Distress, Wellbeing and Mindfulness Amongst Mental Health Professionals

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Submitted for the Doctorate in Clinical Psychology

University of Sheffield

May 2017

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Declaration

I declare that this work has not been submitted for any other degree at the University of Sheffield or any other institution. This thesis is my own original work and all other sources have been referenced accordingly.

Word Count

Literature Review

Excluding references: 7, 999

Including references and appendices: 11,526

Research Report

Excluding references 11,518

Including references and appendices: 17, 667

Total

Including references and appendices: 29,443

Abstract

Research has indicated that levels of distress and wellbeing amongst qualified and trainee mental health professions are poor. This thesis sought to explore the factors that may contribute to distress as well as increase understanding about how mental health professionals can be supported.

A meta-analysis was conducted on 15 studies to assess the effect of mindfulness-based interventions on reducing distress and improving wellbeing and mindfulness amongst mental health professionals. Further, traditional mindfulness-based interventions were compared with adapted versions with regards to changes in distress and mindfulness. The relationship between variation in number of intervention hours and distress and mindfulness was also assessed. Mindfulness-based interventions had positive effects on all outcomes. Intervention type (traditional or adapted) and variation in intervention hours did not relate to distress or mindfulness. Methodological limitations are considered. Recommendations for clinical practice and future research are considered.

The empirical chapter reports the findings from a longitudinal within-subjects study with 259 trainee therapists ('Trainee Clinical Psychologists', 'High Intensity, Improving Access to Psychological Therapies' (IAPT) trainees and 'Psychological Wellbeing Practitioners' trainees) in the United Kingdom. The study assessed whether attachment orientation (anxious and avoidant), coping approach (suppressive and reactive) and/or mindfulness related to distress over time. Additionally, the study examined whether coping approach and/or mindfulness mediated the relationship between attachment orientation and distress over time. All variables were related to each other. In the mediation analysis, only reactive coping mediated the attachment-distress relationship. Limitations of the research are discussed. Further, clinical implications are explored along with future research recommendations.

Acknowledgments

I would like to thank my supervisors, Dr. Lisa-Marie Emerson and Dr. Abi Millings for their support and input throughout the project. I would also like to thank Dave Saxon for his statistics advice. Thank you also to all the individuals who participated in this project!

I would also like to thank my family and friends for the patience, kindness and support throughout training. Special thanks to all my friends on the course - I could not have done it without you all!

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Literature Review

Do Mindfulness-Based Interventions Reduce Distress and Improve Wellbeing and Mindfulness Amongst Professionals Working in Mental Health Contexts?

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Abstract

Objectives. The meta-analysis aimed to assess the effectiveness of mindfulness-based interventions (MBI) for reducing distress, improving wellbeing and mindfulness in mental health professionals (MHPs). Additionally, it sought to identify the effect of MBI type (traditional vs. adapted versions) and variation in intervention hours on distress and mindfulness.

Method. A systematic search of databases was conducted. Inclusion criteria were applied (e.g., studies were required to have implemented 'mindfulness based cognitive therapy', 'mindfulness based stress reduction' or adapted versions). Random-effects meta-analyses, subgroup and correlational analyses were conducted.

Results. Fifteen studies met the inclusion criteria. Separate meta-analyses were conducted to assess distress (n = 9 studies), wellbeing (n = 5 studies) and mindfulness (n = 14 studies). Results indicated that there were significant effects favouring MBIs compared to a control (no treatment or an active treatment) for all outcomes. Subgroup analysis with distress and mindfulness showed that neither intervention type nor number of intervention hours were significantly associated with the outcomes' effect size.

Conclusion. MBIs may be an effective intervention for reducing distress and improving wellbeing and mindfulness amongst MHPs. Additionally, traditional and adapted MBIs are likely to be comparably effective. Current results indicate that reducing intervention hours still produced good outcomes. Nevertheless, results are considered in relation to methodological issues. Further, research recommendations are made.

Practitioner points.

- MBIs may be an effective intervention that could be offered to support MHP
- Organisations could possibly consider using adapted MBIs with reduced intervention hours.

Limitations.

- Analysis indicated that publication bias was likely for studies reporting the mindfulness outcome. Further, there were not enough papers to assess publication bias for studies reporting the distress and/or wellbeing outcomes.
- Few studies used a randomised control trial with an active control, potentially inflating the reported effect size for each outcome.

Introduction

In the United Kingdom (UK), workplace health is becoming increasingly recognised as a significant public health issue (National Institute for Health and Care Excellence, NICE, 2009, 2015). Policies and guidelines (National Health Service, NHS, 2009, 2011) have also specifically recommended greater consideration of mental-health professionals' (MHPs) distress and wellbeing at work. Qualified or trainee MHPs are defined here by their profession (e.g., psychologist, psychiatrist, therapist, mental health support worker, social worker or nurse) and/or work activity in relation to mental health (i.e., directly supporting individuals with mental health concerns). 'Distress' is conceptualised using an adapted version of the tripartite model (Clark & Watson, 1991; Henry & Crawford, 2005). The model proposes that because measures of anxiety, depression and stress have limited discriminant power, these variables reflect an underlying construct of 'negative affectivity' or 'distress'. Existing research (Butler, Carello, & Eugene, 2017; Moore & Cooper, 1996) indicate that as a result of their work, trainee and qualified MHPs are at increased risk for distress.

Previous research has commonly operationalised MHPs' wellbeing as the absence of distress (Koller & Hicks, 2016). However, this conceptualisation has been challenged. Two approaches dominate the field regarding the definition of wellbeing (Zessin, Dickhauser, & Garbade, 2015). These are: "subjective wellbeing" (Diener, 1984), the cognitive evaluation of life and positive affect; and "psychological wellbeing" (Ryff, 1989), the realisation of one's potential (e.g., life meaning). Here, wellbeing is considered to be a multi-dimensional construct incorporating aspects of either subjective or psychological wellbeing (Diener, 2009). Of the limited studies available (e.g., Heponiemi, Aalto, Puttonen, Vänskä & Elovainio, 2014; Pakenham 2015), evidence indicates that MHPs experience low levels of wellbeing.

The high level of distress and poor wellbeing reported amongst MHPs may have a high personal cost, but also adversely effect team functioning (i.e., increased sickness absence, high staff turnover). Additionally, MHPs capacity to empathise, make decisions and deliver client-centred care may be impaired (Escuriex & Labbé, 2011; Pakenham & Stafford-Brown, 2013). However, despite the potential implications of MHPs' distress and low wellbeing, self-care has been presented as an individual responsibility (Chambers-Christopher, Christopher, Dunnagan, & Schure, 2006; Theriault & Gazzola., 2006). Additionally, organisational support mechanisms aimed at managing MHPs difficulties (e.g., supervision, continuing professional development) may vary based on specific occupation or work culture (Jones, Wells, Gao, Cassidy & Davies., 2013). There appears to be a need for the widespread introduction of effective interventions (Pakenham & Stafford-Brown, 2013).

Effective interventions should emerge from a theoretical understanding of why MHPs experience difficulty. Two dominant theoretical approaches provide an explanation for workplace distress and wellbeing (Mark & Smith, 2011): the 'demands-control-support' (DCS) model (Karasek & Theorell, 1990) and the 'effort-reward imbalance' (ERI) model (Siegrist, 1996). Both models propose that when a job is demanding or effortful and exceeds support, feelings of control and/or rewards then distress and poor wellbeing are likely. MHPs' work is demanding, involving high caseloads, complex clients, long hours and working in emotionally demanding environments. MHPs are often required to make high-risk decisions whilst also responding compassionately (Burton, Burgess, Dean, Koutsopoulou & Hugh-Jones, 2016; Moore & Cooper, 1996). Further, MHPs may have little opportunity to elicit social support (e.g., there may be difficulties and tensions due to multi-disciplinary team working). Control may vary by occupational grade and/or organisational structure. Additionally, rewards may be deemed low, particularly in the current economic climate

(e.g., service re-configurations, limited resources) (Rössler, 2012). However, DCS and EMI models primarily focus on environmental factors (i.e., job characteristics) (Cox, Griffiths, & Rial-Gonzalez, 2000). In contrast, Lazarus and Folkman's (1984) transactional model includes both environmental and individual variables. The model considers that individuals' perception of their environment and the use of effective coping methods are important factors determining distress or wellbeing. Research indicates that healthcare professionals (HCPs) and MHPs show less distress when they either appraise their work environment as non-threatening or use effective coping strategies (e.g., problem-focused strategies involving removing the cause of the stressor) (Gardner, Rose, Mason, Tyler, & Cushway, 2005; Koller & Hicks, 2016; Zeidner & Hadar, 2014). Therefore, effective interventions should focus on either modifying individuals' perception of their environment and/or increasing individuals' capacity to cope effectively.

Mindfulness-based interventions

Mindfulness-based interventions (MBIs) have been considered as one possible intervention to support MHPs (Hede, 2010). MBIs have been applied with a variety of professionals (e.g., teachers, military personnel), with results indicating improvement in distress and wellbeing (Jennings, Frank, Snowberg, Coccia, & Greenberg, 2011; Jha, Stanley, Kiyonaga, Wong, & Gelfand, 2010). Applying the transactional model (Lazarus & Folkman,1984), MBIs may modify the individuals' perceptions of their environment and/or provide effective coping approaches (e.g., problem-focused coping strategies). For instance, mindfulness enhances individuals' willingness to engage with difficult thoughts and feelings. Consequently, mindful individuals may be more likely to use problem-focused coping strategies, which involve addressing rather than avoiding stressful situations (Donald & Aitkins, 2016; Halland et al., 2015).

Mindfulness has been defined as an emerging awareness developed by 'paying attention, on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment' (Kabat-Zinn, 2003, p.145). Individual differences in mindfulness have been found, indicating that mindfulness is an inherent or dispositional trait (Goodall, Trejnowska, & Darling, 2012). However, MBIs aim to train all individuals to relate to their inner experiences by encouraging greater present moment awareness, attention regulation and acceptance, rather than the criticism of one's thoughts and emotional states (Baer, 2006; Chu, 2010).

The most evaluated mindfulness interventions are: 'Mindfulness Based Stress Reduction' (MBSR) (Kabat-Zinn, 1982) and 'Mindfulness Based Cognitive Therapy' (MBCT) (Segal, Williams & Teasdale, 2002). MBSR was developed to support individuals with stress and manage chronic illness, whereas MBCT was developed to prevent depression relapse (Marchand, 2012). MBCT incorporated the MBSR syllabus alongside elements of Cognitive Behavioural Therapy (CBT) for depression (Segal et al., 2002). Both interventions involve an eight weekly structured group format of approximately 2 to 2.5 hour sessions. Programmes may also include a six-hour day-long retreat between the sixth and seventh weekly sessions. Both interventions use didactic material, different meditation techniques (e.g., body scan, walking meditation, yoga poses) and group discussion about experiences. Both encourage substantial formal home practice (approximately 45 minutes, six days a week), as well as informal practice (Chiesa & Malinowski, 2011).

Meta-analyses with non-clinical populations have reported that MBIs reduce distress with a moderate-to-large effect size (de Vibe, Bjørndal, Tipton, Hammerstrøm, & Kowalski. 2012; Eberth & Sedlmeier, 2012; Grossman, Niemann, Schmidt & Walach, 2004). Available meta-analyses indicate that MBIs also improve wellbeing with reported large effect sizes (Eberth & Sedlmeier, 2012). Additionally, increasing

mindfulness may facilitate a reduction in distress and improvement in wellbeing (Gu, Strauss, Bond & Cavanagh, 2015; Nyklíček & Kuijpers, 2008). MBIs may also have effects on an individual's capacity to work therapeutically. For instance, Pereira, Barkham, Kellett and Saxon (2016) have found that therapists higher in dispositional mindfulness were more effective in reducing clients' depression. Meta-analyses with non-clinical populations have demonstrated that MBIs improve mindfulness, with reported effect sizes ranging from small to medium (Eberth & Sedlmeier, 2012; Visted, Vøllestad, Birkeland-Nielsen & Høstmark-Nielsen, 2014).

Traditional MBIs appear to have good evidence in relation to improving outcomes. However, there are practical issues that may preclude their application (e.g., high time commitment required). Consequently MBIs have been modified to address issues with accessibility (Klatt, Buckworth, & Malarkey, 2009). Adapted versions of MBCT or MBSR maintain the core elements of these programmes (i.e., body scans, sitting meditation, breathing exercises, group discussion, formal learning time and home practice) as well as maintaining the basic tenets, such as systematically cultivating non-judgment and present-centered awareness (Bishop et al., 2004). However, structural elements of the programme are modified (i.e. reduced session length, overall duration, and/or recommended home practice time) (Vigili, 2013). There is limited research examining whether adapted MBIs are as effective as traditional programmes in relation to distress, wellbeing, mindfulness (Chiesa & Malinowski, 2011). One exception is Vigili's (2013) meta-analysis. The results indicated that both traditional and adapted MBSR were effective in reducing distress amongst working adults. More specifically, a much-debated issue in relation to the adapted or traditional MBIs relates to reducing session duration (Camody & Baer, 2009). This is of importance, given that long session length may preclude busy professionals from accessing the intervention. Meta-analyses with non-clinical populations have reported both significant (Eberth & Sedlmeier, 2012;

Sedlmeier et al., 2012) and non-significant (Carmody & Baer, 2009; de-Vibe et al., 2012) findings regarding the effect of the number of interventions hours on outcomes. However, there is a paucity of literature considering the effectiveness of delivering MBIs (traditional or adapted) to MHPS. Existing systematic reviews or meta-analyses of non-clinical populations primarily use samples where occupational status is diverse or unknown. Alternatively, a small number of reviews have considered HCPs in general. Three systematic reviews and two meta-analyses of MBIs exclusively focusing on HCPs were identified in the literature (Burton et al., 2016, Escuriex & Labbé, 2011; Irving, Dobkin, & Park, 2009; Khoury, Sharma, Rush, & Fournier, 2015; Lamothe, Rondeau, Malboeuf-Hurtubise, Duval, & Sultan, 2016).

Irving et al. (2009) reviewed studies, which assessed the impact of MBSR and MBSR-based interventions on a range of outcomes (e.g., stress, depression, self-compassion) of health-care clinicians. They concluded MBIs had mental and physical health benefits for this population. Escuriex and Labbé (2011) reviewed studies on MHPs and HCPs separately, the majority of which were qualitative or assessed relationships between dispositional mindfulness and stress. The reviewers tentatively concluded that participation in MBIs improved psychosocial functioning amongst HCPs and specifically MHPs. Lamothe et al. (2016) reviewed studies on MBSR or adapted MBSR programmes with HCPs. Reviewed papers assessed mental health outcomes, mindfulness, empathy and emotional competencies. The reviewers concluded that MBSR and adapted versions were associated with improvements in mental health and mindfulness. None of the three reviews assessed differences in outcome based on intervention type (traditional or adapted MBI). Burton et al. (2016) assessed evidence on the effectiveness of MBIs for reducing stress in HCPs. Five of the seven studies included in the meta-analysis used an adapted version of MBSR. The meta-analysis indicated that MBIs had a moderate effect size on HCPs' stress levels. The authors

therefore concluded that variations in intervention delivery did not impact the outcome. However, no formal analysis was conducted to support this conclusion. In another meta-analysis Khoury et al. (2015) assessed HCPs who accessed MBSR (traditional and adapted). Results showed that MBIs had a medium to large effect sizes on stress, depression, distress, and quality of life. Further, it was found that compared to adapted versions, traditional MBSR showed greater effectiveness on the outcomes.

Each of the reviews described included studies with both MHP and other HCPs. It is not clear whether findings regarding HCPs generalise to MHPs. Indeed, MHPs appear to be particularly vulnerable to distress (Moore & Cooper, 1996) and therefore should be considered separately. Consequently, it is not possible to use the existing reviews to provide specific conclusions regarding MHPs. Further, due to the inclusion of HCPs in general, the reviews did not conduct an exhaustive search specifically for studies with MHPs. Additionally, such reviews were primarily narrative and thus did not quantify the size of the treatment effect on outcomes of interest. To the author's knowledge there is currently no meta-analysis published that has assessed the impact of MBIs exclusively with MHPs. Therefore, the aims are as follows:

1. Identify the effectiveness of MBIs for improving mindfulness, wellbeing and reducing distress in MHPs
2. Identify whether the impact of MBIs on distress, wellbeing and mindfulness vary depending on whether a traditional or adapted MBI is used with MHPs.
3. Identify whether the number of intervention hours are associated with variation in distress, wellbeing and/or mindfulness in MHPs.

Method

Search strategy

To identify relevant literature, three electronic databases (PsychInfo, Scopus One and Web of Science) were searched between 6th June 2016 to 24th October 2016.

Search terms referring to the intervention and population of interest were employed to ensure all relevant articles were obtained. The following search string was used: (Mindfulness AND therapist$ OR Mindfulness AND Counsel$ OR Mindfulness AND 'mental health' OR Mindfulness AND psychologist$ OR Mindfulness AND clinician$ OR Mindfulness AND psychiatrist$). Ancestry searches of the references lists of eligible articles were conducted alongside citation searches for papers that met inclusion criteria.

Selection criteria

Included studies were required to meet the following criteria: applied a mindfulness-based intervention (MBCT, MBSR or adapted version of these programmes); recruited qualified and/or trainee mental health professionals; quantitatively assessed outcomes (distress, wellbeing and/or mindfulness); used a within-subject or between-group study design; reported means, standard deviations and sample sizes (or authors were able to provide this data); reported original empirical studies using the English language.

Study selection

The search yielded 5,239 articles. An additional article was found through ancestry search. After removal of duplicates, 3506 unique articles remained. Titles of the remaining records were subjected to the inclusion criteria and a further 3393 articles were removed. Abstracts were obtained for 113 articles and a further 67 articles were considered ineligible. Forty-six full-text articles were retrieved and subjected again to the inclusion criteria. Fifteen papers met the inclusion criteria for this review. Figure 1 shows the full details of the selection process.

Quality assurance

The purpose of assessing the quality of selected papers was to ensure that design issues were appropriately considered. Consequently, such consideration enabled insight

into the strengths and weakness of the body of literature to support future systematic reviews and meta-analyses. Therefore, the quality assessment was not used as a tool to exclude studies. The quality rating scale developed by Downs and Black (1998) was adapted for the purposes of this review. In accordance with other studies (Samoocha, Bruinvels, Elbers, Anema, & van der Beek, 2010), the scoring for item 27 was simplified to award either one point or zero points, depending on whether the authors had reported that the study was sufficiently powered. As a result of modification, quality scores could range between zero to twenty-seven. Cut-off points were adapted for this study and were as follows: excellent (25–27), good (19–24), fair (14–18) and poor (≤13). Two papers were rated 'poor', nine studies were rated as 'fair' and three studies were rated as 'good'. Six studies (40%) were rated by a peer researcher. To establish inter-rater reliability, intraclass correlation co-efficicent (ICC) estimates and their 95% confident intervals were calculated using a 2-way mixed-effects model in SPSS (version 24) (Koo & Li, 2016).

In order to assess whether paper quality was associated with significant effects, the rated quality of each paper and its effect size was correlated.

Data extraction

Data were extracted from the original reports on study location, design, control condition type, sample size, attrition rates post-intervention, participant characteristics, including age, gender and profession. Additionally, data were extracted on outcome measures used and findings. Further, type of mindfulness intervention, intervention duration in weeks, number of in-class hours, instructor qualification, at-home practice recommendation were extracted, if these details were provided.

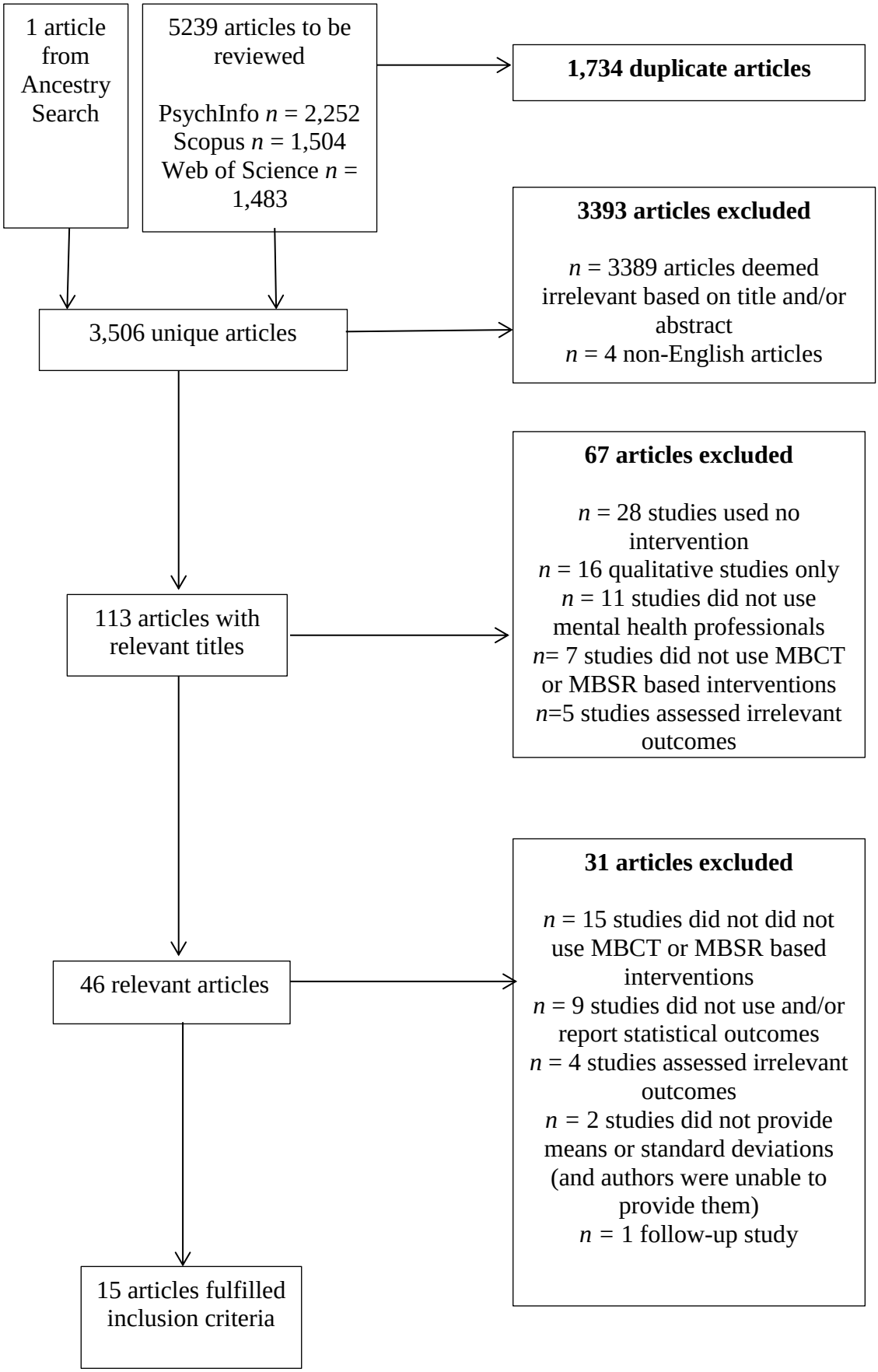

Figure 1. Prisma Diagram.

