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THE EFFECTIVENESS OF MINDFULNESS-BASED INTERVENTIONS.

Section A: Self-Help Mindfulness-Based Stress Reduction and Mindfulness-Based Cognitive Therapy for Individuals Experiencing Depression: A Systematic Review and Meta-Analysis of Randomised Controlled Trials.

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Section B: Examining the Feasibility of a Mindfulness Booster Course for Healthcare Staff Who Attended an eight-week Mindfulness Course

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Summary of MRP

Section A

Section A presents a pre-registered systematic review and meta-analysis of randomised controlled trials (RCTs) of self-help mindfulness-based stress reduction and mindfulness-based cognitive therapy for individuals experiencing depression. A systematic search identified 14 RCTs which met the inclusion criteria, of which eight contained the appropriate data for extraction. The risk of bias of all eight studies were rated using the revised Cochrane Risk of Bias Tool for RCTs. Results showed significant effects favouring higher guidance Mindfulness-Based Self-Help (MBSH) vs. control, MBSH vs. active controls and established MBSH vs. controls for the depression post-intervention outcome. No significant moderation effects were identified for level of guidance or type of MBSH. There was substantial heterogeneity within meta-analyses and confounding variables within datasets (level of guidance and adherence). However, findings needed to be treated with caution as all bar one study were rated as having a "high risk" of bias. Clinical implications and future research areas are discussed.

Section B

Section B presents a pre-registered feasibility RCT assessing the feasibility, acceptability and preliminary effectiveness of a newly developed online Mindfulness Booster Course (MBC) for healthcare staff who have previously completed an eight-week mindfulness course. There were 58 participants randomised into either the MBC or a treatment as usual (TAU) control group. All of the predefined progression criteria (recruitment, retention, acceptability, outcome measure completion and preliminary signal of effectiveness on the primary outcome of stress) were rated as green and qualitative feedback highlighted that the majority of

participants rated the MBC as very acceptable, very helpful, very accessible and slightly challenging. The post-intervention between-group effect size on change in the primary outcome measure was g = .57 (95% CI: .01 to 1.13). Results indicated progression to a larger-scale RCT is warranted. Clinical implications are discussed and recommendations for a larger-scale RCT are provided.

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Section A: Literature Review

Self-Help Mindfulness-Based Stress Reduction and Mindfulness-Based Cognitive Therapy for Individuals Experiencing Depression: A Systematic Review and Meta-Analysis of Randomised Controlled Trials.

Word count: 7999

Abstract

Background

Depression is a common mental health difficulty with a high relapse rate. Mindfulness-Based Self-Help (MBSH) may be effective for individuals with depression, but has not been reviewed. A pre-registered (Prospero:CRD42024497040) systematic review and meta-analysis was conducted of MBSH for individuals experiencing depression.

Method

A systematic search of five databases and two registers identified eight papers eligible for inclusion in analysis. Second-raters independently checked 5% of potentially eligible records, risk of study bias for included records and data extraction (100%, 90% and 99.6% agreement respectively). Two meta-analyses and two moderation analyses were completed.

Results

MBSH arms showed significantly lower post-intervention depression levels than active (g=-.27, 95% CI=-.45 to -.01), but not passive controls (g=-.16, 95% CI=-.59 to .27). Analysable follow-up effects were non-significant. High guidance, but not low guidance, MBSH sub-groups showed significantly lower post-intervention depression levels than controls, with no significant moderation effect. This is possibly due to the small number of studies. Secondary and unplanned analyses are reported. All but one study had high risk of bias. There was substantial heterogeneity within many meta-analyses.

Conclusions

Whilst it was tentatively concluded higher MBSH guidance could increase intervention adherence consequently reducing depression symptoms, further, higher quality, research is needed.

Key words: depression, mindfulness, self-help, self-directed

Introduction

Depression is one of the most common mental health difficulties worldwide (World Health Organisation, 2022). Cases of depression have increased over time (Liu et al., 2020), and this has been particularly noticeable since the Covid-19 pandemic (Santomauro et al., 2021). The current adult global prevalence of depression is estimated at 28% (Mahmud et al., 2023) and the prevalence of moderate-to-severe depressive symptoms in Great Britain is estimated at 16% (Office for National Statistics, 2022). Depression can involve an array of psychological, physical and social symptoms, such as low mood, loss of interest and pleasure, changes in sleep, hopelessness, low motivation and low self-esteem (National Health Service, 2023). These symptoms impact upon all areas of functioning, including occupational, social and personal (Kamenov et al., 2016), resulting in a widespread effect. Contextual factors such as socio-economic status and social support must be held in mind when considering depression, given the link between life circumstances and depression (Grey et al., 2020; Guan et al., 2022). It should be noted that, whilst the prevalence of depression in adults increased during the Covid-19 pandemic, this increase was especially prominent for those who were already at a higher risk of developing depression due to financial and social circumstances (Ettman et al., 2020).

Individuals can experience single or multiple episodes of depression (World Health Organisation, 2023). However, risk of recurrent depression is high (Beshai et al., 2011), with recurrence rates estimated at 50% following a single episode of depression, 70% after a second episode and 90% after a third episode (Bains & Abdijadid, 2020). Given this, it is clear therapies for depression not only need to support individuals with current experiences, but also support relapse prevention. The NHS Talking Therapies for Anxiety and Depression Programme often provides low intensity Cognitive Behavioural Therapy (CBT) as a first line

intervention for depression (NHS England, n.d.). However, high relapse rates have been identified following accessing this therapy, with 53% of individuals relapsing within one-year (Ali et al., 2017). In contrast, mindfulness has been found to reduce depressive symptoms and risk of depressive relapse (Michalak et al., 2008).

Mindfulness has been defined as consciously and non-judgementally paying attention to the present moment (Kabat-Zinn, 2003). The traditional concept of mindfulness originated from Buddhist teachings, where it is considered a crucial aspect of the path to enlightenment (Kang & Whittingham, 2010). Whilst Buddhist mindfulness is linked with spiritual and ethical principles, mindfulness within a Western healthcare context largely centres around specific practices aiming to improve individual wellbeing and functioning (Nilsson & Kazemi, 2016). Mindfulness is theorised to improve wellbeing through supporting the individual's ability to enter the being mode, which is a state of increased conscious awareness of internal experiences (Teasdale, 1999). Entering the being mode supports the individual to disengage from unhelpful mental processes, such as negative self-focused thoughts and rumination (Fresco et al., 2007). It is theorised individuals can strengthen their ability to enter the being mode through repeated practice, suggesting more mindfulness practice would lead to more benefits (Teasdale & Segal, 2007). Multiple benefits of engaging in mindfulness practice have been documented, including improvements within affective and interpersonal domains, such as increased emotion regulation abilities and compassion (Davis & Hayes, 2011). Mindfulness has also been found to correlate with good mental health, with higher levels of mindfulness being linked to lower levels of depression (e.g. Xu et al., 2023). Given this, several Mindfulness-Based Interventions (MBIs) have been developed, and are used within a variety of settings, across a span of ages (Zhang et al., 2021).

Two of the most widely utilised MBIs are Mindfulness-Based Cognitive Therapy (MBCT) and Mindfulness-Based Stress Reduction (MBSR; Hofmann & Gómez, 2017). MBSR is an 8-week course developed by Jon Kabat-Zinn in the 1970's, which teaches mindfulness meditations and mindful movement practices such as body scans, sitting meditations and mindful yoga (Niazi & Niazi, 2011). MBSR was originally developed to support individuals experiencing stress, but has since been applied to numerous psychological and physical difficulties (de Vibe et al., 2017). MBCT builds upon MBSR by incorporating elements of cognitive therapy (Crane, 2017). MBCT is an 8-week course, originally developed to support individuals experiencing recurrent depression through enabling perspective changes towards thoughts, emotions and physical experiences (Segal et al., 2002). Both MBSR and MBCT programmes contain a high degree of overlapping concepts and practices, such as the body scan, sitting meditation, mindful movement and mindfulness in everyday life (Kabat-Zinn, 2017; Potter, 2023; Teasdale et al., 2013). Other MBIs have also been developed, some of which align with MBCT/MBSR in terms of length and content, others which deviate (Hofmann & Gómez, 2017).

