subthemes, and how they relate to one another. Attention was also drawn at ensuring the data was interpreted, beyond describing or paraphrasing the data. Three main subthemes emerged from each theme. Towards the end of this phase, the thematic map shown in figure 4 and 5 was nearly finalized.

During phase six, the aim was to produce the final analysis and report found in Appendix Q. Several data extracts were chosen which captured the essence of the theme/subtheme. The analytic narrative sought to make sense of the research data, and provide enough interpretative analysis to guide future training sessions. Finally, due to space constraints, a summary of the final report (Appendix Q) can be found in the results section.

## References

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*, 77-101. doi:10.1191/1478088706qp063oa

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Madill, A., Jordan, A., & Shirley, C., (2000). Objectivity and reliability in qualitative analysis: Realist, contextualist and radical constructionist epistemologies. *British Journal of Psychology*, *91*, 1-20. doi:10.1348/000712600161646

Patton, M. Q. (1990). *Qualitative Evaluation and Research Methods* (2nd ed.). Newbury Park, CA: Sage.

## Appendix P. Study 2. Participants' comments verbatim

Removed for confidentiality reasons

## Appendix Q. Study 2. In-depth thematic analysis

**Helpful aspects of the training.** From the 69 participants who completed the questionnaires, 58 responded to the question about what aspects of training were the most helpful for them. Using thematic analysis (Braun & Clarke, 2006), four distinct themes were identified about what participants found helpful: providing and demonstrating a variety of realistic examples; learning the theory and practice about a useful and novel technique and integrating it into my clinical practice; engaging and clear facilitation with helpful materials; and constructing implementation intentions in my personal life before using them in my clinical practice.

*Providing and demonstrating a variety of realistic examples.* Twenty-eight of the 58 participants explicitly mentioned the examples given were helpful, particularly the role-play. Participants expressed the use of organized diverse examples aided their learning: (it was helpful) 'looking at different examples and situations', 'in different contexts', 'different situations', and 'broken down into categories'. In addition, the role-play where the facilitator enacted as the PWP and a student as the patient as well as the role-play where the participants themselves enacted a role-play amongst themselves seemed to be highly valued. Participants thought the facilitator's demonstration reflected some of the complexities of real life clinical work with patients. '(It was helpful) watching the demonstration between patient and PWP on how to collaboratively form implementation intentions'. 'The example role play of how to use implementation intentions was realistic and in the face of difficulty'; '(it was helpful) seeing if-then in action' 'in understanding the technique'. Subsequent role play between participants helped 'putting into practice what I've learnt'.

*Learning the theory and practice about a useful and novel technique and integrating it into my clinical practice*. Participants expressed they profited from learning both about the existence of a technique they had not heard of before, and also

from learning about what if then-plans are and when and how to use them in their clinical practice. Participants expressed a positive regard for implementation intentions themselves, as a useful tool for them 'the concept of if-then (was helpful)'; 'I loved acquiring a new tool to use that is very simple'; 'really good and useful, I'm looking forward to using this in practice'. Participants also reflected it was helpful 'learning what if-then is', '(having) an overall introduction to this technique', 'knowing when implementation intentions can be applied', '(learning) a step-by-step of how to undertake the implementation intentions in practice' and simply 'all of it'.

Participants made a direct link between the information about implementation intentions and their clinical practice as a PWP. The integration of this technique into their regular practice was perceived as valuable for them and for their patients. '(It was helpful to) understand how it could be utilized into a PWP session', 'looking (at) how the tool could complement my work' and '(it helps me to know) how to engage my patients in achieving their goals and more tools for overcoming barriers'; 'I can see myself using the if-then technique'. Some participants also mentioned having wider reflections about their clinical practice related to barriers of goal achievement. '(It was helpful) learning about behaviour change and barriers to this' and 'considering realistically how difficult it is for patients who are low in mood to be motivated'.

*Engaging and clear facilitation with helpful materials*. Over a third of the participants expressed positive feedback with regards to the facilitator, particularly the way the facilitator related interpersonally with the group seemed to promote interest in and learning of the technique. '(The) instructor was engaging and funny, so (I) felt I took more in'. 'The facilitator was relatable and made the theory easy to understand'; 'she explained everything well'. In addition, some participants mentioned the facilitator's felt passion with regards to the topic helped with engagement. 'I enjoyed your motivation in this topic.' Finally, the clarity and easy to understand explanation

and the materials further facilitated learning the technique and using it in clinical practice. ‘The trainer was very clear and easy to understand’, ‘well explained, clear model, good slides’; ‘the worksheet titled ‘how to form implementation intentions’ was really useful and something I could use with a patient’.

*Constructing implementation intentions in my personal life before using them in my clinical practice*. Participants thought that creating implementation intentions in their own personal lives first before explaining the clinical application was helpful to understand both the technique and their patient’s experiences. ‘(It was helpful) applying if-then statement in our lives to help our understanding’. ‘Creating our own implementation intentions for personal situations, as we could understand how it feels for a patients’.

**Recommended changes to training.** Using thematic analysis (ref), X distinct themes were identified about what participants recommend changing:

*Wrong timing of the training: not before seeing patients or after a major exam!* Participants from one cohort had begun seeing patient for assessment –where implementation intentions is not appropriate-, but not yet for treatment –where implementation intentions is appropriate. The majority of the participants from this cohort expressed that training would have been more appropriate later on in their course, once they had been taught the treatment options and had begun seeing patients in treatment. ‘This lecture would have been much more helpful after we had learnt and implemented behavioural activation techniques’, ‘(I recommend to) deliver training when PWP have already started seeing patient as (they) would be able to relate better’.