Meta-analysis

A meta-analysis is a statistical technique that allows results from individual studies to be combined to give an overall measure of the effect of one treatment (Blundell, 2014). Three meta-analyses were conducted to assess the effect of MBIs on the outcomes of distress, wellbeing and mindfulness.

Self-report measures of distress, wellbeing and mindfulness were included as dependent variables in the meta-analysis. All studies employed only one measure of mindfulness. However, distress and wellbeing are considered here, as latent constructs indicated by specific variables. That is, the included studies measured stress, anxiety, negative affect and/or depression, all of which are theoretically indicative of distress (Clark & Watson, 2001). The studies also measured positive affect, life satisfaction, quality of life, sense of self, all indicative of wellbeing. Consequently, measures assessing different variables of distress or wellbeing were combined together for the meta-analyses. Indeed, it is common practice amongst existing meta-analyses on the effectiveness of MBIs to combine measures of different variables, which theoretically assess the same underlying construct (e.g., Bohlmeijer, Prenger, Taal,.& Cuijpers, 2010; Grossman et al., 2004; Virgili, 2013). However, four studies employed multiple measures of distress. To prevent Type I error, only one measure per study was selected (Blundell, 2014). Further, to facilitate comparison the most common outcome measure (stress) across all studies was selected for analysis. However, one study with multiple measures did not assess stress. In this case, the measure chosen was the most psychometrically robust (‘state anxiety’). Regarding wellbeing, three studies employed multiple measures. There was no principal measure across all studies, therefore, the measure with most robust psychometric properties was chosen for inclusion in the analysis (‘satisfaction with life’). The decision to select a specific measure based on the

most common measure used or most psychometrically robust is common (Card, 2012; Goyle et al., 2014).

Means, standard deviations and sample sizes were collated from all papers. Where authors reported only means and standard errors, the standard deviation was calculated using the following formula: $SD = SE\sqrt{(n)}$ (Thalheimer & Cook, 2002). Additionally, in one study (Spragg, 2011), only subscale scores were provided. Consequently to obtain a total score, the subscale means were divided by their standard deviation and then averaged. When data was not reported, authors were contacted for the information.

The meta-analysis was conducted using Review Manager (RevMan)(Version 5.3, The Cochrane Collaboration). For 10 studies, within-subject effect sizes were calculated as the difference between pre-treatment and post-treatment scores. For five studies, between-group effect sizes were calculated as the difference between MBI and control groups post-treatment. Specifically, where studies used a within-subject design, the pre-intervention scores were used as the control data (i.e., no active treatment). Where studies used a between-group design, scores from the MBI group were compared with the control group (i.e., active or no active treatment) post intervention. It is acceptable to use results from different study designs in the same meta-analysis (Borenstein, Hedges, Higgins, & Rothstein, 2009). Effect size estimates were pooled across studies to obtain a summary statistic. Effect size estimates were calculated using a random-effects model rather than a fixed-effects model. This approach was used as it provides a more realistic estimate of the pooled mean effect size by preventing strong assumptions about the population (Borenstein et al., 2009). Effect sizes were expressed using Hedges's *g*, which includes a correction for bias due to small sample sizes (Hedges & Olkin 1985). The effect size reflected the degree of change at the end of the intervention or follow-up. The magnitude of the effect size may be interpreted

according to Cohen (1992) as small (≤0.20), medium (0.50) or large (≥0.80). For the outcome of distress, a positive effect of MBIs was represented by a negative effect size. For the other outcomes (wellbeing and mindfulness) a positive effect of MBIs was represented by a positive effect size. Additionally, the 95% confidence interval was computed, which reflects the precision of the mean effect size. The threshold for statistical significance was an alpha value of 0.05, based on statistical norms found in the majority of research published (Borenstein et al., 2009).

Subgroup meta-analyses were pre-planned based on existing literature. The analysis sought to explore whether MBI type (traditional or adapted) has a differential impact on outcomes. Again, due to small sample sizes the significance level for the tests of homogeneity were increased to $p<.10$ (Higgins & Green, 2011). Correlational analysis using Pearsons *r* in SPSS (version 24) was pre-planned, based on the literature. Where data was available, the number of intervention hours and the effect size for distress or mindfulness were correlated. This is a common approach used in the literature (Camody & Baer, 2009; Card, 2012). It was not possible to conduct the additional analyses for wellbeing as there were not enough studies in the adapted MBIs subgroup (Blundell, 2014).

Analysis of statistical heterogeneity

Heterogeneity was assessed with the Q and I^2 statistics (Higgins & Thompson, 2002). A significant Q value indicates the presence of more heterogeneity of effects than can be accounted for by sampling error. This test has low power when a meta-analysis contains a small number of studies; therefore, in this meta-analysis, where $k<10$, a *p*-value of .10 was used (Higgins & Green, 2011). The I^2 statistic indicates the proportion of the total variance that is due to between-study variance rather than to sampling error. I^2 values may be interpreted as low (25 %), moderate (50 %) and high (75 %) (Higgins, Thompson, Deeks, & Altman, 2003).

Reporting bias

A funnel plot was calculated to illustrate publication bias (Light & Pillemer, 1984). Asymmetrical distribution of individual effects about the mean effect size upon visual inspection may be indicative of publication bias (Field & Gillett, 2010). However, Higgins and Green (2011) contend that where there are fewer than 10 studies, funnel plots should not be used. This is due to the test's low power to distinguish chance from real asymmetry. Consequently, funnel plots were used only to assess publication bias for mindfulness, where the number of included studies exceeded 10 (n = 14).

Rosenberg's fail-safe N test was used to indicate the number of additional negative studies needed to increase the p-value of the meta-analyses to above .05 (Rosenberg & Goodnight, 2005).

Results

Study characteristics

Summaries of the studies can be seen in Table 1 and Table 2. Of the fifteen studies, seven were conducted in the USA, three in the UK, two in Australia and one study each in Canada, Norway and Spain. Ten studies used a pre-post within-subjects design, five used a between-participant design; three of which, used a non-randomised controlled design, with an active control. These control participants were offered: 'theory of counselling', 'psychological theory and research methods' or 'affect consciousness training'. One between-participant design study used a non-randomised controlled design with a wait-list control and one used a randomised controlled design, with a wait-list control.

Participants and settings

There were a pooled total of 389 participants. Overall attrition rates ranged from 0% to 47%, with a mean attrition rate of 14.4% (SD =13.6). Sample sizes across studies

ranged from eight to 101 participants (M = 25.9, SD = 25.1). All participants were self-selecting. All studies included participants working in mental-health contexts. Nine studies included only trainee MHPs. The other six studies included MHPs from inpatient (n = 5) or community (n = 1). Study participants included clinical or counselling psychologists or psychotherapists, doctors, health-care or nurse assistants, nurses, occupational therapists, psychiatrists, therapists or support workers. Two studies did not report the gender of participants. Three studies reported their sample coincidentally included females only. The majority of participants in the remaining ten studies were female. Four studies did not report participant age. Three studies reported only participants age range at baseline and ages ranged from 20 to >60. Eight studies only reported age for individuals who completed measures at all time points. Mean ages ranged from 25.5 to 39 years old (M = 30.6, SD = 4.72).

Table 1.
Studies using traditional mindfulness-based interventions

Author, (year), Study location	**Study Design**	**Participants *n*=pre/post**	**Demographics**	**Measures**	**MBI**	**Quality Score**	**Finding**
Collard, Avny, and Boniwell 2008. UK	Within-subjects	20 / 15 25% attrition	Counselling psychotherapy trainee Pre-intervention: 16 / 4 (female/male) Aged 24-56	Mindfulness (FMI), Wellbeing (SWLS) Distress (PANAS)	MBCT	14	Significant improvement in mindfulness and distress
Hopkins and Proeve (2013). Australia	Within- subjects	12/11/11 8% attrition	Trainee clinical psychologists. Post intervention 10/1(female/male) Mean age: 33.6.	Distress (PSS); Mindfulness (FFMQ)	MBCT	16	Significant improvements in mindfulness
Mills (2010). USA	Mixed-measures design. Control: Active Treatment (theory of counselling)	MBI: 15 / 13 Control 41 / 12 13% attrition	Trainee clinical psychologists Total sample post intervention: 22/3(female/male). Mean age: 28.2	Mindfulness (MAAS)	MBCT	15	Non-significant results
Moorhead, Winfield, and Freeson (2016) UK	Within-subjects	10 / 8 / 8 20% attrition	Nurses, OT (Inpatient)	Mindfulness (FMQ-14)	MBCT	16	Significant improvement in mindfulness
Rabb, Sogge, Parker, and Flament (2015). Canada	Within-subjects	22 / 22 no loss	Mental health care professionals All females Aged 24-69	Wellbeing (QoLI)	MBSR	16	Non-significant results

Author,(year), Study location	**Study Design**	**Participants *n*=pre/post**	**Demographics**	**Measures**	**MBI**	**Quality Score**	**Finding**
Rimes and Wingrove (2011) UK	Within-subject	20/20 no loss	Trainee clinical psychologists All female	Distress (PSS); Mindfulness (FFMQ)	MBCT	15	Significant improvement in mindfulness. No significant change in distress.
Rodriguez Vega, et al. (2014) Spain	Mixed-measures Mindfulness and wait-list control	Mindfulness: 60/58 Control 43/43 3% attrition	Psychiatry and psychology trainee Total sample post-intervention**:** Total: 75/26 (female/male) Mean age: 29	Distress (STAI), Mindfulness (MAAS).	MBSR	19	Significant reduction in distress and improvement in mindfulness
Shapiro, Warren-Brown, and Biegel (2007). USA	Mixed-measures design Control: Active Treatment (psychological theory and research methods)	MBI 22/22 Control 42/32 No loss	Counselling psychology trainees Total sample post-intervention 48/ 6 (female/male) Mean age = 29.2	Mindfulness (MAAS), Wellbeing (PANAS), Distress (PSS)	MBSR	17	Significant reduction in distress. Significant improvement in wellbeing and mindfulness.
Spragg (2011). USA	Randomised Control design Control: Wait-list	MBI 15 / 8 / 8 Control 15 / 8 / 8 47% attrition	Clinical/ counselling trainees Total sample post-intervention 15/1(female/male) Mean age: 25.5	Mindfulness (KIMS)	MBSR	21	Non-significant results

Table 2.
Studies using adapted mindfulness-based interventions

Author, (year), Study location	**Study Design**	**Participants *n*=pre/post**	**Demographics**	**Measures**	**MBI**	**Quality Score**	**Finding**
Brady, O'Connor, Burgermeister and Hanson (2012). USA	Within-subject	23/16 30% attrition	Mental-health workers (Inpatient) Post-intervention 13/3 (female/male)	Distress (MHPS) Mindfulness (TMS) Wellbeing (SSS)	MBSR-informed	15	Significant reduction in distress. Mindfulness significantly improved
Dobie, Tucker, Ferrari and Rogers (2016). Australia	Within-subject	9/9 no loss	Nurses, allied mental health professionals (Inpatient)	Distress (DASS), Mindfulness (KIMS)	MBSR-informed	16	Significant reduction in distress. No other significant results
Eliassen, Sørlie, Sexton, and Høifødt (2016). Norway	Mixed-measure Control: Active Treatment (affect conscious training)	MBI: 27 / 23 Control: 23/20 15% attrition	Doctors, psychologist, nurse, other qualified staff (Inpatient) Pre-Intervention 36/14 (female/male) Age range: 20-60+	Mindfulness (FFMQ)	MBSR-informed	14	Mindfulness significantly improved

Author, (year), Study location	Study Design	Participants *n*=pre/post	Demographics	Measures	MBI	Quality Score	Finding
Hallman, O'Connor, Hasenau & Brady (2014). USA	Within-subject	15 / 12 20% attrition	Nurse, social worker, therapist, doctor (Inpatient) Post-intervention 10 / 2 (female /male) Mean age: 39	Mindfulness (TMS), Distress (PSS)	MBSR-Informed	12	Significant reduction in distress. Significant improvement in mindfulness
Sawyer-Cohen & Miller (2009). USA	Within-subject	28 / 21 25% attrition	Psychology graduate students Post-Intervention 20 / 1 (female/male) Mean age: 26	Mindfulness (MAAS), distress (PSS), Wellbeing (SWLS)	MBSR-Informed	13	Significant improvement in mindfulness but not wellbeing. Significant reduction in distress
Schomaker (2013). USA	Within-subject	11/9 18% attrition	Counselling trainees Post-Intervention All female Mean age: 35	Mindfulness (FFMQ)	MBSR-Informed	19	Significant improvement in mindfulness

Note. MBCT=Mindfulness-based cognitive therapy. MBSR=Mindfulness-based stress reduction. FMI=Freiberg Mindfulness Inventory. SWLS=Satisfaction with Life. PANAS=Positive and Negative Affect Schedule. PSS=Perceived Stress Scale. FFMQ=Five Facet Mindfulness Questionnaire. MAAS=Mindful Awareness and Attention scale. FMI-14=Freiburg Mindfulness Inventory (short form). QoLI=Quality of Life Inventory. STAI=State-Trait Anxiety Inventory. PSWQ=Penn State Worry Questionnaire. KIMS=Kentucky Inventory of Mindfulness Skills. MHPS=The Mental Health Professionals Stress Scale. TMS=Toronto Mindfulness Scale. SSS=Sense of Self Scale. DASS=Depression, Anxiety and Stress Scale.

Intervention

All the interventions were delivered in a small groups, involving teaching, guided sitting and moving meditations, breathing exercises, reflection and discussion. Nine studies evaluated the traditional eight-week MBSR (n = 4) or MBCT (n = 5) programme. Session length ranged between 2 and 2.5 hours. Three studies did not report session length. Six studies evaluated an adapted version of MBSR. Adaptations were based on structural elements of the programme (number of sessions, session duration, homework recommendations). Adapted programme duration ranged from two to eight weeks (M = 7.07, SD = 1.83). Three studies reported weekly sessions, ranging from 60 to 90 minutes. One study reported 15 minute daily sessions across eight weeks and three, 30 minutes educational sessions. Another study reported four sessions over two weeks, lasting 45 minutes each. An additional study reported that over six weeks, three sessions were one hour long and three sessions were 2.5 hours. Fourteen studies reported recommending homework. Of the six studies assessing the adapted MBIs, four explicitly assigned between 15-30 minutes of daily practice. Across all studies, only five reported participants' actual homework practice, which ranged from 55.9-126.7 minutes per week (M = 99.5, SD = 27.9). Of the fifteen studies, four did not report on instructor qualification. The remaining eleven studies varied in the instructors' qualification and experience of teaching and practicing mindfulness. For full details regarding interventions offered in the studies, see Table 3 and Table 4.

Table 3.
Intervention details for studies using traditional mindfulness based interventions.

Author (year)	**Intervention type**	**Length of programme**	**Instructors**	**Length of encouraged practice**	**Mean Length of actual practice (weekly)**
Collard et al (2008)	MBCT	8 weekly [hours not reported]	Not reported	Recommended	103 minutes
Hopkins & Proeve (2013)	MBCT	8 weekly. 2 hours	Trained in MBCT	6 days a week, 45 minutes	Not reported
Mills (2010)	MBCT	8 weekly [hours not reported]	Not reported	6 days a week, 45 minutes	Not reported
Moorhead et al., (2016)	MBCT	8 weekly. 2 hours	CBT therapist and experienced in mindfulness	Recommended	Not reported
Raab et al., (2015)	MBSR	8 weekly. 2.5 hours 1 day retreat	MBCT qualified instructor	Recommended	Not reported
Rimes et al., (2011)	MBCT	8 weekly [hours not reported]	Two instructors trained in mindfulness-based approaches	6 days a week, 45 minutes	91.9 minutes
Rodriguez et al., (2013)	MBSR	8 weekly. 2.5 hours	Experienced in mindfulness.	Not reported	Not reported
Shapiro et al., (2007)	MBCT	8 weekly. 2 hours	PhD-level instructors	Recommended	55.92 minutes
Spragg (2011)	MBCT	8 weekly 2.5 hours 1 day retreat	Instructor taught MBSR for 10 years	6 days a week, 45 minutes	Not reported

Note. MBCT=Mindfulness-based cognitive therapy. MBSR= Mindfulness-based stress reduction.

Table 4.
Intervention details for studies using adapted mindfulness-based stress reduction (MBSR) interventions.

Author, (year),	**Intervention type**	**Length of programme**	**Instructors**	**Length of encouraged practice**	**Length of actual practice (weekly)**
Brady et al., (2012)	MBSR-informed	4 weekly 1 hour	Not reported	Recommended 30 minutes daily	120 minutes
Dobie et al., (2016)	MBSR-informed	8 weekly 15 minute x daily 3 x 30 minute educational sessions	Not reported	Not reported	Not reported
Eliassen et al., (2016)	MBSR-informed	8 weekly 90 minute	Teacher completed MBSR teacher training	Recommended 30 minutes daily	Not reported
Hallman et al., (2014)	MBSR-informed	4 x sessions over 8 days 45 minutes	Trained in MBSR	Recommended 15 minutes daily	Not reported
Sawyer-Cohen & Miller (2009)	MBSR-informed	6 weekly * 90 minute	Experienced meditation teacher and mindfulness practitioner	Recommended [length not reported]	Not reported
Schomaker (2013)	MBSR-informed	6 weekly Session 1 and 4: 2.5 hours. Session, 2,3, 5 and 6: 1 hour	Trained in cognitive behavioural mindfulness practice	Recommended 15 minutes daily	126.78 minutes

Study quality

The quality ratings for each study are presented in the appendix (see Appendix A). Results indicated a good degree of reliability between raters (ICC=0.824, 95%CI .182, .973, F(5,5) *p*=.011) (Koo & Li, 2016). Studies presented research hypotheses clearly and used appropriate methodology, measures and statistical analysis. Most studies also reported ways in which the researchers ensured that participants complied with the intervention but level of detail was variable. The most common weakness was failure to control for confounding variables, failure to identify adverse events and/or to report power calculations. The latter is concerning given that studies may be underpowered, which may explain why some studies had non-significant findings. Most studies were within-subject design, few studies conducted randomised control trials with an active control.

Across many of the domains assessed, studies demonstrated high quality levels relating to clearly described; hypotheses (14/15 studies), outcome measures (15/15 studies), demographics (14/15 studies), interventions used (13/15 studies), random variability statistics (15/15 studies), probability values (12/15 studies) and reported findings (15/15 studies). Additionally, studies showed high quality in terms ensuring; samples were representative of their population (15/15 studies), participants were recruited over the same time period (14/15 studies), a consistent follow-up period (15/15 studies), appropriate statistical measures and analyses were used (15/15 studies) as well as compliance with the intervention (13/15 studies). Additionally no studies reported 'data dredging'. There was greater variability regarding whether studies reported any participant losses at follow up (7/15 studies) and/or whether they took participant loss into account during analysis (8/15 studies). There was also variability regarding whether papers reported whether participants in different groups (i.e. control vs intervention) were from the same population (6/15 studies). Few studies reported

whether there were confounders (3/15 studies) and/or reported ways of controlling for confounders (3/15 studies). Additionally, few studies reported power analysis (3/15 studies) or using a randomised control trial (2/15 studies). Further no studies reported adverse events, blinding participants and/or researchers or concealing randomisation from participants.

The quality score and effect size for each study in relation to each of the outcomes (distress (n=9), wellbeing (n=5) and mindfulness (n=14)) were correlated. Regarding distress, wellbeing and mindfulness no significant correlation was found between quality score and effect size (i.e., r=-.497, p=.173; r=-.065, p=.918; r=.09, p=.761)

Meta-analysis

Distress. A random effects meta-analysis for distress across nine studies, produced a medium, significant effect size estimate in favour of the MBI treatment group when compared with a comparison group (no treatment or other active treatments) g =-0.57 (CI_{95}; -0.78, -0.35), (z=5.23, p <.001). Figure 2 displays the corresponding forest plot. Results indicated that the assumption of homogeneity was not violated. There was no substantial between-study inconsistency (Q(8) = 2.85, p = 0.94, I^2 = 0%, T^2=0.00).

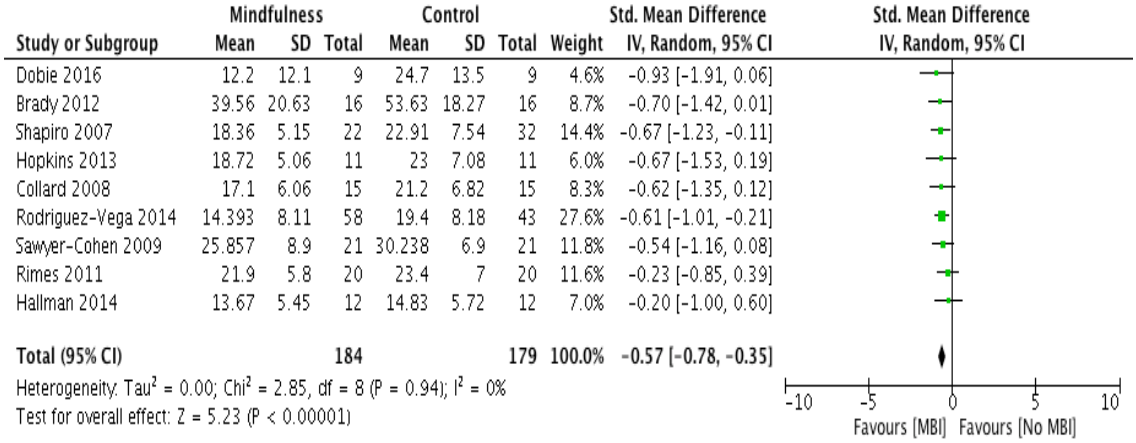

Figure 2. Forest plots for distress.