Given severity and chronicity of depressive symptoms are linked with rumination (Nolen-Hoeksema, 2000), MBIs theoretically would reduce these symptoms, through increasing the individual's ability to disengage from rumination via entering the being mode (Teasdale, 1999). The benefits of MBCT on reducing both depressive symptoms and the risk of depressive relapse are widely documented (Goldberg et al., 2019; MacKenzie & Kocovski, 2016; McCartney et al., 2021), and are recognised by the National Institute for Health and Care Excellence (NICE; 2022). MBCT is included within NICE (2022) recommendations of interventions for depression. Despite the acknowledged benefits, there have been barriers to implementing MBI programmes, including lack of facilitators, funds and appropriate rooms

(Crane & Kuyken, 2013). An MBI adaptation with potential to address these implementation barriers are self-help versions of MBIs, commonly known as Mindfulness-Based Self-Help (MBSH).

Self-help includes any guided or unguided therapeutic intervention which is grounded in self-management (National Health Service, 2022). It can be conceptualised on a continuum from no/marginal support, to limited semi-professional help, to limited professional help (Harwood & L'Abate, 2009). Guided self-help interventions can consist of support from less-intensive practitioners, online/telephone support and/or support contact time being six-hours or less (Shafran et al., 2021). Although this six-hour cut-off is somewhat arbitrary, it aligns with support timeframes for other low-intensity interventions, such as low-intensity CBT (Roach et al., 2023). Less-intensive practitioner guidance for self-help interventions could include fewer, shorter and asynchronous interactions; whereas, more-intensive practitioner guidance would include the opposite (Baguley et al., 2010). In addition, contact with professionals in high guidance MBSH studies will often be scheduled (O'Mara et al., 2023) and can include support in relation to the therapeutic content (Nordgreen et al., 2012).

Self-help interventions have been evidenced as effective for depression (Gellatly et al., 2007) and are recommended within the NICE (2022) treatment guidance for depression. However, MBSH is yet to be listed within these guidelines (NICE, 2022). Despite this, there is growing evidence for MBSH having beneficial effects for individuals experiencing depression (Sadeghi et al., 2019; Taylor et al., 2014). The Supportive Accountability Model theorises increased human guidance from a trusted individual improves adherence to self-help interventions, moderated by intrinsic motivation (Mohr et al., 2011). Given a symptom of depression is reduced motivation (National Health Service, 2023), guidance may play an

important role in self-help interventions for this demographic, to support adherence. Greater use of self-help materials (i.e. adherence), has been noted to improve intervention effectiveness (Andersson et al., 2006). In line with this, individuals have demonstrated greater improvements in depressive symptoms with more guidance on self-help interventions (e.g. French et al., 2017). Therefore, when considering the effectiveness of MBSH on individuals experiencing depression, it may be important for research to separate higher-guidance and lower-guidance interventions.

Previous systematic reviews and meta-analyses on MBSH have focused on either solely unguided MBSH, have combined MBI and acceptance-based interventions, or have included MBSH interventions that do not need to be based on MBCT/MBSR (Cavanagh et al., 2014; Martin et al., 2018; Taylor et al., 2021). These reviews also did not look at samples where the participants had to meet criteria for depression. Consequently, at this point in time, a systematic review on the effect of self-help MBCT/MBSR on individuals experiencing depression has not yet been completed. This is an important unexplored area of research, given the large number of individuals who experience depression, and the possible differences in effectiveness between high and low guidance MBSH and different MBI formats.

Consequently, the current review aims to address this, by completing a systematic review and meta-analysis of randomised controlled trials (RCTs) of self-help MBSR/MBCT in adults experiencing depression, to determine whether MBSH based on MBSR/MBCT is an effective intervention for depression.

Method

This review was registered on Prospero (registration ID: CRD42024497040; Appendix A) prior to data extraction. After data extraction, analysis of additional outcomes (anxiety and mindfulness) were added to the registered plan, due to several studies reporting these data.

Search strategy

The databases Medline, PsychINFO, CINAHL, Web of Science, ASSIA, ISRCTN and Clincialtrials.gov were searched from inception to 27th November 2023. Table 1 shows the search terms which searched within titles, keywords, and abstracts. Self-help search terms were identified through previous systemic reviews on self-help interventions (Taylor et al., 2021).

Table 1

Search terms used for the systematic review

Search terms
Mindfulness*based cognitive therapy OR mindfulness*based stress reduction OR MBCT OR MBSR or mindfulness* OR mindful mood balance OR the mindful way OR frantic world OR be mindful AND random* OR RCT OR control* OR trial AND self*help OR self*guide* OR self*taught OR self*learn* OR self*led OR self*administer* OR self*manage* OR minimal* OR self*direct* OR CD OR CDs OR DVD* OR MP3* OR MP4* OR tape* OR cassette* OR audio* OR book* OR e-book* OR app OR apps OR phone* OR smart*-phone* OR telephone* OR cell*phone* OR mobile*phone* OR computer* OR multi-media or web* OR internet* OR on*line OR e-health OR unguided or video* AND depress*

Screening

Search hits were imported onto Refworks, where duplicates were removed. The author screened titles and abstracts against eligibility criteria (see Table 2), and full-text versions of potentially relevant papers. A second reviewer independently screened a portion of full-text records (n = 10; 5%), to assess quality of the eligibility process. A random number generator was used to select three records from the "eligible" list and seven from the "excluded" list. A perfect level of agreement was achieved (100%).

Table 2

Eligibility criteria

Inclusion criteria	Exclusion Criteria
1. The paper is a Randomised Controlled Trial (RCT). The trial can include active or passive control groups. 2. Individuals are 18 years old and above. 3. Participants either meet diagnostic criteria for depression or score above an established clinical cut-off on a validated measure of depression at baseline. 4. Study authors or intervention developers describe the intervention as based on MBCT or MBSR. 5. It includes key MBCT (Segal et al., 2012)/MBSR (Kabat-Zinn, 1982; Kabat-Zinn, 1990) practices: body-scan, sitting meditation (e.g. mindfulness of breath), mindful movement and mindfulness in daily life. Home-practice is not discouraged. 6. It is a guided or unguided self-help involving less direct contact time with a mindfulness teacher/practitioner than the full MBCT/MBSR courses. Specifically: a) Any input from mindfulness teachers is less than eight-hours of live contact time. If the contact is provided by a non-mindfulness teacher such as a supporter, this could be more than eight-hours. b) Participants are provided with a programme intended to be a stand-alone intervention to guide themselves through the intervention (e.g. a workbook, online programme, app etc). If there is contact with mindfulness teacher within the programme, the self-help materials should be used as the primary method of learning. c) The intervention can include contact with peers (e.g. group sessions, workshops and group chats), so long as this is secondary to the self-help materials. 7. The intervention duration is at least four weeks and the intervention includes at least four sessions (which can be self-help).	The self-help integrates MBCT/MBSR with another substantive intervention (e.g. exercise monitoring, compassion-focused therapy, acceptance-focused therapy etc.).