Participants also had a major exam the day before called OSCE, which consisted in a video-recorded role play of a psychology assessment with an actor. Understandably, participants were feeling fatigued and were less willing to take part in role-plays. ‘We were all feeling drained after OSCE practice’; ‘(I recommend) possibly

not (having the training) the day after a major exam'.

*Better pacing: less explanations and more practice.* Participants thought the initial part of the presentation, including the housekeeping and explanation of the theory was too long, and wished that time had been invested in further practice. 'Pace (was) a little slow', '(training was) a little drawn out in places, concept is quite simple but took a long time to cover'. Participants mainly expressed wanting more practice of role-plays amongst themselves, to have a go at the new technique. '(I recommend a) presentation better paced, so that we had more opportunity to practice role-plays', and '(I recommend) more chance to try it out under supervision'.

*More embedded in PWP's routine clinical practice.* According to participants, the training would benefit from further integrating implementation intentions into PWP's training and their usual clinical practice. For example, participants mentioned '(training) feel like it doesn't fit was well with PWP as other areas?'; '(I recommend giving) examples of a PWP using it at specific points in therapy'. In addition, some participants expressed their concern over having very strict time limitations and having to fit one more thing (implementation intentions) into an already overwhelming session. '(training is) not relatable to PWP time constraints'; 'I like the concept but I worry as we only have 45 minutes' 'if the patient struggles like in the role play, I would run over time significantly'. Perhaps participants would have benefited if the facilitator had further knowledge PWP training and clinical practice looked like on a daily basis, and had catered the role-play to PWP time constraints and other demands.

**Barriers to implementing implementation intentions**. There were three main themes about what barriers participants encountered to using implementation intentions were: (a) wrong timing, I haven't had the opportunity to use implementation intentions; (b) I'm unsure how: I lack the confidence and clarity in the theory and practice to implement implementation intentions; and (c) lack of fit with PWP training and

competing demands.

*Wrong timing: I haven't had the opportunity to use implementation intentions.* The same concern expressed previously was mentioned: some participants had not begun seeing patients yet and hence had not been able to use the technique. 'I have been doing assessment with patients, so it would not be appropriate to do implementation intentions'. Some participants also expressed their enthusiasm for using implementation intentions, alongside their explanation that they hadn't had the opportunity to use them: 'I feel really sorry that your training came too early in our programme, I like the implementation intentions but haven't started seeing patients yet'. The concern about not seeing patients yet was only expressed during the first follow-up.

*I'm unsure how: I lack the confidence and clarity in the theory and practice to implement implementation intentions.* At both follow-ups participants mentioned not using this technique due to not feeling like they had enough knowledge and abilities to use it well (or having used it and feeling it wasn't good enough) or feeling like patients were not convinced about the technique. '(I) don't feel confident I remembered it well-enough to use'; 'I don't understand it enough' 'It's a bit clunky when doing it with patients' and 'patient felt it was unnecessary'. Some patients even mentioned that perhaps as they become experienced they will gain the confidence to implement implementation intentions: 'I really like the implementation intentions and have use it myself (personally) maybe as time goes on when I am more experienced in the new treatments I am currently learning; I will be able to incorporate this into my treatments.'

*Lack of fit with PWP training and competing demands.* Similar to a previous theme about what was unhelpful, participants reported that the nature of time-limited and highly structured PWP sessions posed significant demands on the trainees, where implementation intentions was at times one more demand they were unable to fit in. '(A barrier to use implementation intentions was) the prescriptive nature of our treatments

and limited time in which we have to offer them'; 'maybe (there is) not enough time in sessions'. '(There is) too much else to fit in session, leaving so many new techniques and things for sessions it is hard to remember or include them all'. Some patients rightly mentioned this training was also not the established PWP curriculum or embedded into the overall training, like having handout, prompts to remember to use them, and supervision on this. For example, 'It (implementation intentions) is not on our curriculum and therefore might also be considered as drift in our service'.

**What would have helped to implement implementation intentions more often**?

*More practice, information, and materials*. Participants commented they wanted more practice at helping patients form implementation intentions, more information mainly in the form of worksheets and materials that could prompt them and their patients to use implementation intentions. '(It would he helpful to) practice more'; 'I need more info on creating statements'. '(It would be helpful to have) worksheet/cards that they can look at when outside of the sessions.' Participants also mentioned the need to have prompts in materials to incorporate this technique: '(It would be helpful to have) a prompt in my goal review sheet'.

*Embed implementation intention into training and regular practice*. Participants mentioned implementation intentions was not a key component on the course or integrated into their usual clinical practice. Participants expressed feeling overwhelmed with the many components of training, and needing more time and resources to use this technique effectively. '(Implementation intentions) wasn't (on) our competency scale of what was absolutely needed in session'. '(I) would benefit from (…) feedback in supervision'. 'Having it as a key component of PWP treatment planning taught on the course'; '(having) more time in sessions'. Particularly in the second follow-up participants expressed the problem of forgetting to use implementation intentions,

despite their enthusiasm and the perceived usefulness of this technique. ‘I just forgot about using implementation intentions, we have so much to remember it just went from my memory! I like the technique though and see how it could be helpful.’

**Further comments.** There was one additional theme in the comments section that did not fit into either of the questions presented above: usefulness of the technique.

*Usefulness of the technique*. Participants mentioned times they had used implementation intentions and it had been helpful for particular situations such as: personalizing the activity for the patient, overcoming barriers, creating safety plants, looking for opportunities to accomplish a goal, increasing the likelihood a patient engaged in an activity, and motivating patients undergoing behavioural activation. ‘I have found implementation intentions a simple but effective way of increasing the likelihood a patient engages in something’. ‘I think it’s very useful and powerful from a patient’s perspective to use implementation intentions as it personalises the activity to the patient.’