Wellbeing. A random effects meta-analysis for wellbeing across five studies, produced a small, significant effect size estimate in favour of the MBI treatment group when compared with a comparison group (no treatment or other active treatments) (g = 0.38(CI_{95}: 0.08, 0.67), (z = 2.51, p=.01). Figure 3 displays the corresponding forest plot. Results indicated that the assumption of homogeneity was not violated and that there was no substantial between-study inconsistency (Q(4) = 2.13, p = 0.71, I^2 = 0% T^2=0).

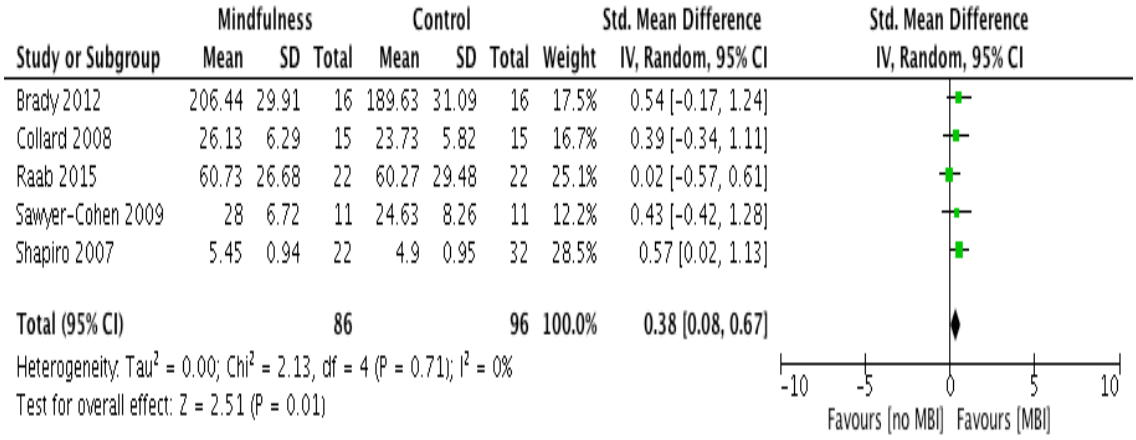

Figure 3. Forest plots for wellbeing.

Mindfulness. A random effects meta-analysis for distress across fourteen studies produced a large, significant effect size estimate in favour of the MBI treatment group when compared with a comparison group (no treatment or other active treatments) g = 4.18 (CI_{95}: 2.29, 6.08), (z = 4.32, p<0.001). Figure 4 displays the corresponding forest plot. The assumption of homogeneity was violated and substantial inconsistency was found between studies (Q(13) = 58.86, p < 0.001, I^2 = 78%, T^2 = 4.92).

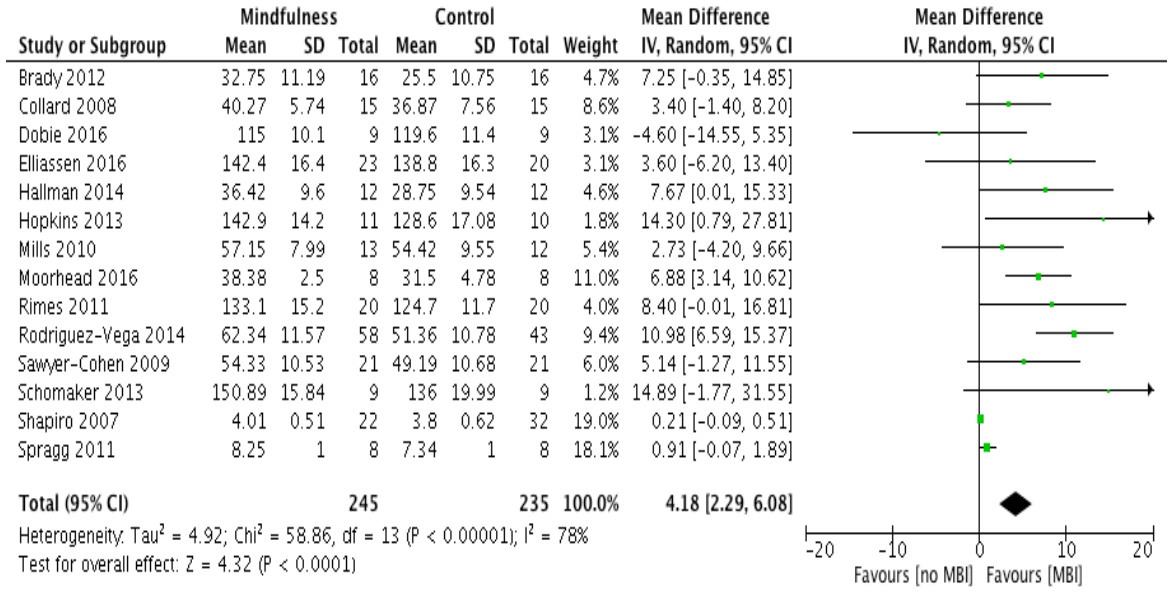

Figure 4. Forest plots for mindfulness.

Subgroup and correlational analysis

Subgroup analysis was conducted in RevMan (Version 5.3, The Cochrane Collaboration). Studies were split into groups depending on whether a traditional or adapted MBI was employed.

Regarding distress, the five traditional MBI studies were considered first. The MBI group was compared to a comparison (no treatment or an active treatment) and the effect size estimate identified was medium and significant in favour of the MBI group, g =-0.56 (CI_{95}: -0.82, -0.31) (z = 4.30, p<.001). The four adapted MBI studies were compared to a comparison (no treatment or active treatment). The effect size estimate identified was medium and significant in favour of the MBI group, g = -0.57 (CI_{95}: -0.94, -0.19) (z = 2.97, p =.003). Results indicated that the effect of traditional or adapted MBIs on reducing distress were not significantly different (Q(1) = 1.39, p = 0.99, I^2 = 0%). Figure 5 displays the corresponding forest plot. The number of intervention hours was not significantly associated with the effect size for distress (r =.847, p = -.09).

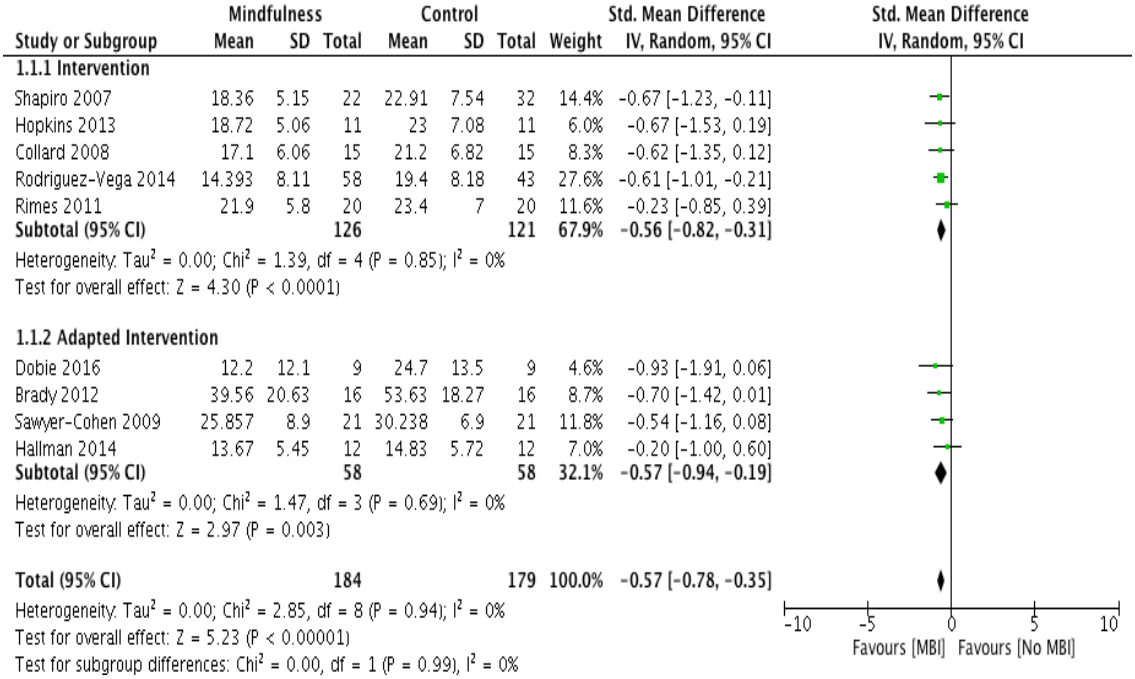

Figure 5. Forest plots for distress, subgroup analysis.

Regarding mindfulness, the eight traditional MBI studies were considered first. The MBI group was compared to a comparison (no treatment or an active treatment). The effect size estimate identified, was large and significant in favour of MBIs g = 3.83 (CI_{95}: 1.74, 5.91) (z = 3.60, p = 0.0003). For the six adapted MBI studies, the MBI group was compared to a comparison (no treatment or an active treatment) and again, the effect size estimate was large and significant in favour of MBIs, g = 5.11 (CI_{95}: 1.29, 8.59) (z = 2.92, p = 0.009). Results indicated that there was no significant difference between traditional and adapted MBIs on increasing mindfulness (Q(1) = 0.33, p = 0.56, I^2 = 0%). Figure 6 displays the corresponding forest plot. Additionally, number of intervention hours was not significantly associated with the mindfulness effect size (r =.545, p =.21).

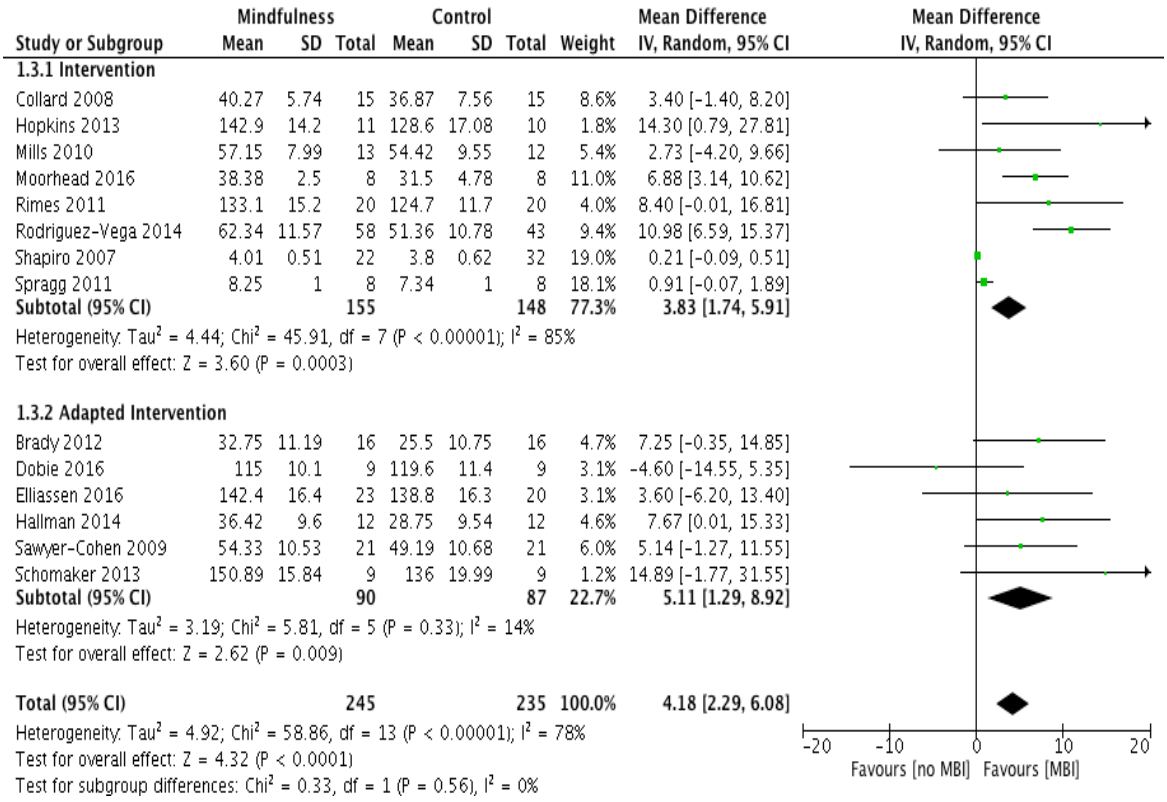

Figure 6. Forest plots for mindfulness, subgroup analysis.

Reporting bias

Regarding publication bias in the 14 studies assessing mindfulness, the distribution around the pooled mean effect size appears asymmetrical (see Figure 7). There was an absence of studies in the lower left hand corner (Field & Gillett, 2010). The findings indicate that there is likely to be a publication bias.

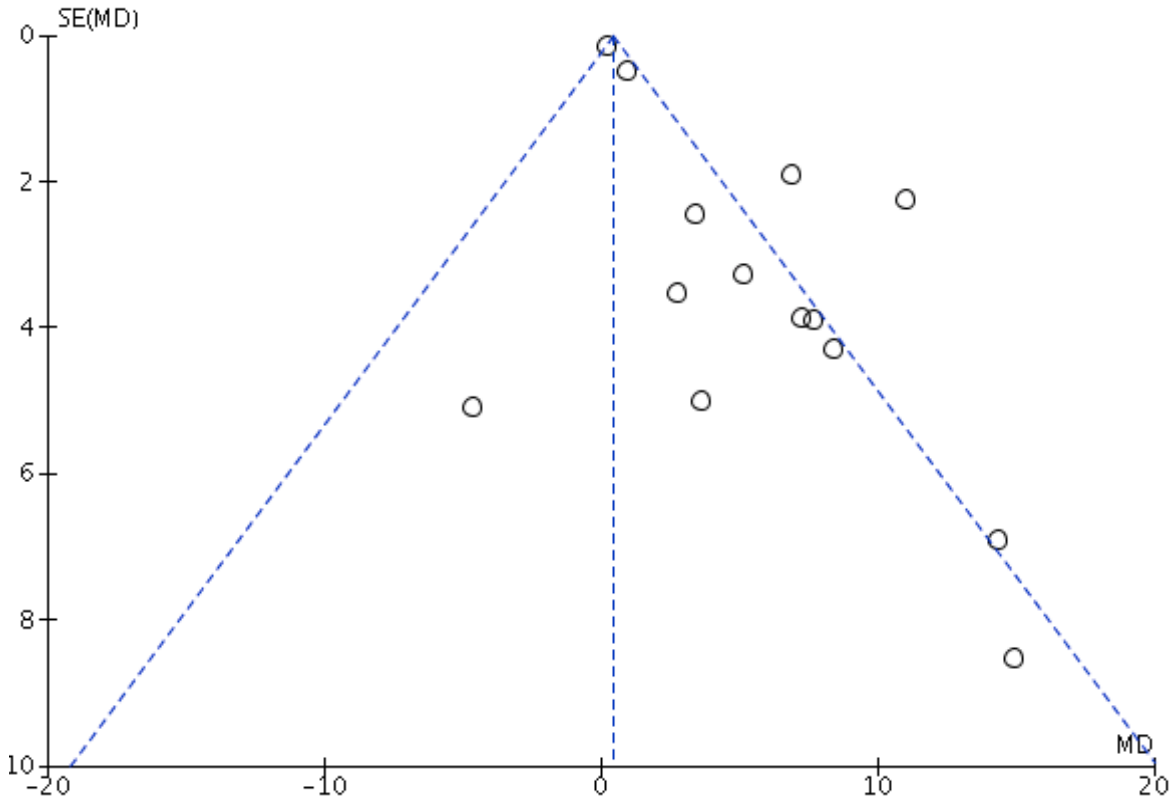

Figure 7. Funnel plot of Mindfulness.

The fail-safe N suggested that regarding the outcome of distress, the number of studies required with null results in order to overturn the present findings would be 102. The fail-safe N suggested regarding the outcome of wellbeing, the number of studies required with null results in order to overturn the present findings would be 7. The fail-safe N suggested that regarding the outcome of mindfulness, the number of studies required with null results in order to overturn the present findings would be 20,547.

Discussion

The meta-analysis is the first to examine the effects of MBIs for MHPs regarding distress, wellbeing and mindfulness. The meta-analysis found there to be a medium effect in favour of MBIs reducing distress, a small effect in favour of MBIs improving wellbeing and a large effect in favour of MBIs improving mindfulness for MHPs. In

addition, a sub-group comparison of the effects of traditional versus adapted MBIs indicated no significant difference for reduction of distress or improvement of mindfulness. Further, the number of intervention hours was not significantly associated with the effect size for distress or mindfulness. Therefore results appear to suggest that MBIs are effective in improving a range of outcomes specifically for MHPs. Further current results possibly suggest that adapted versions are as effective as traditional MBIs. Specifically, results appear to suggest that reducing session time does not adversely impact outcomes for MHPs. Nevertheless, caution is advised in interpreting the results, due to methodological limitations of the included papers.

The finding that there was a medium treatment effect on distress amongst MHP is comparable with previous meta-analyses and systematic reviews with non-clinical populations (Vigili, 2013) and HCPs (Burton et al., 2016; Irving et al., 2009; Khoury et al., 2015; Lamothe et al., 2016). In line with the transactional model (Lazarus & Folkman, 1984), it is possible that MBIs improved MHPs capacity to appraise their environment in an accepting or less threatening manner (Slutsky, Rahl, Lindsay, & Creswell, 2017). MBIs may also have encouraged individuals to willingly engage with difficult experiences thus promoting effective coping strategies (Donald & Aitkins, 2016).

One previous systematic review with MHPs (Escuriex & Labbé, 2011) proposed that MBIs improve wellbeing and mindfulness and this supports the current results. However, the meta-analysis result here resulted in a small effect size for wellbeing, which is inconsistent with the medium to large effect sizes reported from meta-analyses of studies with non-clinical and HCP populations (Eberth & Sedlmeier, 2012; Khoury et al., 2015). This result may indicate then that MBIs do not improve wellbeing for MHPs to the extent that has been found for other populations. However, it is possible that this result can be attributed to the difference in measurement of wellbeing between the meta-

analyses. In the current meta-analysis, wellbeing was primarily based on the 'satisfaction with life' measure. In contrast, Khoury et al. (2015) used a 'quality of life' measure and Eberth and Sedlmeier (2012) combined a variety of measures (positive affect, quality of life) to assess wellbeing.

The finding in the current meta-analysis that MBIs have a large effect on mindfulness is inconsistent with previous meta-analyses, where small to medium effects have been reported amongst non-clinical populations (Eberth & Sedlmeier, 2012; Visted et al., 2014). In such previous meta-analyses, MHPs were not specifically considered. It appears then that MBIs are particularly effective for improving mindfulness amongst MHPs. Nevertheless, results of the meta-analysis on measures of mindfulness should be interpreted with caution due to the violation of statistical homogeneity. It is possible that the diversity in study design and variant measures used, contributed to the observed heterogeneity in effect size.

There has been little systematic consideration of whether traditional or adapted MBIs differ in their effect on a range of outcomes. Two exceptions are Vigili's (2013) meta-analysis with working adults and Khoury et al's (2015) meta-analyses with HCPs. The current meta-analysis is the first to consider whether traditional and adapted MBIs produce similar outcomes for distress, wellbeing and mindfulness, amongst MHPs. Congruent with Vigili (2013), the results of the current meta-analysis suggest that there are no differences between the two versions. No known meta-analysis has considered any association between intervention hours and outcome with MHPs. Results of the current meta-analysis provide support for existing work with non-clinical populations (Carmody & Baer, 2009; de-Vibe et al., 2012), indicating that intervention hours do not appear to relate to distress or mindfulness. The finding indicates that using adapted versions of MBI and more specifically reducing session duration, is possibly unlikely to make an adverse difference regarding the impact on distress and mindfulness for MHPs.

However, whilst the studies employed adapted MBIs, which varied in the number of intervention hours, it remains unclear if there is a point in which reducing the number of intervention hours does become problematic. Further research exploring the limits of adaptations, whilst maintaining the integrity of MBIs, should be conducted. In addition, no conclusions can be made regarding differences in intervention type (traditional or adapted) and wellbeing, as there were not enough studies to test this effect. It is also possible that other confounding variables (e.g., instructor qualification, homework practice) influenced the reported results. For instance, individuals may ultimately have done similar amounts of home practice regardless of intervention type or hours of intervention. However, this is difficult to determine due to lack of, or unclear reporting across the included studies. In addition, it should be noted that whilst non-significant the size of the relationship between number of hours and outcomes were large. It is possible that non-significant results were reported due to small number of studies and thus lack of power. Further research is required to assess the relationship between interventions hours and outcomes. Consequently, it would then be possible to conduct an adequately powered meta-analysis. It is for this reason, that caution should be exerted when interpreting the lack of relationship between intervention hours and outcomes.

Strengths, limitations and future research

The current review and meta-analysis has a number of strengths, including a focus on MHPs, consideration of a range of outcomes relating to distress and wellbeing, and the assessment of potential differences between traditional and adapted MBIs. However, there are also several limitations that should be considered. For instance, potentially important papers may have been excluded on the basis of language. Furthermore, the generalisability of results may be limited due to the homogeneity of study samples (predominantly western, young females). In addition, three databases were used to

locate papers. The databases included a range of journals from across disciplines. However, databases for specific professional professionals (e.g. ‘nurse portal’, ‘nursing research’, ‘social work abstracts’) were not used. Additionally, a wide variety of search terms were used, which provided a large number of results. However, terms were not exhaustive in relation to specific professionals (e.g. ‘mental health nurse, social worker, support worker’ etc). Consequently, some studies relating to specific professionals who work with individuals with mental health difficulties may have unintentionally been excluded.