Data extraction and sub-grouping

Means, Standard Deviations (SDs) and sample sizes for intervention and comparison groups were extracted from included studies at post-intervention. Where these data are unavailable, authors were contacted. If provided, follow-up data were also extracted. On occasions where multiple follow-up timeframes were presented, the longest timeframe was chosen, as per guidance (Deeks et al., 2021). Data were grouped into type of control group (active and passive) and level of guidance (high or low). Separate meta-analyses were performed on passive and active control datasets. A moderation analysis was completed on level of guidance. Following this, an unplanned post-hoc exploratory analysis was completed, due to results of planned analyses raising questions about impact of the type of MBSH used in each study (established and non-established). Established MBSH have either been authored, co-authored or approved by MBSR/MBCT founders Jon Kabat-Zinn or Zindel Segal. Non-established MBSH were either created specifically for their studies, or were a published programme that was not authored, co-authored, or approved by, MBCT/MBSR founders. A moderation analysis was completed on type of MBSH. To assess for accuracy, data for all studies were extracted independently by a second member of the research team. A 99.6% level of agreement was achieved. Table 3 depicts the criteria and rationale for each sub-group.

Table 3

Criteria and rationale for each included sub-group or dataset

Dataset	Criteria	Rationale for inclusion
Type of control group		The use of a passive control provides a comparator for the intervention. However, they do not control for placebo effects, which active controls attempt to do (Boot et al., 2013). Given this, treatment effects are more likely to be found with passive control groups (Byrd-Bredbenner et al., 2017; Freedland et al., 2011). Therefore, by splitting the datasets into types of control group, potential placebo effects can be assessed.
Passive control	Control groups were considered passive where they did not include anything above usual care. For example, passive control groups might include: no treatment, standard care or a waitlist (Karlsson & Bergmark, 2015).	
Active control	Control groups were considered active when they included any form of additional treatment to usual care. There are multiple types of active control group, including alternative treatment and attention control (Byrd-Bredbenner et al., 2017).	
Level of guidance		The Supportive Accountability Model theorises that a higher level of human guidance from a trusted individual improves adherence to self-help interventions (Mohr et al., 2011). Greater adherence to self-help interventions can improve the effectiveness of the intervention (Andersson et al., 2006). In line with this, individuals have demonstrated greater improvements in depressive symptoms with more guidance on self-help interventions (e.g. French et al., 2017). Given this, different levels of guidance on MBSH may produce different results. This is particularly poignant in a sample of individuals experiencing depression, where motivation may be impacted (National Health Service, 2023).
High guidance	Studies were categorised as high guidance support when interventions included more frequent, regular, longer and/or synchronous contact with professionals (O'Mara et al., 2023; Shafran et al., 2021). This can be scheduled and involve course content related support or guidance (Baguley et al., 2010; Nordgreen et al., 2012;).	
Low guidance	Studies were categorised as low guidance support when they included fewer, shorter and asynchronous contact with no to minimal course related support (Nordgreen et al., 2012; O'Mara et al., 2023; Shafran et al., 2021).	
Type of MBI		There has been a wealth of research demonstrating the effectiveness of MBSR and MBCT (Querstret et al., 2020). Other MBIs may claim to be based on MBSR/MBCT, but there is no guarantee that they have incorporated all important elements of the courses in the correct way. This might reduce the effectiveness of these MBIs. Any course which has been developed or approved by MBCT or MBSR authors will likely have incorporated the crucial elements of these courses in a manner which aligns with the original courses. This would suggest they would likely mirror the effectiveness of MBSR and MBCT.
Established MBI	Studies where the MBI is either authored, co-authored or approved by the developers of MBSR and MBCT. These are considered established, as MBSR and MBCT have had a wealth of research demonstrating their effectiveness (e.g. Taylor et al., 2014; Kriakous et al., 2021; Querstret et al., 2020)	
Non-established MBI	Studies where the MBI has either been specifically created for the study (and so has less research supporting its effectiveness) or where an MBI programme is used that has not been authored, co-authored or approved by the creators of MBCT or MBSR.	

Risk of bias assessment

The revised Cochrane Risk of Bias Tool for randomized trials (RoB2; Sterne et al., 2019) is documented as challenging to use (Crocker et al., 2023; Minozzi et al., 2020), but addresses limitations of the original 2008 Cochrane Tool for Assessing Risk of Bias (Sterne et al., 2019). Therefore, it is the recommended tool for assessing risk of bias of RCTs in systematic reviews (Flemyng et al., 2023). The RoB2 was completed on all included studies (Appendix B) by two raters to ensure accuracy (36/40 domains; 90% level of agreement). Discrepancies were addressed through discussions. The focus of assessment within this review was on the effect of assignment to the intervention, due to papers using intention-to-treat analyses (Higgins et al., 2023). The RoB2 consists of five domains, which are each rated as either "low" risk, "some concerns", or "high" risk. These ratings were achieved through partial ratings of subsections within each domain. Based on these, an overall risk of bias score was calculated. A summary of the RoB2 is presented in Table 4.

Table 4
Summary of RoB2 domains (Higgins et al., 2023)

Domain of risk of bias	Description of domain
The randomization process	Assessment of the method of sequence generation for the randomisation process and the concealment of this sequence for allocation of participants. Consideration of whether randomisation was successful based on baseline differences between groups.
Deviation from the intended interventions	Assessment of blinding to intervention, access to non-allocated interventions, preference, analyses used and the possible impact of these factors on the outcomes.
Missing outcome data	Assessment of proportion of missing data, sensitivity analyses and the possible effects of missing data on outcomes.
Measurement of the outcome	Assessment of outcome measurement methods, assessor-blinding and possible impacts of this on the outcome.
Selection of the reported result	Assessment of whether the study matches the pre-specified method and analyses plan.

Data analysis

Data were analysed in IMB SPSS Statistics Version 29 (IBM SPSS Statistics, 2022). Random effects meta-analyses on between-group standardised mean differences (SMDs) were employed to estimate pooled effect sizes and the corresponding 95% confidence intervals (CIs) and moderation analyses were completed were possible. Hedge's g was used, to correct possible bias due to small sample sizes being present (Goulet-Pelletier & Cousineau, 2018). A random effects model was selected to account for both within-study and between-study variances, as there was known heterogeneity across study participant samples, methods, MBSH interventions and control groups (Imrey, 2020), meaning it could not be assumed the studies would share true underlying effect sizes (Barili et al., 2018). Forest plots were produced for each meta-analysis. Meta-analyses were conducted where there were three or more studies which provided data for the relevant outcome, in line with guidance (Riley et al., 2011) and other completed meta-analyses (Davey et al., 2011). Separate meta-analyses were conducted for different types of control groups (active and passive). A moderation analysis was not possible in this case due to the fact that one study had more than one control group. Moderation analyses were conducted for level of MBSH guidance (high and low). Additionally, an unplanned post-hoc exploratory analysis was completed on types of MBSH interventions (established and non-established). Analyses were completed on follow-up data when sufficient data were present. Publication bias was assessed through both funnel plots and Egger's regression (Egger et al., 1997).

Due to limited variability between the RoB2 ratings within each dataset, moderation analyses were not completed with the RoB2 rating. Similarly, there was not enough variation within each dataset to complete moderation analyses on type of control, level of guidance or type of MBSH.