Further only a small number of papers met inclusion criteria. Consequently, when conducting subgroup and correlational analysis, power to detect significant results may have been limited. Additionally, the paucity of studies assessing wellbeing prevented their inclusion in subgroup and correlational analysis. Additionally, due to limited studies, it was not possible to use the funnel plot to identify publication bias for the meta-analyses assessing distress and wellbeing. There was evidence to indicate publication bias amongst studies assessing mindfulness, indicating there may be unpublished studies, which challenge the findings here. Further research is required to examine the effectiveness of MBIs (traditional and adapted) on distress, wellbeing and mindfulness amongst MHPs. In particular non-significant results should not exclude publication. The fail-safe N analysis findings indicated that for the well-being outcome, publication bias may be likely but that for the distress and mindfulness outcomes, publication bias appears less likely (Rosenberg & Goodnight, 2005). This result contrasts with the funnel plot result for mindfulness. Nevertheless, the findings from Rosenberg’s test are considered cautiously, given the test’s emphasis on the significance of an arbitrary *p*-value (Higgins & Green, 2011a).

Trim and fill analysis could also have been completed in order to assess publication bias (Card, 2012). However, this was not conducted because this analysis has been

found to produce high levels of false-positive results (Carter, Schönbrodt, Gervais, & Hilgard, 2017).

The meta-analysis software programme (RevMan, Version 5.3, The Cochrane Collaboration) used did not facilitate analysis of pre-post differences for intervention and control groups. Therefore important information may have been missed (Borenstein et al., 2009). Future research should use alternative programmes such as CMA, which can handle different study designs in one analysis. This programme would also enable calculation of a meta-regression, enabling researchers to identify which components of MBIs strengthen the relationship between the intervention and outcomes (Blundell, 2014). Possible moderators to be assessed and reported in future research could include: prior mindfulness experience, group support, psycho-education, testing effects, attendance, homework adherence and/or instructor qualifications (Burton et al., 2016; Camody & Baer, 2009).

Due to the relatively small number of available studies, it was necessary to include papers with different levels of quality. However, the inclusion of poorer quality studies may have resulted in an over-estimation of the magnitude of effect size (Bohlmeijer et al., 2010). A deficit in many of the included studies was a failure to complete a power analysis or use a stronger research design (i.e., randomised control trial with active control). Further, some of the included studies reported the use of an active control (e.g. Mills, 2010; Eliassen et al., 2016; Shapiro et al., 2007). However, these studies were not clear regarding whether the active controls used were evidence-based interventions. It appears then that the included studies either used a passive control (no treatment) or a potentially ineffective active control. Consequentially, in both such cases, the effect size for all outcomes could have been inflated (Mohr et al., 2009). In sum then, the common weaknesses across the included studies (i.e., failure to report power analysis, confounders or analysis controlling for confounders as well as

failure to use randomised control trials) may have biased the findings. For instance, studies using both within and between participant studies design were included in the meta-analysis. The level of control over confounders in the different types of studies (i.e. within or between) varies. Therefore, some studies (i.e. those using between study design) may have been less rigorous, consequently inflating effect size. Nevertheless, there were non-significant correlation coefficients between paper quality and effect sizes. This result suggests that the quality was unrelated to effect size for each of the outcomes of interest. Nevertheless, whilst correlational results were not significant, the effect size for the 'distress' outcome was medium sized. Notably, in relation to the 'distress' outcome, the two papers with the largest effect size (Brady et al., 2012; Dobie et al., 2016) were cross-sectional studies (as opposed to randomised control trials). This may be suggestive that poorer quality studies are likely to have large effects but that the current meta-analysis may not have the power to detect significant diffferences.

Studies have found that in comparison to MBI, other interventions (yoga, stress management, relaxation) are effective in reducing distress amongst adults (Falsafi 2016; Josefsson, Lindwall & Broberg, 2012; Wolever et al., 2012). Therefore, future studies could seek to use these interventions as active controls when assessing the effectiveness of MBIs with MHPs (Davidson, 2010).

The studies included in the meta-analysis used different measures to assess variables and in some cases, used multiple measures to assess the same underlying construct. One measure was chosen based on pre-determined criteria (commonality and psychometric properties). This approach is commonly advocated (Card, 2012). However, it is acknowledged that this method could have introduced bias. Indeed, results may have varied based on measure selected. Future research may consider the possibility of combining measures (Scammacca, Roberts & Stuebing, 2014). Alternatively, studies should focus on using the same measures to assess the same outcome. Further, whilst

the current meta-analyses explored a variety of outcomes, future studies and reviews on MBIs should consider outcomes specifically in relation to MHPs work-place functioning (Richardson & Rothstein, 2008).

This meta-analysis only assessed outcomes post-intervention to ensure comparison across studies. Indeed, most of the studies lacked long-term follow-ups. However, only assessing post-intervention outcomes potentially increased the risk of positive selection bias and therefore could have inflated the effect size estimates (Blundell, 2014). Future studies with longer follow-up periods, controlling for additional practice (Vigili, 2013), are therefore required.

Clinical implications

The findings here suggest that MBIs may reduce distress and improve wellbeing and mindfulness for MHPs. This is an important addition to the literature as research indicates that MHPs are vulnerable to distress and low levels of wellbeing, both of which adversely impact upon their work (Pakenham & Stafford-Brown, 2013). Furthermore, higher levels of mindfulness are associated with better effectiveness of therapists (Pereira et al., 2016). In this way, providing an MBI to support MHPs may enable them to improve their functioning and increase their mindfulness levels, which ultimately may directly benefit their clinical work. Additionally, findings here suggest that adapted MBIs maybe as effective as traditional MBIs in improving outcomes. Further, that reducing session duration does not appear to be significantly related to outcomes. This is important given adapted interventions may be more accessible to busy MHPs.

Further, organisations could take greater initiative in implementing MBI training Indeed, policies and guidelines have called for greater responsibility in the NHS to manage the health of their staff (NHS, 2011; NICE, 2015). Regarding the local Sheffield context, the Sheffield Health and Social Care (SHSC) Trust has offered

reflective space and meditation to staff. Further, the Sheffield Teaching Hospital (STH) Trust has offered staff access to ‘headspace’ (a mindfulness application) for a year. It appears then that the NHS is open to using mindfulness training with staff in flexible ways. However, the results of this paper suggest that a more formal mindfulness-based training should also be offered. Nevertheless, whilst MBIs appear promising for MHPs, further research is required before strong recommendations regarding their widespread application are advised.

Conclusion

The main objective of the review was to consider whether MBIs reduce distress and improve wellbeing and mindfulness for MHPs. Additionally, the review assessed whether there were differences in outcomes based on intervention type (traditional or adapted MBI) and whether variation in number of intervention hours related to outcome effects. This meta-analysis represents a unique contribution to the literature. Findings provide support for the use of MBIs (either traditional or adapted) with MHPs to improve specified outcomes. However, the meta-analysis was limited by the number of, and quality of available studies. Future research is required before more conclusive clinical implications are recommended. Nevertheless, this meta-analysis points to the potential value of MBIs for MHPs.

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*Studies included in the review

Appendix A.
Quality review rating table: studies using traditional MBIs.

	1.Clear Hypothesis?	2.Outcomes Clear?	3.Participants described?	4.Interventions clear?	5.Confounders described?	6.Findings described?	7.Random variability estimates described?	8.Adverse events?	9.Participants lost to follow up described?	10.Probability values reported?	11.Sample representative of population?	12.Participants prepared to participate representative?	13.Blind subjects?	14.Researcher blind?	15.Data dredging?
Collard et al. 2008	1	1	1	1	0	1	1	0	0	1	1	0	0	0	1
Hopkins & Proeve. 2013	1	1	1	1	0	1	1	0	1	0	1	1	0	0	1
Mills. 2010	1	1	1	1	0	1	1	0	0	0	1	1	0	0	1
Moorhead et al. 2016	1	1	0	1	0	1	1	0	1	1	1	0	0	0	1
Raab et al. 2015	1	1	1	1	0	1	1	0	1	1	1	0	0	0	1
Rimes & Wingrove. 2011	0	1	1	0	0	1	1	0	1	1	1	0	0	0	1
Rodriguez et al. 2014	1	1	1	1	0	1	1	0	1	1	1	0	0	0	1
Shapiro-Warren et al. 2007	1	1	1	1	1	1	1	0	0	1	1	0	0	0	1
Spragg. 2011	1	1	1	1	1	1	1	0	0	1	1	1	0	0	1

	16. Consistent follow-up?	17. Appropriate statistical tests?	18. Compliance with intervention?	19. Reliable and valid measures?	20. Participants in different groups recruited from same population?	21. Recruited over same time period?	22. Randomised?	23. Randomised intervention concealed from	24. Adjustment for confounders?	25. Losses to follow-up?	26. Power reported?	Total
Collard et al. 2008	1	1	1	1	0	1	0	0	0	0	0	14
Hopkins & Proeve. 2013	1	1	1	1	0	1	0	0	0	0	0	16
Mills. 2010	1	1	0	1	1	1	0	0	0	1	0	15
Moorhead et al. 2016	1	1	1	1	0	1	0	0	0	1	1	16
Raab et al. 2015	1	1	1	1	0	1	0	0	0	1	0	16
Rimes & Wingrove. 2011	1	1	1	1	1	1	0	0	0	1	0	15
Rodriguez et al. 2014	1	1	1	1	1	1	1	0	1	1	0	19
Shapiro-Warren et al. 2007	1	1	1	1	1	1	0	0	1	0	0	17
Spragg. 2011	1	1	1	1	1	1	1	0	1	1	1	21

Appendix B.
Quality review rating table: studies using adapted MBIs

	1. Clear Hypothesis?	2. Outcomes Clear?	3. Participants described?	4. Interventions clear?	5. Confounders described?	6. Findings described?	7. Random variability estimates described?	8. Adverse events?	9. Participant lost to follow up described?	10. Probability values reported?	11. Sample representative of population?	12. Participants prepared to participate representative	13. Blind subjects?	14. Researcher blind?	15. Data dredging?
Brady et al. 2012	1	1	1	1	0	1	1	0	0	1	1	0	0	0	1
Dobie et al. 2016	1	1	1	1	0	1	1	0	1	1	1	0	0	0	1
Eliassen et al. 2016	1	1	1	1	0	1	1	0	0	1	1	0	0	0	1
Hallman et al. 2014	1	1	1	0	0	1	1	0	0	0	1	0	0	0	1
Sawyer-Cohen & Miller. 2009	1	1	1	1	0	1	1	0	0	1	1	0	0	0	1
Schomaker. 2013	1	1	1	1	1	1	1	0	1	1	1	1	0	0	1

	16. Consistent follow-up?	17, Appropriate statistical tests?	18. Compliance with intervention?	19. Reliable and valid measures?	20. Participants in different groups recruited from same population?	21. Recruited over same time period?	22. Randomised?	23. Randomised intervention concealed from participants/staff ?	24. Adjustment for confounders?	25. Losses to follow-up?	26. Power reported?	Total
Brady et al. 2012	1	1	1	1	0	1	0	0	0	1	0	15
Dobie et al. 2016	1	1	0	1	0	1	0	0	0	1	1	16
Eliassen et al. 2016	1	1	1	1	0	1	0	0	0	0	0	14
Hallman et al. 2014	1	1	1	1	0	1	0	0	0	0	0	12
Sawyer-Cohen & Miller. 2009	1	1	1	1	0	0	0	0	0	0	0	13
Schomaker. 2013	1	1	1	1	1	1	0	0	0	1	0	19

Research Report

An investigation into the relationships between attachment orientation, coping approach, dispositional mindfulness and distress amongst trainee therapists

Abstract

Objectives.

The study assessed relationships between dispositional variables (attachment orientation, mindfulness, suppressive and reactive coping) and distress amongst trainee therapists ('Trainee Clinical Psychologists', 'High-Intensity, Improving Access to Psychological Therapies, (IAPT)' trainees and 'Psychology Wellbeing Practitioner' trainees). Mindfulness and/or coping approaches were investigated as mediators between attachment orientation and distress.

Design and methods.

The study used a longitudinal, within-subjects design. Trainee therapists working in the United Kingdom were eligible. Participants (n = 259) completed Time 1 and Time 2 questionnaires, separated by three months. Measures assessed adult attachment, coping approach, mindfulness and distress as well as demographic information.

Results.

Anxious and avoidant attachment orientation, mindfulness, reactive and suppressive coping at Time 1 correlated with distress at Time 2. Bootstrapping analysis indicated that reactive coping at Time 1, mediated anxious attachment at Time 1 and distress at Time 2. No other variables mediated the relationship between attachment orientation and distress.

Conclusion.

Regarding the correlational analysis, results were consistent with the wider literature. The result that reactive coping acted as a mediator between anxious attachment and distress was consistent with the evidence base with non-trainee therapists. However, the results also contribute to an inconsistent evidence base regarding the role of suppressive

coping and mindfulness in the attachment-distress relationship. Clinical implications, limitations and suggestions for future research are discussed.

Practitioner points:

- Levels of reported distress were low and therefore courses should continue to offer the different avenues of support that they already do.
- Training is an opportunity to learn more about self-care so that in future, individuals working as qualified professionals will manage better. This research suggests learning more about one's own attachment orientation and how this relates to choices about coping may be helpful.
- Greater awareness about the role of attachment and coping is important for individuals who plan to supervise others.
- Interventions designed particularly for individuals reporting higher use of reactive coping approaches may be helpful.

Limitations.

- Participants were primarily trainee clinical psychologists and generalisability to other trainee populations is limited. It is also possible that the reported low levels of distress are indicative that trainees experiencing high levels of distress did not participate in the study. In this case, the sample would therefore be less representative of the population, thus reducing the finding reliability.
- Contextual variables were not considered.
- Self-report measures may have introduced mono-method bias.

Introduction

'Distress' can represent a range of negative states. Specifically, following the tripartite model (Clark & Watson, 1991), researchers have argued that measures of anxiety, depression and stress are highly correlated and therefore reflect the unitary construct of negative affectivity or 'distress' (Clara, Cox, & Enns, 2001; Lovibond & Lovibond, 1995). Previous research has reported that mental health professionals (MHPs) (i.e., psychologists, psychiatrists, therapists, mental health support workers, social workers or nurses) experience high levels of stress (Edwards & Burnard, 2003; Elliott & Davy, 2013; Evans et al., 2006; Hannigan, Edwards, & Burnard, 2004), depression (Gilroy, Carroll, & Murra, 2002; Smith & Moss, 2009) and anxiety (Jordann, Spangenberg, Watson & Fouchè, 2007; Nachshoni et al., 2008). Further, Cushway, Tyler and Nolan (1996) reported that 40% of a sample of 265 clinical psychologists and mental health nurses were experiencing distress. More recently, survey findings (Rao et al., 2016) with 1,106 psychological professionals from the United Kingdom (UK) working in the National Health Service (NHS) found that 46% reported depression and 70% reported stress. Similarly, Walklet and Percy (2014) recruited 44 qualified and trainee therapists from 'Improving Access to Psychological Therapies' (IAPT) in the UK. They found that 30% of participants reported distress.

In comparison to qualified MHPs, trainee MHPs, specifically trainee therapists may be more vulnerable to experiencing distress (Halewood & Tribe, 2003; Kumary & Baker, 2008; Truell, 2001). The term 'trainee therapist' here includes any individuals whose training has a strong component in learning to work therapeutically using one or more therapeutic model. Training to work therapeutically involves a number of challenges (Kuyken, Peters, Powers, & Lavender, 2003), including working with distressed individuals, who may also present with comorbid diagnoses, high levels of risk and/or cognitive impairments (Barnett, Baker, Elman, & Schoener, 2007).

Additionally, trainees must complete academic work, switch between multiple work environments and manage high workloads (Cahir & Morris, 1991; Cushway, 1992; Goplerud, 2001). Trainee therapists must also cope with new clinical learning, self-doubt and/or assessment in both clinical and academic contexts (Cushway, 1997; Szymanska, 2002).

Available research indicates that a number of trainee therapists experience distress. For example, Cushway (1992) surveyed 257 UK trainee clinical psychologists and found high levels of distress (59%) as reported on the 'General Health Questionnaire' (GHQ, Goldberg, 1978). Further, 75% of the sample reported moderate to severe levels of stress on a custom-made survey. Women reported more distress (GHQ) than men, but no gender differences were found on the measure of stress. Trainee year was significantly related to stress levels, with second and third years reporting higher stress levels than first years. Age was not related to stress or distress. In another study with UK trainee clinical psychologists, Kuyken, Peters, Power and Lavender (1998) used the Employee Assistance Program Inventory (EAPI) (Anton & Reed, 1994). They found that 25% of the 183 participants reported significant difficulties (e.g., anxiety, depression). Consistent with Cushway's (1992) finding, age was unrelated to distress. However, there were no significant differences based on gender or training year. Kuyken, Peters, Power, Lavender and Rabe-Hesketh (2000) conducted a one year follow-up with 167 of the original sample of 183 participants. They found stable patterns in psychological functioning over time. Specifically, 25% of trainees experiencing significant problems continued to do so at follow-up. Again, year of study was not significantly related to outcomes. In a further study with UK trainee clinical psychologists, Brooks, Holtum and Lavender (2002) recruited 364 participants. They found using the EAPI, that 41% of participants reported a significant problem with anxiety, depression, low self-esteem or work adjustment. Furthermore, gender was

related to anxiety. However, age and partnership status were not significantly related to depression or anxiety. In contrast to these reported studies, Kumary and Baker (2008) recruited UK counselling psychology trainees. Similar to Cushway (1992), they found that in a sample of 109 participants, 59% demonstrated distress using the GHQ (Goldberg, 1978). Additionally, results showed that there were higher levels of stress for females and younger participants. In line with Kuyken et al. (1998, 2000), Brooks et al. (2003), Kumary and Baker (2008) reported that were no significant differences on measures of stress or distress based on training year.

Previous studies then have consistently reported that a proportion of trainee therapists experience distress. However, findings indicate variation in whether gender, age or year of study is related to the outcome. Nevertheless, whilst these studies (particularly Cushway, 1992) are widely cited, they are not without limitation. For instance, the studies frequently used measures where psychometric properties were unknown (i.e., custom-made stress survey) or had not been widely validated (i.e., the EAPI, Anton & Reed, 1994). Further, these studies are relatively dated, with the most recent conducted nine years ago. The landscape of psychology has changed over the past decade (e.g., available self-funding, increasing privatisation of the NHS). Further, the reported studies only assessed trainee clinical or counselling psychologists. Changes in the NHS have meant that trainee IAPT workers (high intensity and psychology wellbeing practitioners) were introduced into the workforce in 2007 (Cohen, 2008). It is currently unclear whether trainee IAPT workers also experience distress.

Distress has a personal cost on the individual (Lamb & Cogan, 2015) and may also adversely affect the working alliance with clients and/or the supervisory relationship (Briggs & Manley, 2008; Gnilka, 2010). Distress may also increase trainee therapists' vulnerability to making poor clinical decisions and providing ineffective and/or potentially harmful or unethical care (Elman & Forrest, 2007; Guy, Poelstra, & Stark,

1989). Additionally, distress may impede the development of clinical competence (Humpreys, 2013) and learning (Kuyken et al., 2003). Nevertheless, whilst available research indicates that a proportion of trainee therapists experience distress; clearly not all trainees report such distress. It is of interest what contributes to this apparent variation. Brooks et al. (2002) and Kuyken et al. (2003) have advocated that further research is required to understand dispositional factors associated with distress amongst trainee therapists.

Attachment and distress

Attachment theory (Bowlby, 1969, 1973, 1988) provides a theoretical framework that can aid understanding of individual differences regarding distress (Lopez & Brennan, 2000; Morely & Moran, 2011). According to this theory, the quality of interactions (i.e., sensitive, consistent, available vs. insensitive, inconsistent, unavailable) with attachment figures (i.e., caregivers or important others), shape the development of the 'internal working model' (IWM) (Daae-Zachrisson, 2009). An individual's IWM guides their perceptions and expectations regarding others' likely behaviour and their own self-worth (Crittenden, 2005). In adulthood, different types of IWMs have been characterised by attachment orientations. Attachment orientations have been conceptualised along two dimensions relating to anxiety and avoidance (Cooper, Rowe, Penton-Voak, & Ludwig, 2009). Individuals high on attachment anxiety have fears about abandonment and rejection; whereas those low on attachment anxiety are confident of their partner's availability. Individuals high on attachment avoidance are unwilling to ask for comfort and support; whereas those low in avoidance are comfortable with emotional intimacy and interdependence (Grych & Kinsfogel, 2010). Research in a range of populations has indicated that higher self-reported ratings of anxious or avoidant attachment are related to distress. Specifically, research with non-clinical populations (undergraduate students) has demonstrated associations

between both avoidant and anxious attachment and symptoms of depression (Wei, Mallinckrodt, Larson, & Zakalik, 2005), anxiety (Marganska, Gallagher, & Miranda, 2013) and stress (Dorin, 2014).

It is possible then that attachment orientation may at least partially explain variation in trainee therapists' reported distress levels. However, increasingly, research (e.g., Burns, 2011) is considering how attachment orientation may work through other variables (e.g., mindfulness, coping approach) to affect individuals' distress levels.

Mindfulness

Mindfulness is generally defined as the bringing of one's full attention to experiences in the present moment, in an accepting, nonjudgmental way (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006; Brown & Ryan, 2003). The term 'dispositional mindfulness' is a form of mindfulness and has been defined as a i) a multidimensional construct which focuses on attention ii) a psychological trait iii) relatively stable over time (Baer, Smith, & Allen, 2004; Rau & Williams, 2016). Here, 'dispositional mindfulness' will be referred to as 'mindfulness'.

Previous researchers (e.g., Caldwell & Shaver, 2013; Ryan, Brown, & Creswell, 2007) have proposed that attachment orientation predicts the development of the capacity to be mindfully aware and attentive, which, in turn, enables an individual to better manage distress. Attachment security may provide an individual with a greater capacity to maintain mindful attention and awareness, as such individuals would be less consumed by factors related to insecure attachment such as rumination or avoidance (Pepping, Davis & O'Donovan, 2013). In this way, secure individuals, who have a belief that their attachment figure is available, can swiftly 'switch off' their attachment system and spend their resources exploring and processing a variety of experiences in an open and curious manner (Caldwell & Shaver, 2013). Further, individuals with positive attachment experiences (i.e. their attachment figure has been responsive,

consistent, and accepting), internalize such experiences and then draw upon them in times of threat. As a result, such individuals are likely to develop an open and accepting stance toward a range of emotional experiences in themselves and others. In this way, based on their attachment experiences, secure individuals have a greater capacity to acknowledge, accept and recover from distressing emotions. This is consistent with mindful awareness (Pickard, Caputi & Grenyer, 2016). Nevertheless, clearly individuals with an insecure attachment are not permanently in a state of threat. However, for both anxious and avoidant individuals, greater resources are taken up to focus on, or avoid attachment-related issues. The consequence of which is that for it is more difficult to fully engage with experiences in an open, accepting manner. Further, their experiences with, and internalized representation of, their attachment figure(s) has taught them not to approach difficult emotions in a calm and accepting manner. In this way, it is perhaps more difficult for individuals higher in anxious or avoidant attachment to demonstrate dispositional mindfulness.

In relation to trainee therapists, those who have experienced responsive and attuned interactions with their attachment figure during times of threat are likely to have a secure attachment orientation (Velderman, Bakermans-Kranenburg, Femmie, & Van Ijzendoorn 2006). Consequently, these individuals will anticipate that others will consistently respond helpfully and are therefore more able to divert attention to other activities (i.e., attending to the present moment) rather than worrying about abandonment or being cautious of closeness (Caldwell & Shaver, 2013; Mikulincer & Shaver, 2007). Further, as a result of a secure IWM, which anticipates that others are able to manage their difficult feelings, such trainee therapists would develop an accepting and open stance toward their emotions, thereby reducing distress (Goodall, Trejnowska, & Darling, 2012; Pepping, Davis & O'Donovan, 2013).

There is growing evidence that attachment orientation is related to mindfulness (Pepping et al., 2013; Stevenson, Millings, & Emerson, 2017). Studies in non-clinical populations (undergraduate students, other adults) have found that higher levels of anxious and/or avoidant attachment is associated with lower levels of mindfulness (Goodall et al., 2012; Pepping, O'Donovan, & Davis, 2014; Shaver, Lavy, Saron, & Mikulincer, 2007; Walsh, Balint, Smolira, Fredericksen, & Madsen, 2009).

The relationship between mindfulness and distress has been widely researched. Studies with clinical and non-clinical populations have indicated that lower levels of mindfulness are related to distress (Coffey & Hartman, 2008; Pepping, O'Donovan, Zimmer-Gembeck, & Hanisch, 2014). Research with undergraduate students in the United States of America (USA) has found that mindfulness is associated with depression (Christopher & Gilbert, 2009), anxiety (Rasmussen & Pidgeon, 2011) and stress (Weinstein, Brown & Ryan, 2008; Zimmaro et al., 2016). However, such research has often not controlled for whether individuals practise mindfulness, which may be an important confound (Goodall et al., 2012). Previous research would suggest then, that there are likely to be relationships between attachment, mindfulness and distress. Indeed, Pickard, Cupiti and Grenyard's (2016) assessed 148 adults and found that mindfulness and emotional regulation acted as mediators in the relationship between attachment orientation and depression. However, this study did not examine trainee therapists and only used a categorical measure of attachment ('The Relationship Questionnaire', Bartholomew & Horowitz, 1991). Buller's (2015) study assessed whether mindfulness and/or emotion regulation acted to mediate between attachment orientation and distress. Participants (n = 211) from the general adult population were recruited for this cross-sectional study. Results indicated that only anxious attachment was related to mindfulness and mindfulness was not related to distress. Nevertheless, when placed in a sequential mediator model, mindfulness and emotional regulation

acted to mediate the relationship between anxious attachment and distress. However, this study used a cross-sectional design, which is not recommended when testing mediation (Cole & Maxwell, 2014). Further, adults in general rather than trainee therapists were recruited. Therefore, further research is required.

Coping approach

Coping is defined here as a consistent strategy for regulating emotion and behaviour under conditions of threat (Skinner & Wellborn, 1994). That is, individuals have a dispositional or habitual coping approach (Lazarus & Folkman, 1984). Here, coping approach is considered as a potential mediator linking attachment orientation and distress.

In their model, Mikulincer and Shaver (2003) proposed that individuals high in attachment anxiety use hyper-activating strategies, which involve efforts to gain proximity with the attachment figure. The attachment figure is perceived as insufficiently available but potentially responsive. Consequently, the individual focuses on the threat and amplifies feelings of distress in order to gain attention. However, as a result they experience prolonged feelings of distress. Alternatively, individuals high in attachment avoidance use deactivating strategies to inhibit or avoid proximity-seeking tendencies. The attachment figure is viewed as consistently unavailable. Consequently, individuals high in attachment avoidance deny or downplay threats and are uncomfortable expressing their vulnerability and need for others (Mikulincer & Shaver, 2003). Such individuals appear unaffected. However, they cannot hold difficult feelings away indefinitely and do eventually experience distress (Burns, 2011). It is possible then in relation to trainee therapists, individuals with higher levels of anxious or avoidant attachment may use hyper-activating or deactivating strategies to manage threat across different contexts.

The ‘Problem-Focused Style of Coping’ (PF-SOC) questionnaire assesses two

stable coping styles (reactive and suppressive coping) (Heppner, Cook, Wright, & Johnson, 1995), which appear to reflect the 'hyper-activating' or de-activating' approaches (Malik, Wells, & Wittkowski, 2015). The reactive style is aligned with the 'hyper-activating' approach, as it involves strong emotional responses to threat, distortion and cognitive confusion. In contrast, the suppressive style is aligned with the 'de-activating' approach, as it involves the denial of problems and avoidance of activities (Chang, 2011). Studies in the adult populations (Gatmaitan, 2012; Lopez & Gormley, 2002) have reported a relationship between attachment orientation and coping styles, using the PF-SOC (Heppner et al., 1995). Specifically findings showed that individuals high in avoidant or anxious attachment were more likely to evidence reactive and suppressive coping styles. Further, research (e.g., Chang et al., 2007; Heppner et al., 1995; Heppner & Lee, 2002; Park, Heppner & Lee, 2010) using the PF-SOC, has found that both reactive and suppressive styles are related to high levels of distress. Further there is a small but growing evidence base regarding coping approach as a mediator of the attachment-distress relationship. For instance, Lopez, Mauricio, Gormley, Simko, and Berger (2001) conducted a cross-sectional study with 55 undergraduate students. They reported results from a hierarchical regression, in which they found that both reactive and suppressive coping approaches mediated the relationship between anxious and avoidant attachment and distress, with a medium effect. Additionally, Wei, Heppner, and Mallinckrodt (2003) conducted a cross-sectional study with undergraduate students (n = 515). Using structural equation modelling (SEM), they found that anxious attachment was not related to distress. However, coping approach (i.e., problem-solving capacity, reactive and suppressive coping) did act as a mediator between anxious attachment and distress. Additionally, avoidant attachment and distress were related and also mediated by coping approach. They reported that the total model had a large effect size. In a cross-sectional study,

Burns (2011) assessed 233 undergraduate students in the USA. Both reactive and suppressive coping styles mediated the relationship between anxious attachment and distress, but not avoidant attachment.

Such studies indicate that coping approaches (i.e., reactive and/or suppressive) may mediate the relationship between attachment orientation (i.e., attachment anxiety and/or avoidance) and distress. Specifically all of the studies found evidence that reactive and suppressive coping mediated anxious attachment and distress. However, Burns (2011) found no evidence that coping mediated avoidant attachment and distress. In contrast to Mikulincer and Shaver's (2003) model, the studies (Burns, 2011; Lopez et al., 2001; Wei et al., 2003) suggest that a reactive or suppressive coping approach is not specifically linked to different attachment orientations (i.e., anxious or avoidant). Therefore in relation to trainee therapists, it is possible that individuals high in anxious or avoidant attachment will use a variety of maladaptive coping approaches to meet their needs and manage feelings of threat.

Nevertheless, whilst the findings from the mediational studies are of interest here, they are not without limitation. For instance, one study had a very small sample size and used inappropriate statistical analysis to detect mediation (Lopez et al., 2001). Further, all the studies used a cross-sectional design, which is deemed an inappropriate design when using mediational analysis (Cole & Maxwell, 2014). Additionally, all the studies assessed undergraduate students in the USA. Therefore, it is unclear whether such findings are generalizable to trainee therapists in the UK.

Summary

Existing research suggests that trainee therapists experience distress. Attachment orientation, mindfulness and coping approach have been shown to be related to distress. Based on theory and existing studies in adult populations, potential mediators of the relationship between attachment orientation and distress are considered here, as

mindfulness and/or coping approach. No existing study has tested either mediator with trainee therapists and no study has examined both mediators in one model. In addition, the majority of mediation studies in the literature used a cross-sectional design. Therefore, this study aimed to address the inherent limitations of cross-sectional data by utilising a longitudinal design over two time-points. The primary objective of the study was to examine the effect of attachment orientation (as an independent variable) and mindfulness and/or coping approach (as mediator variables) variables on distress (outcome variable). In order to examine these relationships over time, all potential independent and mediator variables were assessed at Time 1 and the outcome variable was assessed at Time 2.

Aims and hypotheses

Two hypotheses considered whether attachment orientation, mindfulness and/or coping approach were related to distress in a trainee therapist population:

H_1 – High levels of anxious and avoidant attachment will be related to high levels of reactive and suppressive coping and low levels of mindfulness at Time 1.

H_2 – High levels of anxious and avoidant attachment, high levels of reactive and suppressive and low levels of mindfulness at time 1 will all be related to high levels of distress at Time 2.

Two further hypotheses examined whether coping approach and/or mindfulness mediated attachment orientation and distress:

H_3 – Coping approach (reactive and/or suppressive) will mediate the relationship between anxious and avoidant attachment at Time 1 and distress at Time 2 (controlling for possible covariates).

H_4 - Mindfulness will mediate the relationship between anxious and avoidant attachment at Time 1 and distress at Time 2 (controlling for possible covariates).

A visual representation of the predicted relationships is presented in figure 1, below.

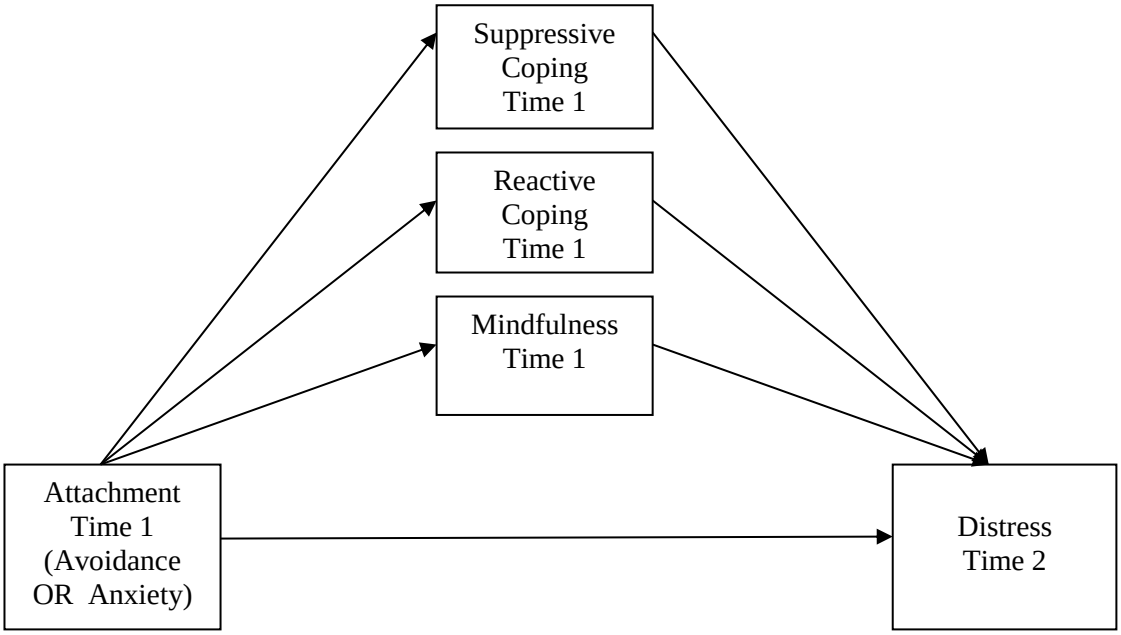

Figure 1. Hypothesised model: suppressive coping (Time 1), reactive coping (Time 1) and mindfulness (Time 1) as mediators of the association between Time 1 attachment avoidance or anxiety and Time 2 distress.

Method

Design

This study employed a longitudinal, within-subjects design. A purposive sample method was employed to recruit trainee clinical psychologists (TCPs), IAPT trainee therapists (ITTs) and psychological wellbeing practitioner trainees (PWPTs). An online survey method was used to collect data over two time-points separated by three months. This time difference was considered sufficient to test the stability of study variables. Recruitment was completed over two periods of time in order to maximise participant numbers. Time 1 (T1) data collection was carried out between June-August 2016 and October-December 2016. Time 2 (T2) data collection commenced three months after participants completed the survey at T1 (September-November 2016; January-February 2017).

Power analysis

An a-priori power analysis determined the appropriate sample size (using G-POWER 3.1.5) (Faul, Erdfelder, Lang, & Buchner, 2007). Based on using multiple linear regression, with a medium sized effect (0.15), power set at the recommended 0.8 (Cohen, 1988) and alpha at 0.05 and a possible 11 control variables. The recommended minimum sample size was 143. The medium effect size was chosen because available studies (Lopez et al., 2001; Wei et al., 2003), which have examined coping approaches as mediating the attachment-distress relationship, have reported medium to large effect sizes. Existing studies assessing mindfulness as a mediator in the attachment-distress relationship have not reported the effect size. However, studies (e.g., Coffey et al., 2008; Stevenson et al., 2017) separately assessing the relationship between attachment and mindfulness, and mindfulness and distress have reported medium effect sizes for both pathways. The anticipated control variables were: age, gender, ethnicity, mindfulness practice (T1 and T2), mindfulness practice duration (T1 and T2), participation in mindfulness intervention between T1 and T2, course and year of study, and distress (T1). Kuyken et al., (1998; 2000) is the only longitudinal study with TCPs and therefore their attrition rate was (8%) used to inform the expected attrition rate for this study). Therefore, it was calculated that a total sample of 156 participants would be required.

Participants

The term ‘trainee therapist’ can incorporate TCPs and ITTs. Indeed, clinical psychology, high intensity and PWP programmes all include a strong component in learning to work therapeutically using one or more therapeutic model. For instance, UK clinical psychology training currently consists of three years of supervised clinical experience in some or all of the following areas: Adult Mental Health, Children and Families, Older Adults and/or Learning Disabilities (Kuyken et al., 2003). Multiple

models and therapies are applied. Additionally, the course includes teaching, assignments and research. IAPT training involves training PWPS and high intensity therapists (who work with clients with greater complexity). Both programmes involve one or two placements over a year as well as formal teaching and assignments. ITTs are only trained in cognitive behaviour therapy (CBT) (Turpin, Richards, Hope, & Duffy, 2008). The current study focused on TCPs to extend previous work on this population (e.g., Cushway 1992). Further ITTS and PWPs were included as despite calls for further research, few studies have assessed ITTs and PWPs (Steel, Macdonald, Schröder, & Mellor-Clark, 2015). Additionally, the available courses for these trainee therapists are the largest in the UK (i.e., compared to counselling, educational or forensic psychologists), thus facilitating recruitment.

Participant recruitment

Permission (verbal or written) for contacting trainees was granted by each University programme. The course administrator then distributed an invitation and hyper-link to the online survey via email to all their registered trainees (Appendix A and Appendix B). All administrators were contacted approximately three to four weeks after T1 data collection commenced, asking them to send an email reminder to all trainees (see Appendix C). During the second period of T1 data collection, an additional message was attached to the email invitation, which asked for those who had previously completed the survey to refrain from doing so again. Participants were given the opportunity to be entered into a prize draw for £25 Amazon vouchers each time they completed the questionnaire (T1 and/or T2). Participants were only eligible if they were current TCPs, ITTs or PWPs in any year, training in the UK. Participants were not eligible if they were not currently working on the course (i.e., if they were on parental leave, long-term sickness leave). All those ineligible for the study were immediately redirected to the end of the survey.

Measures

Using Qualtrics online software, participants were presented with a battery of measures and a demographic questionnaire (see Appendix D). Questionnaire layout, readability and time taken to complete was tested with three third year trainee clinical psychologists from the University of Sheffield. As a result, font size was increased, spelling mistakes were identified and each questionnaire was placed on a separate page.

Attachment orientation was assessed using the 'Experience of Close Relationships' (ECR) (36 items) (Brennan, Clark, & Shaver, 1998). The ECR is a measure of adult attachment orientations toward romantic relationships and is composed of two factor-analytically-derived subscales that respectively assess attachment-related anxiety and avoidance. The Anxiety scale taps fears of abandonment and strong desires for interpersonal merger and the Avoidance scale assesses discomfort with interpersonal closeness, dependence, and intimate self-disclosure. Individuals rate on a seven-point scale ranging from one (strongly disagree) to seven (strongly agree) the extent to which each item describes their romantic relationship experiences in general. Brennan et al. (1998) reported Cronbach alpha coefficients of .91 and .94 for the Anxiety and Avoidance scales respectively. Test-retest coefficients have been reported to be between .68 (for anxiety) and .71 (for avoidance) over a three-week period (Brennan, Shaver, & Clark, 2000). Content and construct validity were also reported (Brennan et al., 1998). In the current study, the Cronbach alpha coefficient for ECR-anxiety at T1 was .90 and T2, was .92. The Cronbach alpha coefficient for ECR avoidance at T1 and T2 was .94.

Mindfulness was assessed using the Five Facet Mindfulness Questionnaire-Short Form (FFMQ-SF) (24 items) *(*Bohlmeijer, ten Klooster, Fledderus, Veehof, & Baer, 2011). The FFMQ-SF measures the capacity for mindfulness across several different key areas. Specifically, five subscales assess: non-reactivity, observing, acting with awareness, non-judging and describing. These subscales can be combined to yield a

total score, which reflects a global measure of mindfulness. The FFMQ-SF uses a 5-point Likert type scale ranging from one (never or very rarely true) to five (very often or always true). Bohlmeijer et al. (2011) reported Cronbach alpha coefficients between .75 and .87 for the subscales. Test–retest reliability of the FFMQ-SF has not been conducted. The FFMQ-SF has been reported to have convergent and discriminant validity, and incremental validity in the prediction of psychological symptoms (Bohlmeijer et al., 2011). In the current study, the Cronbach alpha coefficient for the FFMQ-SF at T1 and T2 was .87.

Coping approach was assessed using the Problem-Focused Style of Coping (PF-SOC) (1995) (11 items) (Heppner, Cook, Wright, & Johnson, 1995). The PF-SOC includes the Suppressive Style scale (SSS) and Reactive Style scale (RSS). The SSS is defined as a tendency to deny problems and avoid coping activities and represents items 1-6 on the scale (e.g.,'I avoid even thinking about my problems'). The RSS measures a tendency to have strong emotional responses, distortion, impulsivity, and cognitive confusion and represents items 7-11 on the scale (e.g.,'I get preoccupied about my problems and overemphasize some parts of them). Each item uses a 5-point Likert-type frequency scale ranging from almost never (one) to almost all of the time (five). Coefficient alphas for the subscales ranged from .73 to .77. Test–retest correlations ranged from .65 to .71 over three weeks. Construct, concurrent, and discriminant validity has been reported (Heppner et al., 1995). In the current study, the Cronbach alpha coefficient for the SSS at T1 was .79 and T2 was .87. The Cronbach alpha coefficient for the RSS at T1 was .79 and T2 was .80.

Distress was assessed using the Depression, Anxiety and Stress Scale (DASS) (21 items) (Lovibond & Lovibond, 1995). The DASS measures the emotional states of depression, anxiety and stress. Individuals use a 4-point scale (zero to three) to rate the extent to which they have experienced each state over the previous week. It is possible

to combine the scores to have a total DASS score or use the subscales separately. The DASS has demonstrated good internal consistency, ranging from .84 (anxiety subscale), to 0.90 (stress subscale) and .91 (depression subscale) (Lovibond & Lovibond, 1995) and acceptable test-retest reliability (0-71-0.81) over two weeks, with 20 adults (Brown, Chorpita, Korotitsch, & Barlow 1997). Convergent and discriminant validity has also been reported (Lovibond & Lovibond, 1995). In the current study, the Cronbach alpha coefficient for the DASS at T1 was .88 and T2, was .84.

Participants also reported demographics information regarding their age, gender, ethnicity, mindfulness practice and duration as well as training year and course type. Additionally at T2, participants reported whether they had completed a mindfulness training intervention between T1 and T2.

Procedure

Participants followed the hyperlink to the Qualtrics site from the invitation email. On the initial webpage, participants were presented with information about the study and a request for their consent to participate (see Appendix E and F). At T1, participants were asked to provide consent to be contacted again to complete the survey at T2 and to provide their email address. Participants' email address was subsequently separated from their data to maintain their anonymity. Further, to keep data confidential, participants generated a unique code (data from mother's maiden name and their year of birth) so that their T1 and T2 data could later be matched. Additionally, in the consent form, participants were also asked questions regarding their eligibility to participate (items related to enrollment on a TCP or ITT course in the UK and whether participants were currently working on the course).

After consenting, participants were asked to complete a demographic questionnaire. Research (e.g., Frick, Bächtiger, & Reips, 2001) suggests that placing a demographic questionnaire at the beginning decreases drop-out. Participants were not

forced to answer demographic items. Following the demographic information, participants completed the questionnaire measures in a random order as determined by Qualtrics. In order to minimise missing data, participants were forced to respond to each item before they could move on to the next stage of the questionnaire. Upon completion of the questionnaires at T1, participants were presented with an additional page, providing limited de-brief information about the study (Appendix G). Participants were made aware that if they chose not to complete the questionnaire at T2, they could contact the researcher for more information about the study.