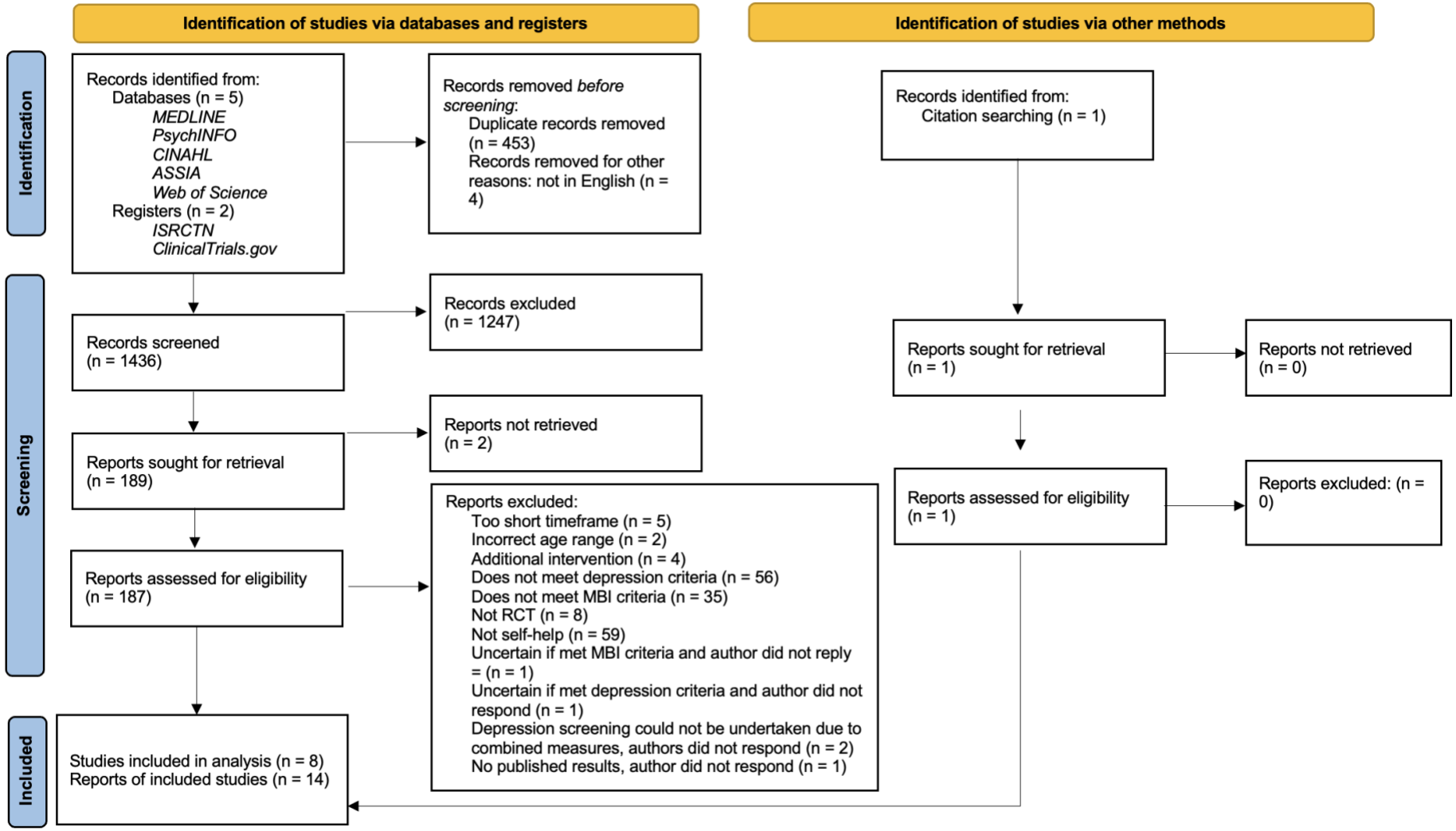
Results

Search results

The total number of references identified through the systematic search on 27/11/2023 was 1,893. One further reference was identified through google scholar, after being cited in an included paper. Out of these study records, 14 studies were deemed eligible for inclusion according to eligibility criteria (see Table 2) and eight were included in the meta-analyses. The screening process is shown in Figure 1, using a PRISMA structure (Page et al., 2021).

Figure 1

Screening process based on PRISMA format.



Characteristics of included studies

An overview of the study characteristics can be found in Tables 5 and 6.

Participant characteristics

A total of 1,259 participants were included in this systematic review, with the average age of participants varying from 25.1-years-old to 48-years-old. The majority of participants identified as female (60%-100%). All participants had a diagnosis of depression. Studies were completed in The Netherlands, UK, USA, Australia, China and Finland. The majority of participants from studies within the UK and USA identified as from a White (86%-93%) ethnic background. The majority of participants from the studies within China and The Netherlands identified as from a Han (99.4%) ethnic background and Dutch (96.35%) respectively. Two studies did not report participant ethnicity, and a further two studies did not separate the data for the minority ethnic groups within their study. Further ethnicity breakdowns are found in Table 5.

MBSH

Two studies used the Felder et al. (2014) online adaptation of MBCT, Mindful Mood Balance (Metcalf, 2019; Segal et al., 2020). Two studies used the Teasdale et al. (2013) self-help MBCT book, The Mindful Way Workbook (Strauss et al., 2023; Strauss & Jones, 2015). Raevuori et al. (2021) used the Meru Health Programme app, a published MBSH app which was based on MBSR/MBCT but was not authored, co-authored or approved by MBSR/MBCT founders (Economides et al., 2019). The remaining studies developed their own MBSH, based on MBCT/MBSR. Kladnitski et al. (2020) created the Mindfulness Training (iMT) program, Hulsbosch et al. (2023) created an eight-week online MBI for pregnant women, and Sun et al. (2021) created a Mindfulness Training During Pregnancy

course. One study used the Krusche et al. (2012) online MBCT adaptation, Be Mindful (Rodriguez et al., 2021), but was not included in the analysis as both study arms were administered the Be Mindful intervention. When it was unclear whether a study met the MBI inclusion criteria, authors were contacted. The number of sessions ranged from four to eight and the number of intervention weeks ranged from four to 16. Five studies were high guidance MBSH and four were low guidance MBSH.

Outcome measures

The primary focus of this systematic review and meta-analysis was on the depression outcome. Six studies used the Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001) and two studies used the 10-item Edinburgh Postnatal Depression Scale (EPDS; Cox et al., 1987). Secondary outcomes were anxiety and mindfulness. Five studies used the seven-item Generalised Anxiety Disorder assessment (GAD-7; Spitzer et al., 2006) and one study used the negative affect subscale of the Tilburg Pregnancy Distress Scale (TPDS-NA; Pop et al., 2011). Two studies used the Five Factor Mindfulness Questionnaire (FFMQ; Baer et al., 2011), and one study used the Short-Form FFMQ (FFMQ-SF; Bohlmeijer et al., 2011). All of these measures had good psychometric properties (Cox et al., 1987; Bohlmeijer et al., 2011; Kroenke et al., 2001; Löwe et al., 2008; Pop et al., 2011).

Control groups

Five studies used passive control groups and four used active control groups. The included passive controls were Treatment as Usual, Waitlist Control and Usual Depression Care. The active control groups involved some form of additional intervention over usual care, such as a CBT self-help workbook intervention and professional consultations. One study included both types of control groups (Kladnitski et al., 2020), and so was included in both control

group datasets. Within this study, there were three active interventions (CBT, MBI and a CBT-MBI hybrid) and a passive control. The CBT intervention was selected as the active control, as it did not contain any mindfulness. Where meta-analyses required choice of one type of control (i.e. guidance level and type of MBSH analyses), the active control was selected, due to these providing a more robust study design (Wampold, 2013). One study utilised the MBSH intervention for both study arms, with the control being completely unguided and the intervention involving peer support (Rodriguez et al., 2021). Given the active control in this study was being used to assess level of guidance instead of effectiveness of MBSH, this study was not included in the meta-analyses. Instead, this was used to supplement the moderation analysis completed on guidance level. This is discussed in the "studies not included in meta-analyses" section.

Risk of bias assessment

All but one study was rated as "high risk" of bias on the RoB2 (Sterne et al., 2019). The majority of studies scored "low risk" on the randomisation process, missing outcome data and deviations from intended interventions domains. The majority of studies scored "some concerns" or "high risk" on the remaining domains. Given the lack of variation in these results, it was not possible to perform moderation analyses by study quality, instead this will be commented on in the discussion section. An overview of RoB2 ratings can be found in Table 7.