Three months after T1, consenting participants were sent an email invitation with a hyper-link to the survey for T2 (see Appendix H). If participants did not complete the questionnaire after two weeks, a reminder was sent (see Appendix I). Upon clicking on the hyper-link, participants were asked to read the same information and complete the same consent form they received at T1. Participants then entered their unique code and completed items relating to mindfulness practice and duration as well as whether they had completed a mindfulness intervention between T1 and T2. Further, due to an error with the T1 questionnaire, participants were asked for information about their ethnicity. Participants were then again presented with the questionnaire measures, in a random order. Upon completion of the questionnaires at T2, participants were presented with an additional page, providing more detailed information about the study (see Appendix J).

Ethics

The University of Sheffield's Department of Psychology Research Ethics Committee granted ethical approval for the study (see appendix K). Participants provided informed consent after reading information about the study (i.e., the study's purpose, approximate time commitment, voluntary involvement, their right to withdraw as well as anonymity, data storage and possible risks and benefits). Individuals who did not provide consent were unable to progress with the online survey and were excluded

from the study. Participants remained anonymous; data across time points were matched using the participants' unique code. Personal information (email addresses) was stored separately from the questionnaire data. All data were stored on password-protected computers, only accessible by the researcher. Participants were provided with numbers for counselling support at the end of the survey, at each time point. Additionally, participants were given a summary of the study findings, if requested by email.

Data analyse

The data were analysed using IBM SPSS statistics (version 24). The T1 and T2 datasets were first checked for missing data. This is because participants were not forced to answer all demographic items. However, the online survey software was programmed to force participants to answer all items on each questionnaire. Consequently, there was no missing data within each questionnaire. Nevertheless, for ethical and practical reasons it was not possible to force participants to complete the whole online survey. Therefore either at T1 or T2, a small number of participants (n = 5) only completed three out of the four of the questionnaires before dropping out. However, because they completed the majority of the questionnaires, it was deemed appropriate to analysis their completed data. The data was also screened for outliers. Outliers were calculated as more than 3.29 standard deviations from the mean (Field, 2013). All responses were assessed for errors. That is, responses were checked to asses whether they were within the range of possible scores and whether they showed a consistent pattern across questionnaires at both T1 and T2. The dataset was also checked for incorrect coding. As a result, it was determined that any outliers detected were not a result of error and thus represented the participants' true scores (Field, 2013). Consequently they were not removed or modified.

Descriptive statistics were calculated for demographic and study variables. All continuous data (e.g., age, duration of mindfulness practice, anxious attachment,

avoidant attachment, dispositional mindfulness, suppressive coping, reactive coping and distress) were assessed for normality. Given the sample size (>200), skew and kurtosis scores were not converted into z scores, but their values were considered (Field, 2013). The Shapiro-Wilks statistic, which is a test of normality (Field, 2013), was interpreted with caution, given that in a large sample size (i.e., $n > 200$) significant results can be identified even when there is only a small deviation from normality (Ghasemi & Zahediasl, 2012).

Chi-squared tests or independent *t*-tests (as appropriate to the data) were used to test for between-group differences between T1 and T2 completers and T2 dropouts, on demographic and study variables. Due to small samples of ITT and PWPTs, the two groups were collapsed into one 'IAPT-trainee' group. Chi-squared tests or independent t-tests (as appropriate to data) were used to assess between-group differences between TCPs and IAPT-trainee on demographic or study variables. For all following analyses TCPs and IAPT-trainees were combined into one 'trainee therapist' group.

Pearson's Product Moment correlations, Independent *t*-tests and One-Way Analysis of Variance (ANOVA) were conducted as appropriate to assess the association and direction of relationships between and within demographic and study variables. Further, by correlating T1 and T2 study variables, it was possible to determine likely stability over time, an important assumption when conducting analysis of longitudinal data (Cole & Maxwell, 2014). In addition to normality, assumptions for Pearson's Product Moment correlations, Independent *t*-tests and One-Way Analysis of Variance (ANOVA) were checked (e.g., homogeneity of variance, independence) (Field, 2013).

The PROCESS macro (Hayes, 2012) was used to conduct the bootstrap procedure for mediation models with continuous variables. Bootstrapping is a nonparametric sampling procedure, which involves repeatedly sampling from the data set and estimating the indirect effect in each resampled data set (Hesterberg, Monaghan,

Moore, Clipson, & Epstein, 2003). Through this process, it is possible to build a sampling distribution of the indirect effect, which can be used to construct confidence intervals for the indirect effect (Preacher & Hayes, 2008). Significant indirect effects are present when zero is not contained in the confidence interval (Hayes, 2009). According to MacKinnon, Lockwood, & Williams (2004) and Preacher and Hayes (2008) the 'product of coefficient' method using the bootstrapping procedure is superior to other approaches (e.g., Baron & Kenny's (1986) 'causal steps' approach using multiple or hierarchical regression). The bootstrapping procedure enables greater statistical power while also maintaining control over Type I error (Thimm, 2010). It does not make assumptions regarding the normality of data and has been well evidenced in numerous studies (Hayes & Preacher, 2014).

Bias corrected and accelerated (BCa) confidence intervals were set at 0.95 with 5000 resamples, as recommended by Hayes (2009). Model 4 in the PROCESS macro (Hayes, 2012) was used to enable multiple mediators to be entered into the same model. The independent and mediator variables at T1 and the dependent variable at T2 were entered into the mediation model. Mediation models were completed separately for each independent variable (i.e., avoidant or anxious attachment). Co-variates were added based on whether they correlated with the variables of interest. As a result, the same co-variates used in the regression analysis, were added. Effect size was calculated using the 'proportion mediated' statistic (Preacher & Kelley, 2011). Further, consistent with recommendations (Hayes 2009; Zhao, Lynch & Chen 2010), the presence of indirect effect was assessed even when no direct effects were found.

Results

Of the 507 individuals who accessed the survey, 123 did not complete any questionnaires and/or were ineligible. Three hundred and eighty four individuals completed the T1 survey. Of these participants, 257 participants also completed the T2

survey. Therefore there was a 33% attrition rate. Five participants dropped out after completing three of the questionnaires either at T1 or T2. Therefore the sample size varied from 252 to 257 across scales. There was a larger amount of missing data for age, with 13 participants failing to provide a response. However, the sample size was within the estimated size for power (n = 143).

Descriptive data regarding participants' demographics, mindfulness practice and course type (i.e., TCP or ITT) are presented in Table 1 and Table 2. The 257 participants, who provided both T1 and T2 data, were predominately female trainee clinical psychologists in year 1 of their course with a mean age of 29.2 years. Of the 253 participants who provided information about their ethnicity, the majority were White-European. The majority of participants did not complete mindfulness practice either at T1 or T2 or complete a mindfulness-training course in between T1 and T2. A series of Chi Square tests and Independent Samples *t*-tests assessed between-group differences between individuals who completed both T1and T2 completers (n = 257) and individuals who dropped out after T1 (n = 127). Compared to ITTs, TCPs were less likely to drop-out. There were no other significant differences between any other variables for completers and dropouts. Therefore, with the exception of course type, completers were representative of the overall sample at T1 in relation to demographic variables. A series of Chi Square tests and Independent Samples *t*-tests assessed between-group differences regarding TCPs (n = 241) and ITTs (n = 16). Compared to ITTs, TCPs were more likely to be in the second or third year. This result is to be expected given that the IAPT courses are commonly one year long. There were no other significant differences between TCPs and ITTs regarding any other demographic variables.

Table 1

Descriptive data for participant demographics and course involvement

Variable	N (%)	Mean (*SD*)	Test Statistic completers vs. drop outs	Test Statistic TCPs vs. ITTs
Age		29.2 years *(4.16)*	$t(359)=.218$, $p=.827$	$t(242)=.097$, $p=.923$
Gender:				
Women	221 (86%)		$X^2=1.10$, $p=.294$	$X^2=1.71$, $p=.191$
Men	36 (14%)			
Ethnicity:				
White European	229 (91%)			$X^2=1.671$, $p=.196$
Other ethnicity	24 (9%)			
Course:				
Trainee Clinical Psychologist	241 (94%)		$X^2=9.071$, $p=.003$*	
IAPT high intensity worker	9 (3.5%)			
Psychological wellbeing practitioner	7 (2.7%)			
Year:				
1	131 (51%)		$X^2=.190$, $p=.909$	$X^2=12.71$, $p=.002$*
2	78 (30%)			
3	48 (19%)			

Note. *$p=.05$, **$p=.001$. ITTs=IAPT trainee therapists. TCPs=trainee clinical psychologists.

Table 2

Descriptive data for participant mindfulness practice

Variable	N (%)	Mean (*SD*)	Test Statistic completers vs. drop outs	Test Statistic TCPs vs. ITTs
Regular mindfulness practice T1:	33 (13%)		X^2=.960, *p*=.327	X^2=2.25, *p*=.133
No regular mindfulness practice T1:	224 (87%)			
Time practicing mindfulness per week T1		32.6 minutes *(30.6)*	*t*(74)=1.031, *p*=.306	*t*(47)=-.503, *p*=.617
Participated in a mindfulness intervention between T1 and T2:	38 (15%)			X^2=1.40, *p*=.237
Did not participate in a mindfulness intervention between T1 and T2:	219 (85%)			
Regular mindfulness practice T2:	38 (15%)			X^2=1.41, *p*=.235
No regular mindfulness practice T2:	219 (85%)			
Time practicing mindfulness per week T2:		37.2 minutes *(54.6)*		*t*(58)=-1.780, *p*=.08

Note. **p*=.05, ***p*=.001. ITTs=IAPT trainee therapists. TCPs=trainee clinical psychologists.

Descriptive data for T1 and T2 attachment orientation, mindfulness, coping approaches and distress variables, including the mean, standard deviation and skew and kurtosis are presented in Table 3. The majority of measures (i.e., avoidant attachment, reactive and suppressive coping and distress) at both time points showed positive skew on the histograms, indicating that the distribution of scores were based at the lower end. Additionally, for avoidant attachment, mindfulness, reactive and suppressive coping and distress at T1 and T2, both skew and kurtosis were not close to zero, indicating non-normal data. This was also confirmed by the distribution shown on the P-P and Q-Q plots and significant scores on the Shapiro-Wilks test. However, the distribution of FFMQ-SF scores at T1 and T2 and scores on the ECR (anxious-attachment measure) at T2 were normal. Further, for the FFMQ-SF (T1 and T2) Shapiro-Wilks test was non-significant and the value for skewness was close to zero, indicating normality. Nevertheless, the majority of measures showed a non-normal distribution. However, the central limit theorem indicates that in large sample sizes, the sampling distribution will be normal (Field, 2013). In this dataset the sample size was large (n = 257) and therefore the data is likely to approximate a normal distribution. Therefore all analyses reported below were conducted on the original, non-transformed data. Examination of the main variables indicated that at T1, there were four outliers on the suppressive coping scale and one outlier on the distress scale. At T2, there were three outliers on the suppressive coping scale, one outlier on the reactive coping scale and one outlier on the distress scale. Outlier responses were checked for errors and as a result it was determined outliers represented the participants' true scores (Field, 2013). Consequently outliers were not removed or modified,

A series of Chi Square tests and Independent Samples t-tests assessed between-group differences between T1/T2 completers (n = 257) and T2 dropouts (n = 127). There were no significant differences between any study variables for completers and

dropouts (see Table 3). Therefore, completers were representative of the overall sample at T1 in relation to the study variables. A series of Chi Square tests and Independent Samples *t*-tests assessed between-group differences regarding TCPs (n = 241) and ITTs (n = 16). There were no other significant differences between TCPs and ITTs regarding any of the study variables. Therefore it was deemed appropriate to combine the groups into a 'trainee therapist' sample.

Distress scores on the DASS at T1 and T2 were low. All participants were within the 'normal' or 'mild' range when considering scores in relation to Henry and Crawford's (2005) normed cut-offs.

Table 3

Descriptive data for study variables

Variable	Time collected	Mean (SD)	Skew (SE)	Kurtosis (SE)	Shapiro-Wilks	Test Statistic Completers vs. drop outs	Test Statistic TCPs vs. ITTs
ECR-Anxiety	T1	60.0 (17.5)	.39 (.15)	-.02 (.30)	.99*	$t(381)=-465$, $p=.642$	$t(255)=-.771$, $p=.442$
ECR-Avoidance	T1	48.7 (19.0)	.70 (.15)	-.27 (.30)	.94**	$t(284)=-703$, $p=.482$	$t(19.9)=1.24$, $p=.390$
FFMQ-SF	T1	80 (9.92)	-.20 (.15)	.21 (.30)	.99	$t(380)=-899$, $p=.369$	$t(15.7)=-.256$, $p=.802$
PF-SOC Suppressive	T1	11.35 (3.60)	1.26 (.15)	2.21 (.30)	.91**	$t(376)=.462$, $p=.644$	$t(252)=-1.91$, $p=.06$
PF-SOC Reactive	T1	11.17 (3.60)	.71 (.15)	.21 (.30)	.95**	$t(376)=.549$, $p=.583$	$t(252)=.481$, $p=.631$
DASS	T1	15.33 (11.5)	.80 (.15)	.31 (.30)	.95**	$t(380)=-281$, $p=.779$	$t(254)=-219$, $p=.827$
ECR-Anxiety	T2	59.4 (18.8)	.40 (.15)	-.20 (.30)	.98*	-	$t(252)=-1.20$, $p=.230$
ECR-Avoidance	T2	47.9 (18.8)	.67 (.15)	-.08 (.30)	.96**	-	$t(252)=.141$, $p=.888$
FFMQ-SF	T2	80.2 (9.5)	-.03 (.15)	-.30 (.30)	.99	-	$t(254)=-.620$, $p=.536$
PF-SOC Suppressive	T2	11.3 (3.60)	1.34 (.15)	2.30 (.30)	.90**	-	$t(14.8)=-1.75$, $p=.224$
PF-SOC Reactive	T2	10.9 (3.67)	.92 (.15)	.75 (.30)	.94**	-	$t(252)=-.524$, $p=.601$
DASS	T2	18 (15.45)	1.25 (.15)	1.68 (.30)	.90**	-	$t(253)=.223$, $p=.824$

Note: ECR Anxiety = Experience in Close Relationships Scale anxiety subscale; ECR Avoidance = Experience in Close Relationships Scale avoidance subscale; FFMQ-SF=Five Facet Mindfulness Questionnaire-Short Form, PF-SOC-Suppressive=Problem-Focused Style of Coping suppressive subscale; PF-SOC Reactive = Problem-Focused Style of Coping reactive subscale; DASS=Depression, Anxiety, Stress Scales. ITTs=IAPT trainee therapists. TCPs=trainee clinical psychologists. *p=.05, **p=.001

Associations between variables

Potential co-variates included gender, age, ethnicity, course, study year, group (i.e., whether participants completed questionnaires in the first or second data collection period), mindfulness practice (i.e., whether participants do a mindfulness practice or not), duration of mindfulness practice and whether participants completed a mindfulness intervention between T1 and T2. Using Pearsons *r*, there was a significant but small (Cohen, 1988) correlation between age and suppressive coping at T1 ($r(241) = -.191$, $p = .003$). In addition, an independent-samples *t*-test showed that individuals who reported having a regular mindfulness practice reported higher scores on the FFMQ-SF ($t(254) = 2.271$ $p = .024$). Other demographic variables were not significantly related to the study variables.

The correlation coefficients between continuous study variables for T1 and T2 are presented in Table 4. T1 avoidant and anxious attachment were correlated indicating that each attachment subscale should be added as a control for the other. T1 and T2 distress were correlated, indicating that it would be appropriate to control for T1 distress. Further, T1 and T2 attachment avoidance were positively correlated and T1 and T2 attachment anxiety were also positively correlated. Additionally, T1 and T2 suppressive coping were positively correlated as were T1 and T2 reactive coping and T1 and T2 mindfulness. These results indicated then, that each study variable is relatively stable over time and is therefore likely to have a relatively uniform effect on the outcome over time (Cole & Maxwell, 2014). Regarding the anticipated relationships between relevant variables (Hypothesis 1 and 2), all zero order correlations were significant and in the expected direction. T1 attachment-anxiety and attachment avoidance were both significantly and negatively related to T1 mindfulness. Additionally T1 attachment-anxiety and attachment avoidance were both significantly and negatively positively related to suppressive and reactive coping as well as T2

distress. In addition, T1 mindfulness was significantly and negatively related to T2 distress. Further, T1 suppressive and reactive coping were significantly and positively related to T2 distress.

Table 4

Correlations between Time 1 and Time 2 study variables

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1.ECR-Anxious T1	1											
2. ECR-Avoidant T1	.422**	1										
3. FFMQ-SF T1	-.499**	-.388**	1									
4. PF-SOC Suppressive T1	.366**	.348**	-.439**	1								
5. PF-SOC Reactive T1	.568**	.289**	-.532**	.373**	1							
6. DASS T1	.489**	.380**	-.448**	.387**	.537**	1						
7. ECR-Anxious T2	.754**	.320**	-.384**	.253**	.430**	.362**	1					
8. ECR-Avoidant T2	.324**	.824**	-.310**	.323**	.250**	.434**	.374**	1				
9. FFMQ-SF T2	-393**	-.383**	.720**	-.353**	-.396**	-.381**	-.464**	-.423**	1			
10. PF-SOC Suppressive T2	.258**	.311**	-.401**	.657**	.371**	.451**	.248**	.329**	-.421**	1		
11.PF-SOC Reactive T2	.452**	.324**	-.434**	.408**	.649**	.492**	.529**	.379**	-.527**	.597**	1	
12. DASS T2	.389**	.373**	-.347**	.384**	.446**	.577**	-.463**	.410**	-.473**	.511**	.633**	1

Note: ECR Anxiety = Experience in Close Relationships Scale anxiety subscale; ECR Avoidance = Experience in Close Relationships Scale avoidance subscale; FFMQ-SF=Five Facet Mindfulness Questionnaire-Short Form, PF-SOC-Suppressive=Problem-Focused Style of Coping suppressive subscale; PF-SOC Reactive = Problem-Focused Style of Coping reactive subscale; DASS=Depression, Anxiety, Stress Scale. *=p<.05 **=p<.001

Potential pathways from anxious attachment to distress

Regression analysis using bootstrapping was used to investigate the hypothesis that T1 mindfulness, reactive and suppressive coping act to mediate the relationship between T1 anxious attachment and T2 distress. Control variables included T1 distress, age and mindfulness practice. Results indicated that anxious attachment acted as a significant predictor for mindfulness (path a) B = -.1313, SE=.0369, p=.0005. Anxious attachment also acted as a significant predictor for suppressive coping (path a) B = .0344, SE=.0140, p=.0146 and reactive coping (path a) B=.0778, SE=.0124, p<.001. Mindfulness did not significantly predict distress (path b) B=.0578, SE=.1033, p=5764. Additionally, suppressive coping did not significantly predict distress (path b) B=.4548, SE=.2611, p=.0828. However, reactive coping did significantly predict distress (path b) B=.7146, SE=.2973, p=.0170. Additionally, there was not a significant direct effect of anxious attachment on distress (path c') B=.0226, SE=.0578, p=.6966. Bootstrapping procedures indicated that there was a significant indirect effect of anxious attachment on distress through reactive coping b=.0556, 95% BCa CI [.0101 to .1137]. There was no significant indirect effect of anxious attachment on distress through suppressive coping b=.0156, 95% BCa CI [-.0005 to .0473]. Additionally, there was no significant indirect effect of anxious attachment on distress through mindfulness, b=-.0076 95% BCa CI [-.0392 to .0166]. All variables in the model accounted for 74% of the total effect of attachment anxiety on distress (P_M =.7380). A graphical representation of this mediation model is presented in Figure 2.

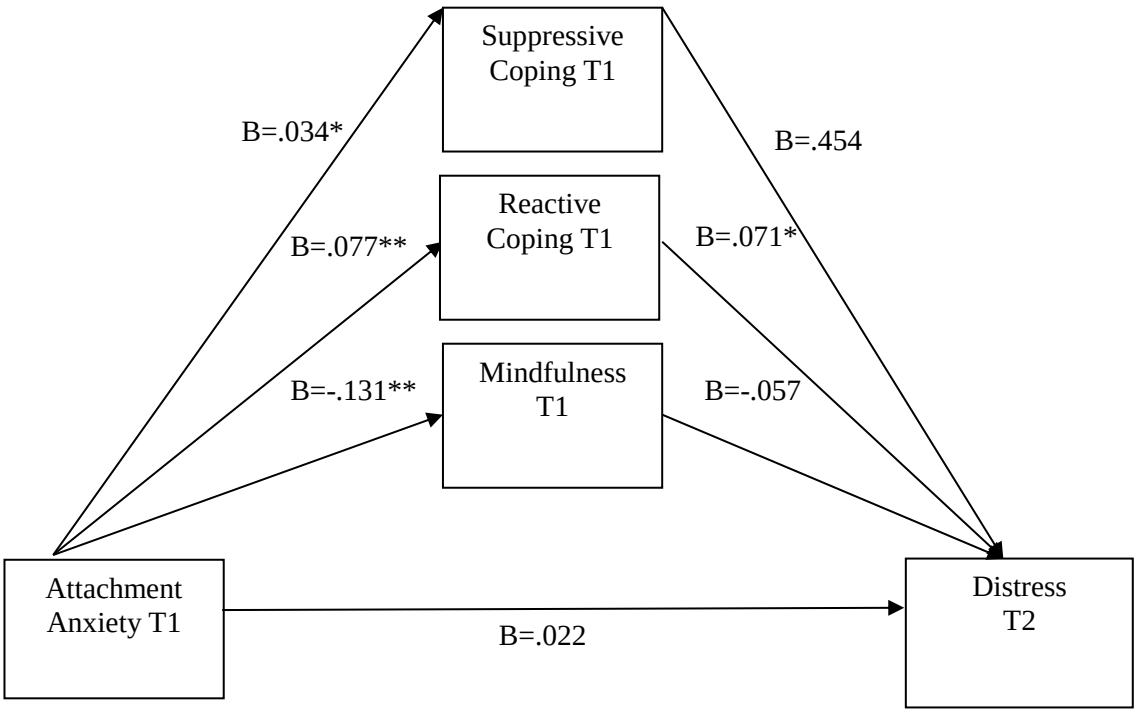

Figure 2. Mediation analysis. Suppressive coping, reactive coping and mindfulness as mediators of the association between T1 attachment anxiety and T2 distress. Figure 2 shows unstandarised B values. Analysis included the following co-variates (not pictured here): age, mindfulness practice (T1), attachment avoidance (T1), distress (T1). **p<.05 **p<.001*

Potential pathways from avoidant attachment to distress

Regression analysis using bootstrapping was used to investigate the hypothesis that T1 mindfulness, reactive and suppressive coping mediated the relationship between T1 anxious attachment and T2 distress. Control variables included T1 distress, age and mindfulness practice.