Table 5

Study characteristics

Study	Country	Participant characteristics	Mindfulness intervention	Control group details	Follow-up (weeks post-intervention)
Strauss et al. (2023)	UK	Intervention: 35 years (26-45.5); control: 32 years (25-45); 62.2% female; 4.1% Asian or Asian British, 3.7% Black, African, Caribbean or Black British 4.9% mixed/multiple ethnic groups, 85.6% White British or White Irish, 1.2% other ethnic groups, 0.5% prefer not to say	The Mindful Way Workbook: An 8-Week Program to Free Yourself from Depression and Emotional Distress	Overcoming Depression and Low Mood, 3rd Edition: A Five Areas Approach	26
Hulsbosch et al. (2023)	The Netherlands	Intervention: 31.2 years (3.5), 94.5% Dutch; control: 31.2 years (4), 98.2% Dutch; 100% female	MBI for pregnant women	Care as usual	Intervention: 8 Control: 0
Metcalf et al. (2019)	USA	30.88 years (3.88); 100% female; 3.33% Asian, 3.33% Black, 93.33%, 5% Hispanic, 1.67% Middle Eastern, 93.33% White, 8.33% other	Mindful Mood Balance	Waitlist control	0
Kladnitski et al. (2020)	Australia	Intervention: 37.1 years (12.35), 85% female; passive control: 41.69 years (10.75), 84.6% female; active control: 36.69 years (11.53), 85% female; no ethnicity breakdown reported	The Mindfulness Training (iMT) program	Passive: Treatment as Usual Active: internet CBT programme	Intervention and active control: 12 Passive control: 0
Sun et al. (2021)	China	29.91 years (4.02); 100% female; 99.4% Han, 0.6% Hui	Mindfulness Training During Pregnancy	WeChat consultations	32
Segal et al. (2020)	USA	48.3 years (14.9); 75.6% female; 0.7% American Indian/Alaskan Native, 1.5% Asian, 1.8% Black or African American, 0.2% Native Hawaiian or other Pacific Islander, 91.9% White, 8.7% Hispanic or Latinx, 4% other ethnicity	Mindful Mood Balance	Usual Depression Care	52

Strauss and Jones (2015)	UK	40.5 years; 60% female; 90% White British, 10% BME	The Mindful Way Workbook: An 8-Week Program to Free Yourself from Depression and Emotional Distress	Overcoming Depression and Low Mood, 3rd Edition: A Five Areas Approach	0
Raevuori et al. (2021)	Finland	25.1 years (4.5); 72.6% female; no ethnicity breakdown reported	Meru Health Programme App	Treatment as usual	24

Table 6

Summary of different datasets

Study	Intervention (n)	Control group (n)	Intervention adherence	Active or passive control	High or low guidance	Established or non-established MBSH	Overall RoB2 rating
Strauss et al. (2023)	155	154	Intervention adherence not reported, Psychological Well-being Practitioner (PWP) session adherence was. Intervention: 77.0% attended three or more sessions (half) Control: 73.3% attended three or more sessions (half)	Active	High	Established	Some concerns
Hulsbosch et al. (2023)	104	95	42% of intervention group completed at least four sessions, 14% completed all eight	Passive	Low	Non-established	High
Metcalf et al. (2019)	15	23	23.33% completed at least four sessions, 13.33% completed all eight sessions	Passive	Low	Established	High
Kladnitski et al. (2020)	25	33	iMT: 65.7% completed at least four sessions	Passive	High	Non-established	High

Kladnitski et al. (2020)	25	30	iCBT: 81.1% completed at least four sessions iMT: 65.7% completed at least four sessions (not significantly different)	Active	High	Non-established	High
Sun et al. (2021)	63	54	52.4% completed at least four sessions, 8% completed all eight sessions	Active	Low	Non-established	High
Segal et al. (2020)	164	198	62.6% completed at least four sessions, 27.4% completed all eight sessions	Passive	High	Established	High
Strauss and Jones (2015)	18	13	Not reported	Active	High	Established	High
Raevuori et al. (2021)	44	48	Not reported	Passive	Low	Non-established	High

Table 7
Summary of RoB2 ratings

Study	Domains of risk					Overall rating
	Randomisation process	**Deviations from intended interventions**	**Missing outcome data**	**Measurement of the outcome**	**Selection of reported result**	
Strauss et al. (2023)	Low	Low	Low	Some concerns	Low	**Some concerns**
Hulsbosch et al. (2023)	Low	Low	Low	High	Low	**High**
Metcalf et al. (2019)	Low	Some concerns	Low	High	Some concerns	**High**
Kladnitski et al. (2020)	Low	Low	Low	High	Some concerns	**High**
Sun et al. (2021)	Low	Low	Low	High	Some concerns	**High**
Segal et al. (2020)	Low	Low	Low	High	Low	**High**
Strauss & Jones (2015)	Low	Low	Low	High	Some concerns	**High**
Raevuori et al. (2021)	Low	Low	Low	High	Some concerns	**High**

Meta-Analysis Results: Passive Control Groups

The findings of each planned meta-analysis are detailed below.

Depression

As seen in Figure 2, MBSH participants did not show significantly lower levels of depression than passive controls at post-intervention (Z=-.73, p=.47, SMD=-.16, 95% CI=-.59 to .27). Heterogeneity was considered in line with guidance from Deeks et al. (2021). In this meta-analysis, heterogeneity was substantial and significant (Q(4)=27.03, p<.001, I^2=85%). When considerable heterogeneity is identified, generalisability of results are reduced and it is recommended that possible reasons behind the heterogeneity are explored through moderation analyses if there are sufficient studies (Deeks et al., 2021). There were insufficient studies to complete a moderation analysis on passive control groups, but these were performed on level of guidance and type of MBSH, reported later in the results. There was minimal evidence of publication bias within the funnel plot (Figure 3) and the test of publication bias was not significant (Egger's regression =-.29, p=.69).

Insufficient studies with passive controls reported depression follow-up data for both intervention and control group to complete a meta-analysis (n=2). Raevuori et al. (2021) found no significant difference between the intervention and control groups. Segal et al. (2020) found intervention participants maintained their initial progress, but this was not significantly improved compared to the control group.

Anxiety

As depicted in Figure 2, MBSH participants did not show significantly lower levels of anxiety than passive controls at post-intervention (Z=-1.08, p=.28, SMD=-.28, 95% CI=-.79

to .23). Substantial and significant heterogeneity was found (Q(3)=21.78, p<.001, I^2=90%). There was minimal evidence of publication bias within the funnel plot (Figure 3) and the test of publication bias was not significant (Egger's regression =.20, p=.85).

Insufficient studies using passive controls reported anxiety follow-up data for both intervention and control group to complete a meta-analysis (n=2). Raevuori et al. (2021) found no significant difference between study arms. Segal et al. (2020) found intervention participants maintained their initial progress, but this was not significantly improved compared to the control group.

Mindfulness

No meta-analyses were completed on the mindfulness outcome given the limited number of passive control studies reporting post-intervention and follow-up measures (n=1). Raevuori et al. (2021) found no significant difference between the intervention and passive control groups at the post-intervention time-point, but found a large, significant effect favouring the intervention group at follow-up.

Figure 2

Forest plots for the meta-analyses on studies using passive control groups, showing the depression (top) and anxiety (bottom) post-intervention timepoints

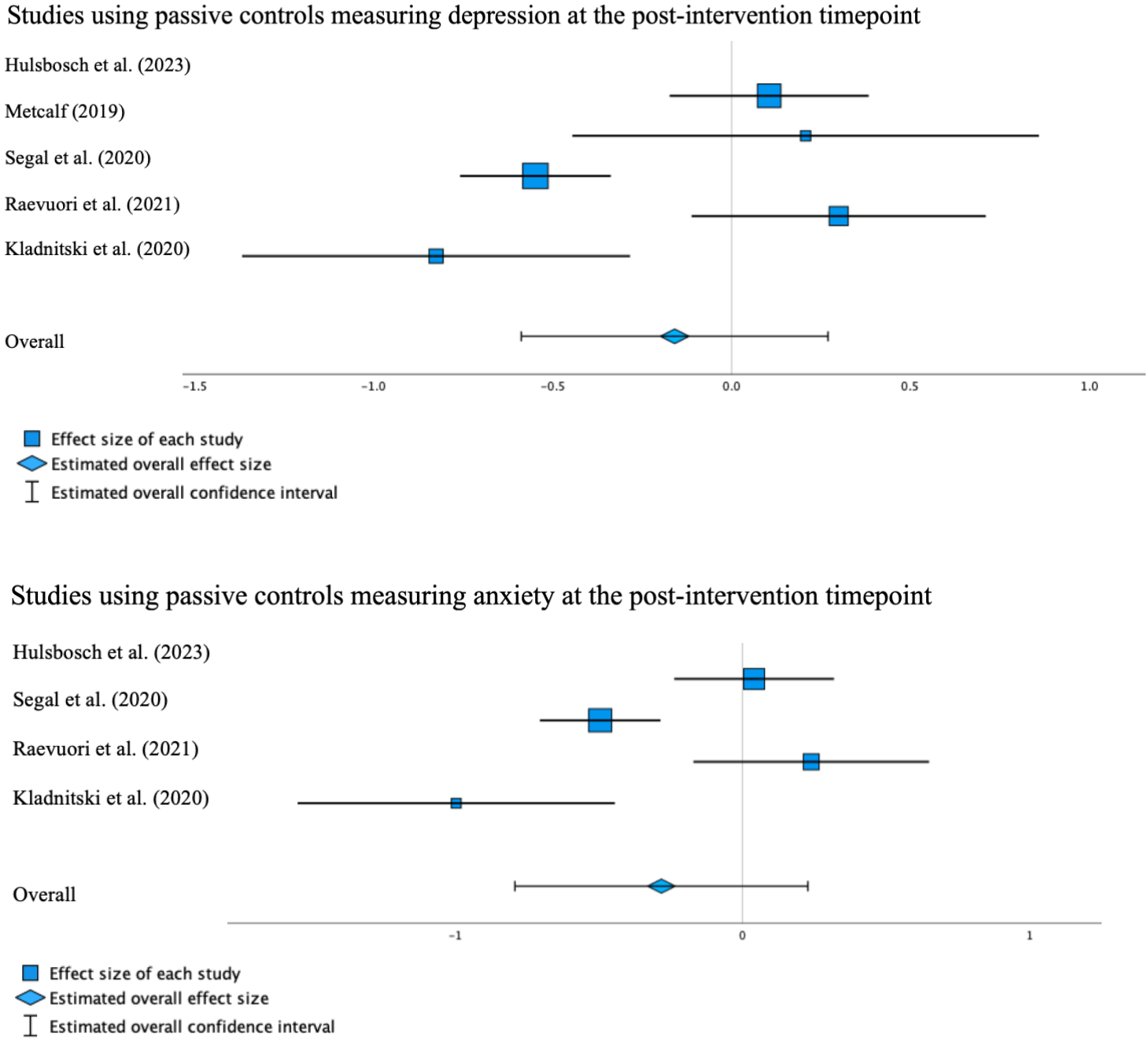
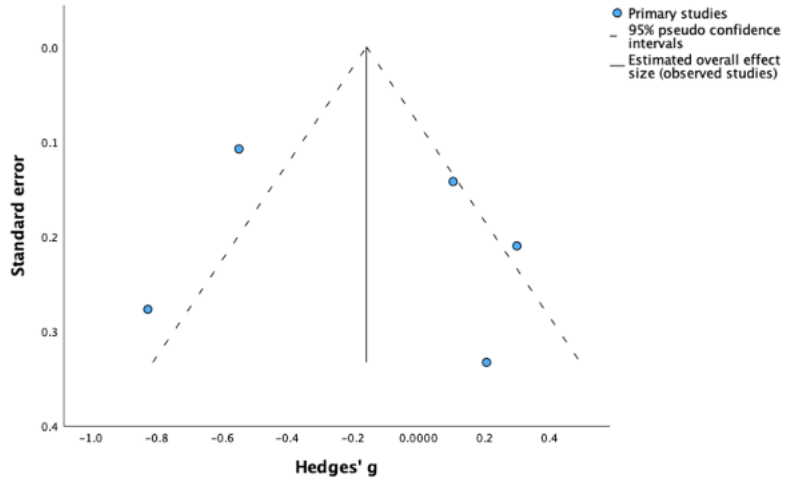


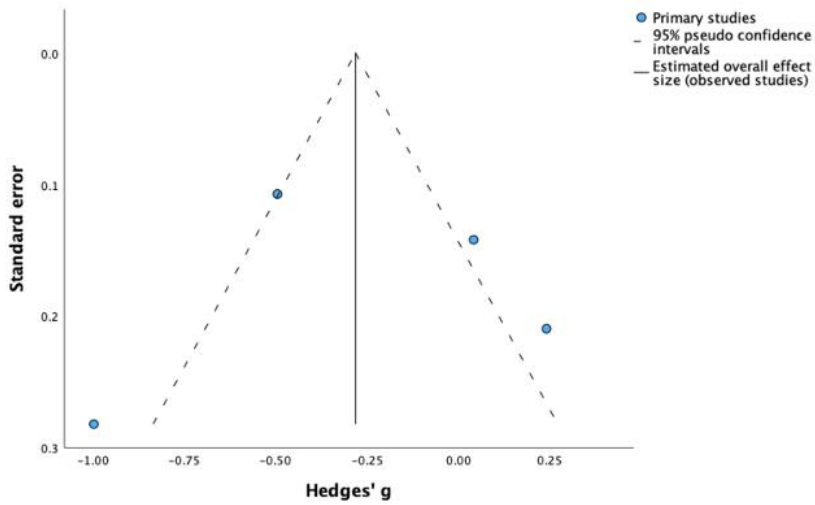
Figure 3

Funnel plots for the meta-analyses of studies using passive control groups, showing the depression (top) and anxiety (bottom) post-intervention timepoints

Studies using passive controls measuring depression at the post-intervention timepoint



Studies using passive controls measuring anxiety at the post-intervention timepoint



Meta-Analysis Results: Active Control Groups

Depression

As seen in Figure 4, MBSH participants showed significantly lower levels of depression than active controls at post-intervention (Z=-3.03, p=.002), with a small-to-medium effect size (SMD=-.27, 95% CI=-.45 to -.10). No significant heterogeneity was found (Q(3)=3.13, p=.37, I^2=0%). There was minimal evidence of publication bias within the funnel plot (Figure 5) and the test of publication bias was not significant (Egger's regression =-.47, p=.25).

As depicted in Figure 4, this effect was not maintained at follow-up. Participants did not show significantly lower levels of depression than active controls (Z=-.24, p=.81, SMD=-.03, 95% CI=-.29 to .23). Moderate, but non-significant, heterogeneity was found (Q(2)=2.65, p=.27, I^2=31%). There was minimal evidence of publication bias within the funnel plot (Figure 5) and the test of publication bias was not significant (Egger's regression =-.47, p=.33).