Results indicated that avoidant attachment acted as a significant predictor for mindfulness (path a) B=-0953, SE=.0321, *p*=.0034. Avoidant attachment also acted as a significant predictor for suppressive coping (path a) B = .0339, SE=.0120, *p*=.0052) but not reactive coping (path a) B = -.0010, SE=.0107, *p* = .9263). Mindfulness did not significantly predict distress (path b) (B=.0580, SE=.1033, *p*=5692). Suppressive coping did not significantly predict distress (path b) B=.4612, SE=.2606, *p*=.0781. However, reactive coping did significantly predict distress (path b) B=.7100, SE=.2967,

p=.0175. Additionally there was a significant direct effect of avoidant attachment on distress (path c') B =.1097, SE = .0470, *p* = .0205.

Bootstrapping procedures indicated that there was no significant indirect effect of avoidant attachment on distress through suppressive coping *b*=.0216, 95% BCa CI [-.0012 to .0641] or reactive coping, *b*=-.0011, 95% BCa CI [-.0290 to .0226]. There was also no significant indirect effect of avoidant attachment on distress through mindfulness *b*=-.0076 95% BCa CI [-.0436 to .0167]. The mediators accounted for 8% of the total effect of attachment avoidance on distress (P_M =.0786). A graphical representation of the mediational model is presented in figure 3.

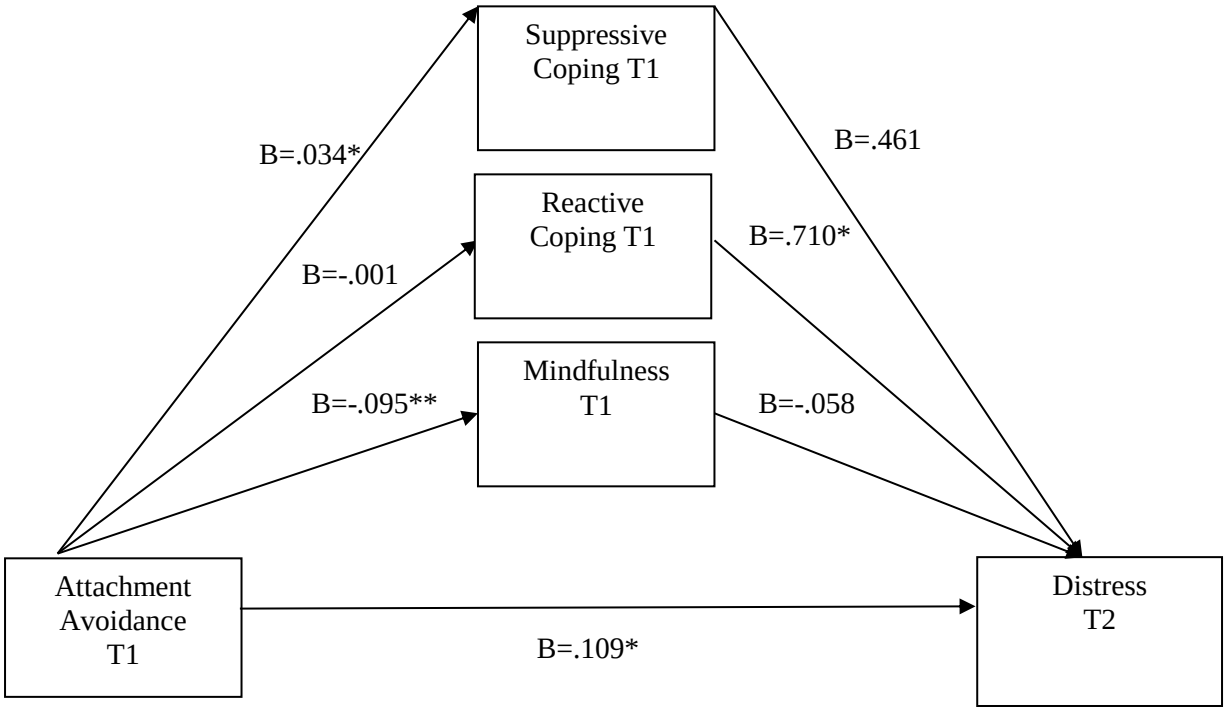

Figure 3. Mediation analysis. Suppressive coping, reactive coping and mindfulness as mediators of the association between T1 attachment avoidance and T2 distress. Figure 3 shows unstandarised B values. Analysis included the following co-variates (not pictured here): age, mindfulness practice (T1), attachment anxiety (T1), distress (T1). **p<.05 **p<.001*

Discussion

This study sought to examine whether the associations between adult attachment orientation, coping approach, mindfulness and distress reported in the literature, applied to the trainee therapist (i.e., TCP and ITT) population. Further, this study sought to assess whether coping approaches and mindfulness acted to mediate any relationship between adult attachment and distress. Consistent with the current study's hypotheses, the results demonstrated that attachment anxiety and avoidance, reactive and suppressive coping at T1 were related to distress at T2. Further, mindfulness at T1 and distress at T2 were correlated. Nevertheless, it should be noted that covariates were not included in any of the correlational analyses. Consequently when adding other variables to more complex analysis, such associations were not maintained.

In relation to coping approach as a mediator in the attachment-distress relationship, initial regression analysis indicated that reactive coping predicted distress over time. However, attachment anxiety did not predict distress. This result was consistent with Wei et al's. (2003) contention that the relationship between attachment anxiety and distress is more complex than has originally been conceived. Indeed, consistent with the study hypotheses, results showed that reactive coping mediated the relationship between attachment anxiety at T1 and distress at T2. This finding is congruent with previous mediational studies in non-clinical populations (Burns, 2011; Lopez et al., 2001; Wei et al., 2003). Additionally, the use of attachment anxiety predicted suppressive coping. However, inconsistent with the hypotheses and previous research (Burns, 2011; Lopez et al., 2001; Wei et al., 2003), suppressive coping at T1 did not act as a mediator between anxious attachment at T1 and distress at T2. Regarding attachment avoidance, regression analysis indicated that attachment avoidance predicted both suppressive coping and distress. However, incongruent with the hypotheses, suppressive coping at T1 did not mediate the relationship between attachment avoidance at T1 and distress at

T2. Furthermore, in contrast to the hypothesis, attachment avoidance did not predict reactive coping nor did reactive coping at T1 mediate the relationship between attachment avoidance at time 1 and distress at T2. Previous research has reported inconsistent findings in relation to the mediation models with avoidant attachment. For instance studies have reported that reactive and/or suppressive coping significantly mediated the relationship between attachment avoidance and distress (Lopaz et al., 2001, Wei et al., 2003), while others have not (Burns, 2011).

The findings are considered in relation to Mikulincer and Shaver model (2003). In this theoretical model, Mikulincer and Shaver (2003) have proposed that anxiously attached individuals expect their attachment figures to be inconsistently available. Consequently, such individuals habitually use hyper-activating strategies to gain their attachment figure's attention. Applying this model to the current study's results, it can be proposed that trainee therapists who report higher levels of attachment anxiety are likely to consistently adopt a reactive coping style or 'hyper-activating' approach (i.e., focusing on, and amplifying, distress; expressing high need). By their very nature, this strategy increases distress. However, findings here were also inconsistent with Mikulincer and Shaver model (2003), as results suggested that anxious attachment predicted the use of various maladaptive approaches rather than one primary coping approach. Increasingly researchers (Burns, 2011) have proposed that coping approach (i.e., reactive or suppressive) is not specifically linked to different attachment orientations. The study then, provides evidence for this argument. Nevertheless, whilst trainee therapists reporting higher levels of anxious attachment choose multiple coping strategies, it appears that only reactive coping is detrimental to their levels of distress. Trainee therapists' work involves the capacity to contain their own emotional responses with clients and other professionals (Yalom, 2002). Consequently, the tendency to use reactive coping approaches may be particularly unsuitable in this work context. That is,

individuals using reactive coping may have more difficulty containing and managing feelings, and thus may experience distress. Additionally, individuals who use reactive coping may ruminate about work and thus increase their distress (Pravettoni, Cropley, Leotta, & Bagnara, 2007). Coping is considered in the current study, to be habitual ways of regulating emotion and behavior (Skinner & Wellborn, 1994). Both reactive and suppressive coping are considered widely to represent 'ineffective coping' approaches (Park et al., 2010). Individuals who use suppressive and/or reactive coping are not simply *lacking* a coping strategy. That is such individuals have a coherent, active approach to managing difficulty and habitually select specific strategies (e.g. rumination) with the intention of managing distress. However, the strategies chosen tend to increase distress and are therefore ineffective. Nevertheless, such an approach is likely to have some benefit to the individual (i.e. may keep their attachment figure close) and therefore maintains their use of this approach.

In relation to attachment avoidance, the Mikulincer and Shaver model (2003) has proposed that avoidantly attached individuals anticipate their attachment figure will be consistently unresponsive to their needs. As a result, such individuals have learnt to 'deactivate' feelings of threat (e.g., deny problems, avoid activities). However, over time and/or with the experience of cumulative difficult events, this strategy is likely to break down (Berant, Mikulincer, & Florian, 2001), leading to distress. This study provided some evidence to support the model. That is, avoidant attachment predicted suppressive coping. However, suppressive coping did not predict distress over time or mediate the relationship between attachment avoidance and distress, possibly because the pathways between these variables are more complex in this population. For instance, suppressive coping and distress may also be mediated by a failure to self-soothe or self-care (Briggs & Munley, 2008). It is also possible that social support may mediate suppressive coping and distress. Individuals reporting attachment avoidance and the

tendency to use suppressive coping are unlikely to reach out to others to ask for help. Research (Kuyken et al., 2003) has indicated that lack of social support amongst TCPs is related to increased distress. In addition, the finding that avoidant attachment predicted suppressive, but not reactive coping, provided support for applying the original Mikulincer and Shaver model (2003) to trainee therapists. That is, trainee therapists with higher levels of avoidant attachment appear to use only one coping approach (i.e., de-activating strategies). It would make sense that if an individual perceives their attachment figures as consistently unavailable, that they would invariably chose a coping approach which does not involve expressing need. The current study indicates that a suppressive coping approach is not problematic. However, as stated above, the suppressive coping style has previously been reported as a relatively successful short-term approach. However, over time if difficult life events increase, this approach is likely to fail (Berant et al., 2001). It is possible then that participants in the study were not under enough strain for their suppressive coping approach to become ineffective.

In summary, and consistent with existing research using other populations, reactive coping mediated the anxious attachment-distress relationship but coping approach (i.e., reactive or suppressive) did not mediate the avoidant attachment-distress relationship. Existing research (Buller, 2015; Burns, 2011) has proposed that there are unique pathways between attachment and distress. For instance, Burns (2011) reported that the avoidant attachment-distress relationship was mediated by emotional intelligence, whereas the anxious attachment-distress relationship was mediated by coping approach. It is possible that there are different pathways between attachment and distress. Consequently, this would explain why coping approach did not mediate avoidant attachment and distress, in the trainee therapist population. Nevertheless it remains

unclear why other studies (Wei et al., 2003) have reported that coping approach does mediate the avoidant attachment-distress relationship.

Regarding mindfulness as a mediator in the attachment-distress relationship, initial regression analysis showed both attachment anxiety and avoidance predicted mindfulness. However, mindfulness did not predict distress. Further, incongruent with the current study hypothesis and previous research with undergraduate students (Pickard et al., 2016) mindfulness did not mediate the relationship between attachment orientation (i.e., anxious or avoidant) at T1 and distress at T2. Nevertheless, Buller (2015) found that mindfulness by itself did not mediate the relationship between attachment and distress.

It is not surprising that avoidant and anxious attachment predicted lower levels of mindfulness. Researchers (e.g. Caldwell & Shaver, 2013; Pepping, Davis & O'Donovan, 2013) have speculated that individuals with a secure attachment have a belief that their attachment figure will respond to them in times of distress. As a result, they are less concerned with attachment-related issues, are able to more quickly 'switch off' the attachment system and re-engage with greater processing resources to explore the world. Further, experiences with positive attachment figures, who have been curious and compassionate about their emotional distress enables secure individuals to internalize this experience and replicate it for themselves and others. This represents a 'mindful' approach to experiences. In contrast, insecure individuals are likely to find it hard to 'switch off' the attachment system and require greater processing energy to do this. As a result, they may find it more difficult to engage with the world in an exploratory and curious manner. Further, they may have been taught to fear emotional experience or view it as overwhelming. In both such cases, they are unlikely then to approach emotional experiences within themselves or others in an accepting and

compassionate way. That is they are likely to have difficulty approaching experience in a ‘mindful’ way.

In relation to trainee therapists, those high in avoidant attachment are likely to avoid or dismiss problematic emotions. Such individuals would have difficulty in noticing and approaching emotions, a central feature of mindfulness (Walsh et al., 2009). Additionally, trainee therapists high in anxious attachment, are likely to be preoccupied by their attempts to meet their attachment needs and thus unable to embrace emotional experiences (Buller, 2015).

In contrast to previous studies (e.g., Pickard et al., 2016), the current study used a longitudinal design and controlled for variables such as engagement in mindfulness practice. It is possible that the mindfulness-distress relationship does not hold over time or when additional variables are considered. Given the lack of relationship between mindfulness and distress, it is not surprising that mindfulness failed to mediate the attachment-distress relationship amongst trainee therapists. Nevertheless, it is possible that the relationship between mindfulness and distress over time may be more complex than anticipated. For instance, mindfulness and distress may be mediated by other variables such as emotion regulation capacity (Buller, 2015). Alternatively, when considering the relationship between attachment and distress, a serial mediation model may be appropriate. That is, there may be specific pathways between mindfulness and coping. For instance, individuals higher in secure attachment may have learnt to develop an open and accepting approach toward emotions, thereby enabling them to develop a ‘mindful’ approach to experience. Consequently, they may be less likely to select reactive or suppressive coping approaches and as a result, be less distressed. Pickard et al. (2016) developed a similar model, in which they examined pathways between attachment, mindfulness, emotional regulation capacity and depression in an adult population. Their sequential mediation analysis indeed found that attachment and

depression were mediated firstly by mindfulness and then emotional regulation. It is possible then, that these pathways could be applicable to a trainee population.

Previous studies with trainee clinical or counselling psychologists reported mixed results regarding whether gender, age and/or training year was related to distress. This study indicated that none of these variables were related to distress over time. Further, trainee therapists' ethnicity was also unrelated to distress over time. Results indicated that ITTs and TCPs were not significantly different in their reported levels of distress.

It should be noted that previous studies (Brooks et al, 2002; Cushway 1992; Kumary & Baker, 2008; Kuyken, 1998, 2000) have reported that a proportion of their participants (primarily trainee clinical or counselling psychologists) experienced distress. The current study indicated that all participating trainee therapists reported normal to mild range levels of distress. This may indicate that the trainee population is not highly distressed. This would suggest that even higher levels of an anxious attachment pattern and the use of reactive coping does not have a severe impact on distress levels. Alternatively, it is possible that participants did not accurately report their distress levels. If this is the case, then the validity of the results may be queried. It may also raise questions regarding why individuals would struggle to accurately report their distress levels on an anonymous questionnaire. It may be that such individuals have high levels of internalized stigma and shame regarding their distress. A final explanation for reported low levels of distress, is that individuals experiencing high levels of distress did not participate in the study. For instance, individuals on long-term sick leave were excluded. If highly distressed individuals did not participate in the study, this would mean that the sample would less representative, thus reducing the findings reliability.

Strengths and limitations

Few previous studies have considered what variables influence variation in levels of distress amongst trainee therapists. The current study fills this gap in research by examining dispositional predictors of distress amongst trainee therapists, and is the first to specifically consider attachment, mindfulness and coping variables. Nevertheless, researchers (Brookes et al., 2002; Kuyken et al, 2003) contend that distress is likely to be a result of a complex interaction between dispositional *and* contextual variables (e.g., course variables). This study was therefore limited by the focus on dispositional factors only.

This study considered relationships between variables over time. Previous researchers (Kuyken et al., 2003; Wei et al., 2003) have cited the need for such longitudinal research. Further, this design is particularly recommended when using mediational analysis (Cole & Maxwell, 2014). Nevertheless, whilst a longitudinal design can strengthen causal inferences, such assertions require removal of all possible confounds. This study controlled for key confounds (i.e., T1 distress) but could not remove all confounds due to the observational study design (Disabato, 2016). In addition, the study did not control for difficult life events between T1 and T2, which may have impacted on the results. Further, this study conducted a partial longitudinal study, measuring the independent and mediator variables concurrently (Cole & Maxwell, 2014). Consequently, this study cannot claim that attachment orientation is prospectively associated with coping approach and mindfulness.

A strength of this study was that it had a large sample size and attrition rate was very good (Babbie, 1973). Furthermore, a power analysis was conducted prior to data collection, which indicated that the study was adequately powered. Indeed, not all variables anticipated as covariates were included, consequently the power analysis is likely to be an under-estimate. However, the power analysis was based on using

multiple regression analysis. Consequently, it is possible that the sample size recommended by G*power (Faul et al., 2007) is inaccurate for mediation analysis. Power calculations for mediation could have been calculated using SAS (version 9.1) (Kadel, 2010).

Results indicated that there was only one significant difference between individuals who dropped out after T1 and those who completed both T1 and T2 (i.e., TCPs were more likely to complete). Therefore, systematic bias was introduced. Nevertheless, there was not widespread systematic drop-out indicating that the impact of bias was limited. However, it was not possible to compare differences in ethnicity for participators and drop-outs due to an error in the survey at time 1. In addition, no information was available about individuals who were invited to participate but chose not to do so. It is possible then, that selection bias was still introduced as for instance, individuals willing to participate may have been less distressed. Further, individuals were excluded from participation if they were not currently working on the course (e.g., if they had long-term sickness). It is possible therefore, that highly distressed individuals were excluded. Consequently, the results may have been biased.

The sample was primarily composed of TCPs who were caucasian females with an average age of 29 years old. This is representative of the trainee clinical psychologist and IAPT population (Clearing House, 2017; NHS England 2015). However, results may not be generalisable to other trainee therapists, for example trainee counselling psychologists, forensic psychologists etc. Further, in the study at T1 and T2, there were fewer participating IAPT trainees compared to TCPs. Consequently, it is possible the results do not generalise to IAPT trainees. Indeed, whilst the training for both TCPs and IAPT trainees can be considered similar, there are also differences. For example, the length of training is longer for TCPs and there are arguably greater academic and clinical demands on TCPs. Therefore, by presenting results from the TCP population

only, it is possible that this would increase the homogeneity of the sample. Further, due to the large sample size, low power is unlikely to be an issue if the ITTs were removed. Nevertheless, there were no significant differences between TCPs and ITTs regarding demographic variables (with the exception of training year) or study variables, indicting that it was appropriate to combine these populations.

The measures used showed good to excellent psychometric properties, providing confidence in results. Nevertheless all measures used were self-report and therefore it is possible that mono-method bias affected the results (Heppner, Kivlighan, & Wampold, 2008). Further, individuals may have under-reported levels of distress due to shame and stigma (Holttum, 2017).

Future research

The current study indicates that further research examining relationships between attachment, coping and distress amongst trainee therapists is a fruitful area of investigation. Future research should recruit a greater number of ITTs as well as expand the population of interest to include other trainee therapists (e.g., trainee counselling, forensic and educational psychologists) or qualified therapists. If future studies provided more evidence to support the current findings, then the development of an intervention focusing on coping approach may be appropriate. Future research could use a randomised control design to examine the effectiveness of providing coping skills to individuals reporting higher levels of anxious attachment.

Previous research (e.g., Landen & Wang, 2010) has identified negative associations between anxious or avoidant attachment and adaptive coping and wellbeing. Further, studies have found positive associations between mindfulness and wellbeing (Brown & Ryan, 2003). Therefore, it would be useful if future studies assessed coping approach and/or mindfulness levels as mediators between attachment and wellbeing amongst trainee therapists. Wellbeing is not simply the absence of

distress (Zessin, Dickhauser, & Garbade, 2015), but involves a variety of factors (e.g., evaluation of life satisfaction, positive affect, life meaning, self-acceptance etc.) (Dodge, Daly, Huyton, & Sanders, 2012). Therefore, considering distress and wellbeing in relation to trainee therapists could be important.

In addition, future studies could expand the model to include additional mediator variables. For instance, previous studies have found relationships between attachment and the quality of the supervisory relationship (Gnilka, 2010), but have not considered this variable as mediating the attachment-coping-distress or wellbeing relationship. If testing several complex models concurrently with multiple independent variables (i.e., anxious and avoidant attachment), then it would be appropriate for future studies to use structural equation modeling (SEM).

Future research could also rectify some of the limitations noted above. For instance, data could be collected over three time points, ensuring a full longitudinal study and thus providing greater evidence for relationships over time. Further, to combat potential mono-method biases, individuals' placement supervisors or clinical tutors could also be asked to report on participants' levels of distress and/or wellbeing. Future studies could collect data on both dispositional and contextual variables (e.g., work demands, assignment deadline time) and consider how such variables interact. For instance, whether there are specific times in the year when certain individuals are at higher risk of distress. It may also be useful to consider whether different courses (e.g., IAPT vs. clinical psychology training) increase individuals' vulnerability to distress. Alternatively, studies could examine what elements of the course work well for trainee therapists. For example, it is possible that existing mechanisms such as regular appraisals, a personal tutor system, buddy and/or mentor systems manage to offset individual vulnerabilities.

Additionally, studies could consider using a qualitative approach to understand trainee therapists' experience of distress and whether there is a stigma associated with reporting high levels of distress. Further, qualitative studies could examine why aspects of reactive coping are particularly problematic for trainee therapists.

Clinical implications

The current study indicates that individuals identifying with higher levels of anxious attachment may benefit from learning problem-focused coping skills (e.g., problem-solving, time management) in order to decrease distress. Indeed, within training programmes there is a need (if not already in place) to introduce a reflective culture for trainee therapists to consider coping (Kuyken et al., 2003). For instance, in peer groups and/or with course or placement supervisors, trainees could reflect on how they cope, whether their coping approach is ever problematic (e.g., rumination), the barriers to using an effective approach and how, if necessary, individuals may implement a different approach. Additionally, given the association between attachment orientation and coping, it may be helpful and de-shaming for trainees to consider how their attachment patterns have informed their coping approach (Wei et al., 2003).

It should be noted that, generally, levels of distress were low and within the normal or mild range (Henry & Crawford, 2005). However, it may still be useful for trainee therapists to have reflected upon their coping approach. This is, as when qualified, new challenges may arise which place individuals under greater strain (Kuyken et al., 2003). Further, given that when qualified, trainee therapists are likely to provide formal or informal supervision, it would be helpful for trainees to have an awareness of how individuals' coping may influence distress. Therefore, they could help their supervisees to explore the impact of coping.

The findings from the current study suggested that mindfulness was not related to distress. Therefore, providing trainees with interventions to improve mindfulness with

the aim of reducing distress may not be effective (although it may improve other outcomes). Nevertheless, further research is required before clinical recommendations are suggested.

Conclusion

This is the first study to examine associations between attachment orientations mindfulness, coping approach and distress, in a population of UK trainee therapists (TCPs and ITTs), over time. Additionally, this is the first study to assess mindfulness and coping approaches as mediators between attachment and distress within this population. Findings indicated that all study variables were related as expected. However, as part of the mediation analysis, regression indicated that anxious and avoidant attachment predicted mindfulness, suppressive and reactive coping and only avoidant attachment and reactive coping predicted distress. Further, consistent with the evidence base and theory (Mikuclinear & Shaver, 2003), reactive coping mediated anxious attachment and distress amongst trainee therapists. However, in contrast with the hypothesis, suppressive coping did not mediate attachment orientation (i.e., anxious or avoidant) and distress. Additionally, this study provided contrary results to the limited evidence base available thereby, indicating that mindfulness does not play a mediating role between attachment and distress for trainee therapists. Methodological limitations and recommendations for research were considered.

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Appendix A: Information email to course leader

Dear [University Course Leader]

My name is Rebecca Barns, I am a trainee clinical psychologist at the University of Sheffield.

For my thesis project, I am investigating the factors that may influence distress amongst trainee clinical psychologists and trainee IAPT workers in the UK. I would like to ask your permission to recruit the trainees currently registered on your course. This email will provide you with more information about the study and I would be happy to discuss any details further should you wish.

What is the study about?

The study is an online longitudinal survey, which aims to explore potential predictors of psychological distress amongst trainees.

What will we need to do?

Your permission is sought to forward, via email, the study information and links to the survey to all the trainees on your course (with the exception of those who are taking time away from the course e.g. those on parental leave etc).

What will trainees be asked to do?

Trainees' will be invited to complete a set of questionnaires, assessing relationship styles, dispositional mindfulness, coping styles and psychological distress. It takes approximately 25 minutes to read and complete the survey.

What will happen to the findings?

The results from this study will be submitted as an assessed piece of work for the clinical psychology doctorate at the University of Sheffield. Data will be anonymised and remain confidential. Only aggregate data will be used in the report of the study results. I will share results with the training community, both through presentations at meetings and dissemination in journals. All participating universities

and trainees will be given a summary of the research findings, if they wish. If your university would like a summary, please email me at the address below.

Are there risks for participants?

There are no known risks associated with this study. However, participants will be provided with support information and encouraged to seek support from their GP if adversely affected. Participants are free to withdraw from the study at any time.

Are there benefits for participants?

Participants will be offered the chance to win a £25 amazon gift voucher

Is this study ethical?

This research has been fully approved by University of Sheffield ethics committee. All participants' details will be kept anonymous and confidential. Data will be stored securely.

What is the timeframe for the study?

I will ask participants to complete questionnaires at two points over the year. Data collection will end by February 2017.

If you have any further questions, please do not hesitate to contact me.

My contact details [provided here]

Thank you for your support!

Yours sincerely

Rebecca Barns

Researcher supervisors

[contact details]

Appendix B. Initial introductory email to trainees

Dear trainees,

My name is Rebecca Barns and I am a trainee clinical psychologist from the University of Sheffield. I am doing a study on the predictors of psychological distress amongst UK trainee clinical psychologists and trainee IAPT workers (high intensity and PWPs). This is an important but under researched area. Please take part in this study, so we can fill the research gap!

Below is a link for more information and the questionnaire. It should take no more than 25 minutes to read and complete.

[link for online questionnaire]

By entering, you could win a £25 amazon gift voucher!!

This project has been approved by the University of Sheffield psychology research ethics committee.

Feel free to get in touch with any questions/ comments and thank you in advance!

[T1, second data collection period only]

Please note if you have already received this email and completed the questionnaires, you do not need to do this again. You should receive the link for the second set of questionnaires directly from me. If you have any questions, please contact me.

Thank you

Rebecca Barns

Appendix C: T1 reminder emails

Reminder email to staff member responsible for disseminating the email to trainees

Dear Sir/Madam

My name is Rebecca Barns and I am a trainee clinical psychologist at the University of Sheffield.

I have been given permission by [enter name] to recruit trainee clinical psychologists and/or IAPT trainee therapists, currently registered at your university to do an online survey as part of my clinical psychology doctorate research project.

You kindly sent an email to all trainees on your course [provide date]. Please could I ask you to send the attached reminder email with the link for the questionnaire. This is the only reminder email I will send.

If you have further questions, please do email me (email address provided)

Thank you

Rebecca

Reminder email to trainees

Dear trainees

My name is Rebecca Barns and I am a trainee clinical psychologist from the University of Sheffield. I am doing a study on predictors of psychological distress amongst UK trainee clinical psychologists and trainee IAPT workers (high intensity and PWPs).

This is a final reminder.

If you would like to take part in the study, then please follow the link for more information and the questionnaire. It should take no more than 25 minutes to read and complete.

[link for online questionnaire]

By entering, you could win a £25 amazon gift voucher!!

If you have already completed the questionnaire via this link, please do not complete it again!

This project has been approved by the University of Sheffield psychology research ethics committee.

Feel free to get in touch with any questions/ comments and thank you in advance!

[contact details provided]

Thank you

Rebecca Barns

Appendix D: Demographic questionnaire and psychometric measures

T1 Demographic Questionnaire

Directions: Please fill in the appropriate information for each question. The information collected on this questionnaire is for data analysis purposes only. Your responses will in no way be used to identify you as an individual.

1. Age:_____
2. Gender: Male / Female
3. What course are you on?
    - Clinical psychology training
    - IAPT High Intensity
    - PWP
4. Year of study (Please circle)

- First year
- Second year
- Third year

5. Do you currently have a regular mindfulness practice?

Yes_____ NO_____

- If yes, please specify how many minutes you practice a week

T2 Demographic Questionnaire

1. Do you currently have a regular mindfulness practice?

Yes_____ NO_____

- If yes, please specify how many minutes you practice a week

2. Have you completed a mindfulness intervention between now and the last time you completed these questionnaires, three months ago?

Yes_____ NO_____

3.What is your ethnicity? (Please state)

Experience of Close Relationships

Directions: The following statements concerns how you *generally feel* in romantic relationships. I am interested in how you *generally feel* in relationships, not just what is happening in a current relationship.

Respond to each statement by indicating how much you agree or disagree with it. Circle each number using the following rating scale;

1	2	3	4	5	6	7
Disagree Strongly	Disagree	Disagree Slightly	Neutral/ mixed	Agree slightly	Agree	Agree strongly

1.	I prefer not to show others how I feel deep down	1	2	3	4	5	6	7
2.	I worry about being rejected or abandoned	1	2	3	4	5	6	7
3.	I am very comfortable being close to other people	1	2	3	4	5	6	7
4.	I worry a lot about my relationships	1	2	3	4	5	6	7
5.	Just when someone starts to get close to me I find myself pulling away	1	2	3	4	5	6	7
6.	I worry that others won't care about me as much as I care about them	1	2	3	4	5	6	7
7.	I get uncomfortable when someone wants to be very close to me	1	2	3	4	5	6	7
8.	I worry a fair amount about losing my close relationship partners.	1	2	3	4	5	6	7
9.	I don't feel comfortable opening up to others	1	2	3	4	5	6	7
10.	I often wish that close relationship partners' feelings for me were as strong as my feelings for them.	1	2	3	4	5	6	7
11.	I want to get close to others, but I keep pulling back.	1	2	3	4	5	6	7
12.	I want to get very close to others, and this sometimes scares them away.	1	2	3	4	5	6	7
13.	I am nervous when another person gets too close to me.	1	2	3	4	5	6	7
14.	I worry about being alone	1	2	3	4	5	6	7
15.	I feel comfortable sharing my private thoughts and feelings with others	1	2	3	4	5	6	7
16.	My desire to be very close sometimes scares people away.	1	2	3	4	5	6	7
17.	I try to avoid getting too close to others	1	2	3	4	5	6	7
18.	I need a lot of reassurance that close relationship partners really care	1	2	3	4	5	6	7
19.	I find it relatively easy to get close to others.	1	2	3	4	5	6	7
20.	Sometimes I feel that I try to force others to show more feeling more commitment to our relationship than they otherwise would.	1	2	3	4	5	6	7

21. I find it difficult to allow myself to depend on close relationship partners.	1	2	3	4	5	6	7
22. I do not often worry about being abandoned.	1	2	3	4	5	6	7
23. I prefer not to be too close to others.	1	2	3	4	5	6	7
24. If I can't get a relationship partner to show interest in me, I get upset or angry.	1	2	3	4	5	6	7
25. I tell my close relationship partners just about everything.	1	2	3	4	5	6	7
26. I find that my partners don't want to get as close as I would like.	1	2	3	4	5	6	7
27. I usually discuss my problems and concerns with close others.	1	2	3	4	5	6	7
28. When I don't have close others around, I feel somewhat anxious and insecure.	1	2	3	4	5	6	7
29. I feel comfortable depending on others.	1	2	3	4	5	6	7
30. I get frustrated when my close relationship partners are not around as much as I would like.	1	2	3	4	5	6	7
31. I don't mind asking others for comfort, advice, or help.	1	2	3	4	5	6	7
32. I get frustrated if relationship partners are not available when I need them.	1	2	3	4	5	6	7
33. It helps to turn to close others in times of need.	1	2	3	4	5	6	7
34. When other people disapprove of me, I feel really bad about myself.	1	2	3	4	5	6	7
35. I turn to close relationship partners for many things, including comfort and reassurance.	1	2	3	4	5	6	7
36. I resent it when my relationship partners spend time away from me.	1	2	3	4	5	6	7

Problem-Focused Style of Coping Scale

The following are statements about how some people think, feel, or behave as they attempt to solve personal difficulties like feeling depressed, getting along with friends, making a difficult decision. Please think about how you think, feel, or behave when dealing with problems.

Please respond in a way that most accurately reflects how you actually think, feel, and behave when solving personal problems rather than how you think you should respond.

1	2	3	4	5
Almost Never	Occasionally	About half of the time	Often	Almost all of the time

1.	I am not really sure what I think or believe about my problems.	1	2	3	4	5
2.	I don't sustain my actions long enough to really solve my problems.	1	2	3	4	5
3.	I feel so frustrated that I just give up doing any work on my problems at all.	1	2	3	4	5
4.	I spend my time doing unrelated chores and activities instead of acting on my problems.	1	2	3	4	5
5.	I have a difficult time concentrating on my problems (i.e., my mind wanders).	1	2	3	4	5
6.	I avoid even thinking about my problems.	1	2	3	4	5
7.	I get preoccupied thinking about my problems and overemphasize some parts of them.	1	2	3	4	5
8.	I continue to feel uneasy about my problems, which tells me I need to do some more work.	1	2	3	4	5
9.	My old feelings get in the way of solving current problems.	1	2	3	4	5
10.	I misread another person's motives and feelings without checking with the person to see if my conclusions are correct.	1	2	3	4	5
11.	I act too quickly, which makes my problems worse.	1	2	3	4	5

Five Facet Mindfulness Questionnaire – Shortened version

Please rate each of the following statements using the scale provided. Write the number in the blank that best describes your own opinion of what is generally true for you.

1	2	3	4	5
never or very rarely true	Rarely true	Sometimes true	Often true	very often or always true

____1 I'm good at finding the words to describe my feelings

____2 I can easily put my beliefs, opinions, and expectations into words

____3 I watch my feelings without getting carried away by them

____4 I tell myself that I shouldn't be feeling the way I'm feeling

____5 It's hard for me to find the words to describe what I'm thinking

____6 I pay attention to physical experiences, such as the wind in my hair or sun on my face

____7 I make judgments about whether my thoughts are good or bad.

____8 I find it difficult to stay focused on what's happening in the present moment

____9 When I have distressing thoughts or images, I don't let myself be carried away

____10 Generally, I pay attention to sounds, such as clocks ticking or birds chirping

____11 When I feel something in my body, it's hard for me to find the right words to describe it

____12 it seems I am "running on automatic" without much awareness of what I'm doing

____13 when I have distressing thoughts or images, I feel calm soon after

____14 I tell myself I shouldn't be thinking the way I'm thinking

____15 I notice the smells and aromas of things

____16 even when I'm feeling terribly upset, I can find a way to put it into words

____17 I rush through activities without being really attentive to them

____18 usually when I have distressing thoughts or images I can just notice them without reacting

____19. I think some of my emotions are bad or inappropriate and I shouldn't feel them

____20. I notice visual elements in art or nature, such as colours, shapes, textures, or patterns of light and shadow

____21 when I have distressing thoughts or images, I just notice them and let them go

____22 I do jobs or tasks automatically without being aware of what I'm doing

____23 I find myself doing things without paying attention

____24 I disapprove of myself when I have illogical ideas

Depression, Anxiety and Stress Scale

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all
1 Applied to me to some degree, or some of the time

2 Applied to me to a considerable degree, or a good part of time
3 Applied to me very much, or most of the time

1	I found it hard to wind down	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I found it difficult to work up the initiative to do things	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I experienced trembling (e.g. in the hands)	0	1	2	3
8	I felt that I was using a lot of nervous energy	0	1	2	3
9	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10	I felt that I had nothing to look forward to	0	1	2	3
11	I found myself getting agitated	0	1	2	3
12	I found it difficult to relax	0	1	2	3
13	I felt down-hearted and blue	0	1	2	3
14	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15	I felt I was close to panic	0	1	2	3
16	I was unable to become enthusiastic about anything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life was meaningless	0	1	2	3

Appendix E: Information about project

I am inviting you to take part in a research study, which will examine predictors of trainee clinical psychologists and trainee IAPT workers' distress

What does taking part involve?

The following questionnaire should take no more than 25 minutes to complete. In approximately 3 months, I will contact you again to ask you to complete the questionnaires again. Data collection will then be complete.

Do I have to take part?

Participation is voluntary and refusal to take part in the study will involve no penalty. You may withdraw from the study at any time. You may request to have your data withdrawn at any time. To do this, you will need to contact the researcher with your unique code (which you will generate before you complete any questionnaires).

If you decide not to complete the second part of the questionnaire and/or withdraw your data, but would like further information about the study, please contact the researcher.

You should note that if you decide not to complete the second part of the questionnaire in three month's time, then it is likely that your data will not used.

Are there any risks in participating?

The study has received ethical approval from the University of Sheffield Research Ethics Committee. There are no known risks associated with this study. However, you may find some of the questions in the survey cause distress. Please prioritise your own wellbeing. If, during or after taking part, you feel that you have been adversely affected by any part of the study, please seek the help of your GP or university counselling service. Alternatively, please call **Samaritans:** 08457 90 90 90 or **Mind:** 0300 123 3393

Are there any benefits in participating?

It is hoped that this research will contribute to improving support for trainee clinical psychologists and trainee IAPT workers. If you would like a summary of the findings once the research is completed, please contact the researcher.

Additionally, if you provide your email address and consent, you will be entered into a prize draw for a £25 Amazon voucher.

Is everything confidential?

No-one at your institution will have knowledge of your participation or responses. All responses will be treated as confidential. Your data will be stored securely online. If you provide an email address, this will be stored separately from your responses.

What will be done with the results?

The results from this study will be written up and submitted as an assessed piece of work for the clinical psychology doctorate at the University of Sheffield. Additionally, I will share results with the training community, both through presentations at meetings and dissemination in journals. I very much hope that the results will inform discussion regarding how course staff, trainees and supervisors talk about stresses and support trainees.

Complaint procedure

If you need to make a complaint about any aspect of this study please contact:

[contact details provided]

I thank you very much in advance for your support. I would be more than happy to address any queries or comments you may have.

My contact details: [contact details provided]

Research supervisor contact details:[contact details provided]

Appendix F: Consent form

Please agree to each statement.

1. I confirm that I have read and understand the information for this study. I have had the opportunity to consider the information and know I can contact the researcher to ask questions.
2. I confirm that I am training on a clinical psychology, IAPT high intensity or PWP course in the UK
3. I confirm that I am currently working on my clinical psychology, IAPT high intensity or PWP course (e.g. I am not on parental leave or sickness leave)
4. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without consequence.
5. I understand that all data will be stored securely. All data will be anonymous and confidential.
6. I agree to my data being used in this study as well as other future reports or publications.

To ensure anonymity, please provide **a unique code**, using the first three letters of your university, the first three letters of your mother's maiden name and the date of your birthday. For example if you attended **Sheffield University** course, your **mother's maiden name** was Jones your **birthday** was 21.6.1989, then your code would be: SHEJON21

By completing the questionnaires, all participants are eligible to be entered into a draw to win a £25 amazon. If you would like to be entered, please provide your email address

[provide space for email address]

T1 ONLY:

I understand that you would like to contact me to complete further questionnaires in three months time. By giving my email address below, I provide consent for you to contact me again.

[provide space for email address]

I understand that you will keep my email address separate from my questionnaire data

Appendix G: Debrief and support Information for T1 questionnaire

Thank you for your participation in this research!

The aim of this research was to examine key predictors of psychological distress amongst trainee clinical psychologists and trainee IAPT worker. To assess this, you completed standardised questionnaires.

Results of this study will not include your name or any other identifying characteristics. The research did not use deception. You may request a summary of the research findings of this project (once it is completed). To do so, please contact me at the email address below.

If you need to talk someone about any distress that may have resulted from participation, please contact your GP or your university counselling service. Alternatively, please call **Samaritans:** 08457 90 90 90 or **Mind:** 0300 123 3393

Please note, if you have given consent I will contact you again in three month's time. If you have chosen not to be contacted again, it is likely your data will not be used. If you have not given consent but would like to change your mind, please email me on the address below.

Rebecca Barns [contact details provided]

Research supervisors [contact details provided]

Appendix H: T2 email to participants

Dear Trainees,

My name is Rebecca Barns and I am a trainee clinical psychologist from the University of Sheffield. Previously you kindly completed the first part of a questionnaire for my clinical psychology doctorate research project on predictors of distress amongst UK trainee clinical psychologists and trainee IAPT therapists. You gave consent for me to contact you again to complete the second part of the questionnaire. I would very much appreciate it if you could complete the second part of the questionnaire.

The questionnaire should take no more than 25 minutes to read and complete. Your responses are anonymous and cannot be linked back to you.

[link for questionnaire]

By participating, you can also enter the competition to win £25 Amazon vouchers.

This project has been approved by the University of Sheffield psychology research ethics committee.

Thank you for your support! Feel free to get in touch with any questions/ comments:

My email address is: [email address provided]

Best wishes,

Rebecca

[supervisor contact details provided]

Appendix I: T2 questionnaire reminder

Dear Trainees,

My name is Rebecca Barns and I am a trainee clinical psychologist at the University of Sheffield. You kindly completed a questionnaire for my clinical psychology doctorate research project on predictors of distress amongst UK trainee clinical psychologists and trainee IAPT therapists. I recently sent you an email asking you to complete the second part of the questionnaire. It would be extremely helpful if you could complete it.

The questionnaire should take no more than 25 minutes to read and complete. Your responses are anonymous and cannot be linked back to you.

[link to questionnaire]

By participating, you can also enter the competition to win £25 Amazon vouchers.

This project has been approved by the University of Sheffield psychology research ethics committee.

I will not email you another reminder after this email.

Thank you for your support! Feel free to get in touch with any questions/ comments:

My email address is: [email address provided]

Best wishes,

Rebecca

[supervisor contact details provided]

Appendix J. T2 debrief & support information

Thank you for your participation in this research!

The aim of this research was to examine key predictors of psychological distress amongst trainee clinical psychologists and trainee IAPT worker. To assess this, you completed standardised questionnaires over two points, which assessed attachment orientation, coping approach, dispositional mindfulness and psychological distress (i.e. levels of stress, anxiety and depression). It is anticipated that individuals who report high levels of attachment anxiety or avoidance will also report higher levels of suppressive and reactive coping styles, lower levels of mindfulness and higher levels of distress. In turn, it is anticipated that attachment orientation will influence coping style and mindfulness, which in turn will affect distress. You may request a summary of the research findings of this project (once it is completed). To do so, please contact me at the email address below.

Results of this study will not include your name or any other identifying characteristics. The research did not use deception.

If you need to talk someone about any distress that may have resulted from participation, please contact your GP or your university counselling service. Alternatively, please call **Samaritans:** 08457 90 90 90 or **Mind:** 0300 123 3393

If you have any further questions about the project, please contact me or my supervisors:

Rebecca Barns

[email address provided]

[supervisor contact details provided]

Appendix K: Ethical approval form

The University Of Sheffield.

Downloaded: 23/05/2016
Approved: 19/05/2016

Rebecca Barns
Registration number: 140109230
Psychology
Programme: Doctorate of Clinical Psychology

Dear Rebecca

PROJECT TITLE: Dispositional Predictors of Psychological Well-being Amongst Trainee Therapists in the United Kingdom
APPLICATION: Reference Number 007323

On behalf of the University ethics reviewers who reviewed your project, I am pleased to inform you that on 19/05/2016 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 007323 (dated 11/05/2016).
- Participant information sheet 1016400 version 2 (11/05/2016).
- Participant consent form 1015894 version 2 (11/05/2016).

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