Anxiety

As seen in Figure 4, MBSH participants showed significantly lower levels of post-intervention anxiety than active controls (Z=-2.32, p=.02), with a small-to-medium effect size (SMD=-.21, 95% CI=-.39 to -.03). No significant heterogeneity was found (Q(2)=1.33, p=.52, I^2=0%). There was minimal evidence of publication bias within the funnel plot (Figure 5) and the test of publication bias was not significant (Egger's regression =-.44, p=.36).

As seen in Figure 4, this effect was not maintained at follow-up. MBSH participants did not show significantly lower levels of anxiety than active controls (Z=-1.77, p=.08, SMD=-.17, 95% CI=-.36 to -.02). No significant heterogeneity was found (Q(2)=1.11, p=.57, I^2=0%).

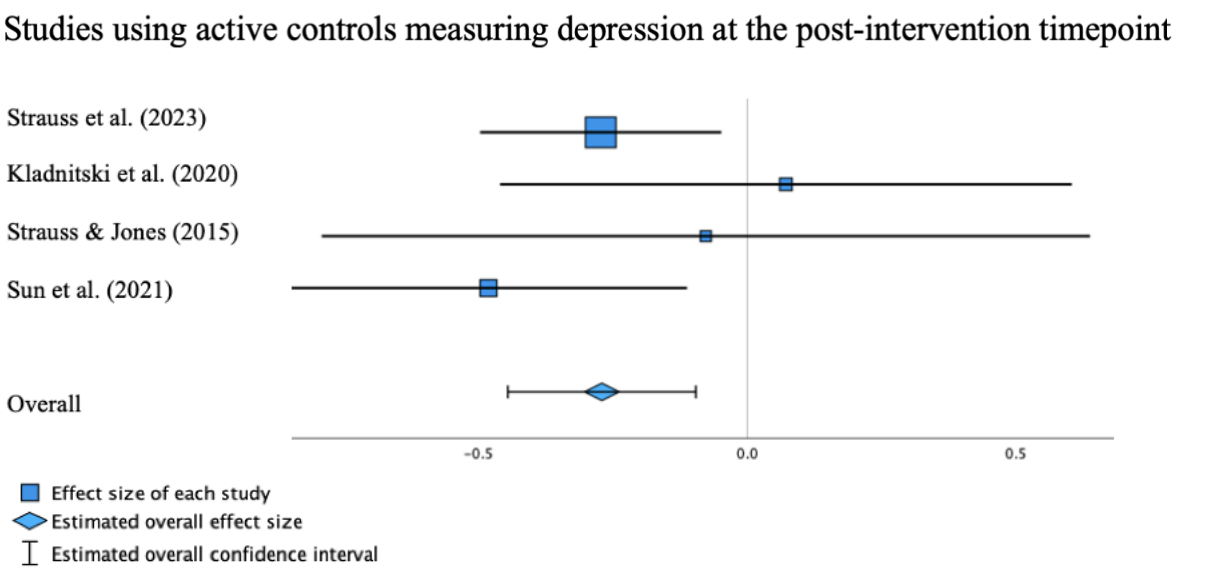
There was minimal evidence of publication bias within the funnel plot (Figure 5) and the test of publication bias was not significant (Egger's regression =-.43, p=.35).

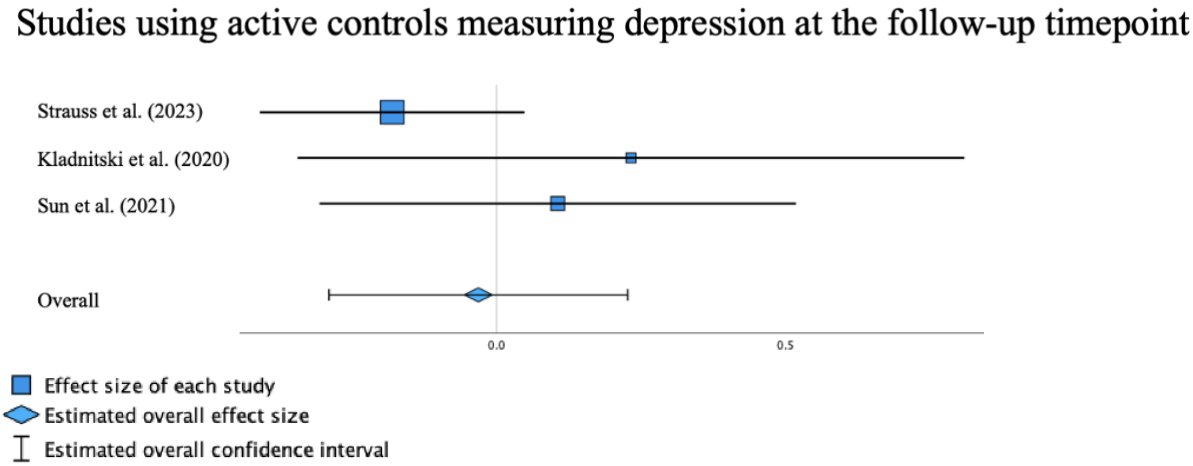
Mindfulness

Due to insufficient studies reporting post-intervention results (n=2) and follow-up results (n=1) for mindfulness outcomes, meta-analyses were not conducted. Strauss and Jones (2015) noted no significant difference between the intervention and control groups at post-intervention. At both timepoints, Strauss et al. (2023) found a significant difference between the intervention and control groups on one subscale of mindfulness (non-judgement), but did not find an overall significant difference between groups.

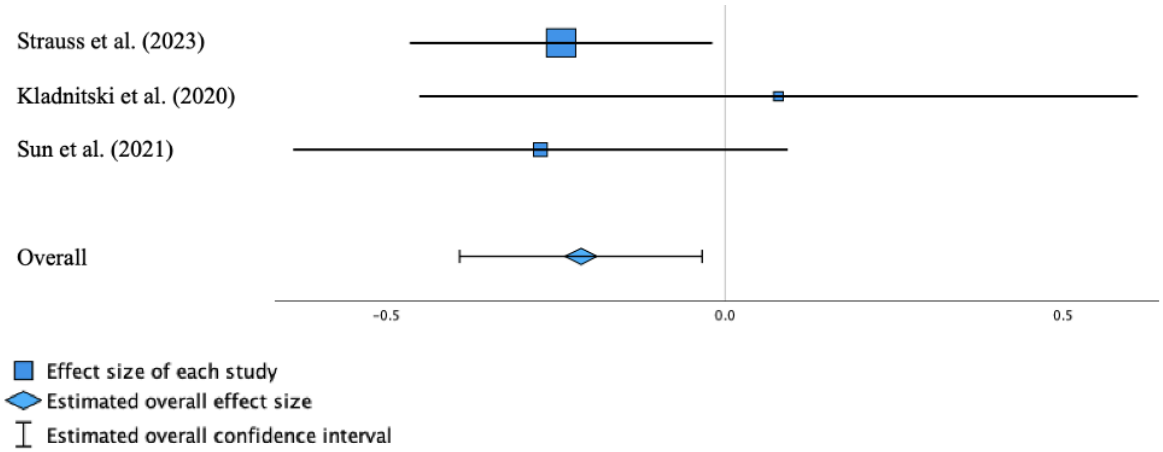
Figure 4

Forest plots for the meta-analyses on studies using active control groups, showing the depression (first and second) and anxiety (third and fourth) post-intervention and follow-up timepoints





Studies using active controls measuring anxiety at the post-intervention timepoint



Studies using active controls measuring anxiety at the follow-up timepoint

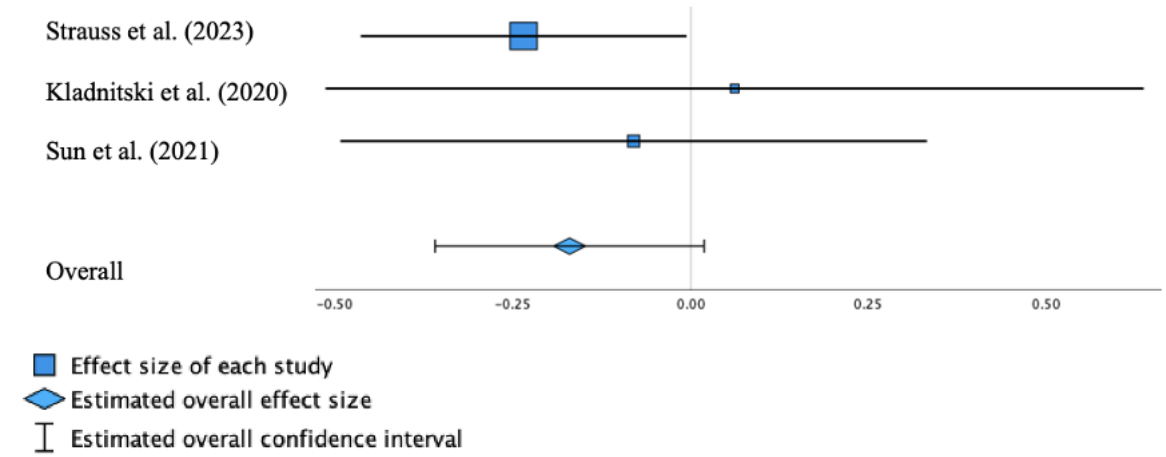
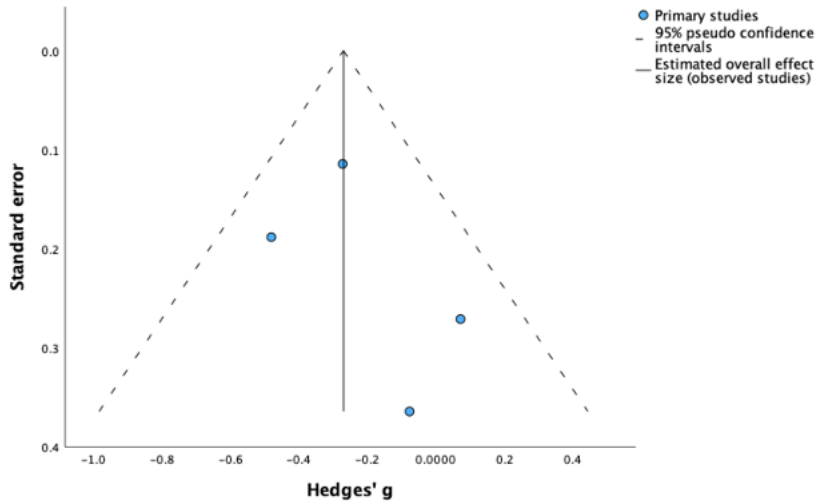


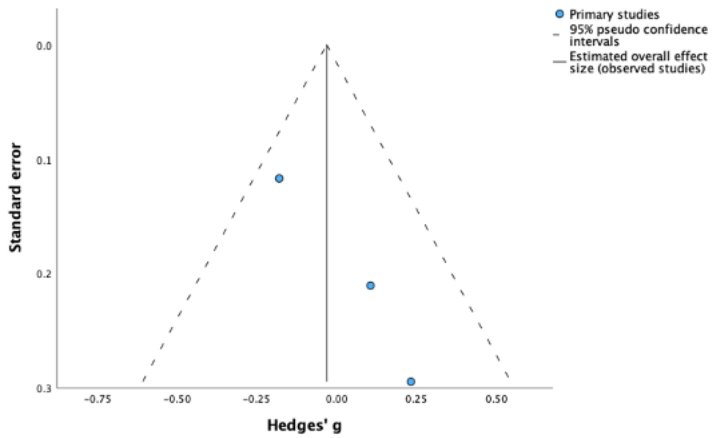
Figure 5

Funnel plots for the meta-analyses of studies using active control groups, measuring depression (first and second) and anxiety (third and fourth) at post-intervention and follow-up timepoints

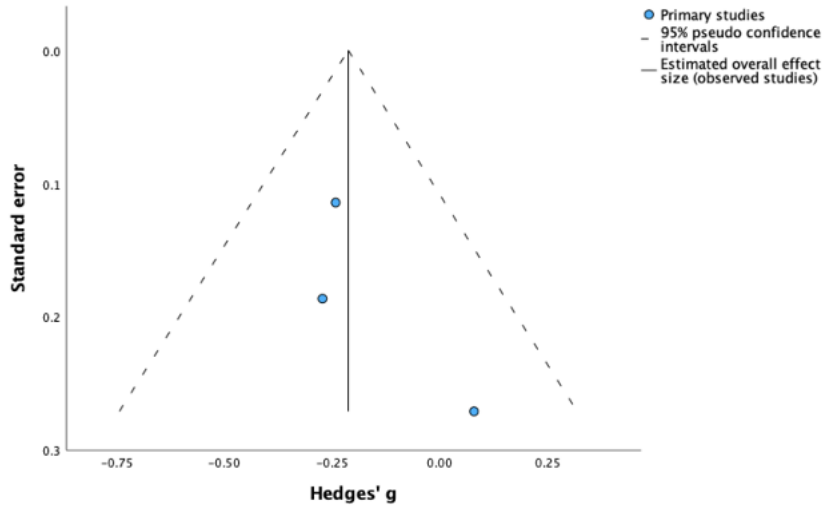
Studies using active controls measuring depression at the post-intervention timepoint



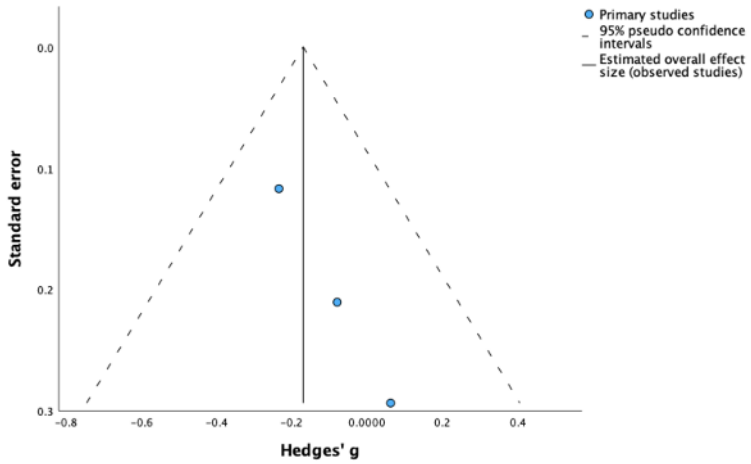
Studies using active controls measuring depression at the follow-up timepoint



Studies using active controls measuring anxiety at the post-intervention timepoint



Studies using active controls measuring anxiety at the follow-up timepoint



Summary of control group meta-analyses

Table 8 depicts a summary of the active and passive control meta-analyses.

Table 8

Summary of meta-analyses results for studies using active and passive control groups

Measure	Studies using passive controls: post-intervention							Studies using passive controls: follow-up						
	Total studies (n)	Total participants (n)	Estimate	CI	Effect size p value	I^2 (%)	I^2 p value	Total studies (n)	Total participants (n)	Estimate	CI	Effect size p value	I^2 (%)	I^2 p value
Depression	5	749	-.16	-.59 to .27	.47	85	< .001	2	Insufficient studies					
Anxiety	4	711	-.36	-.79 to -.08	.11	90	< .001	2	Insufficient studies					
Mindfulness	1	Insufficient studies						1	Insufficient studies					
	Studies using active controls: post-intervention							**Studies using active controls: follow-up**						
	Total studies (n)	Total participants (n)	Estimate	CI	P value	I^2 (%)	I^2 p value	Total studies (n)	Total participants (n)	Estimate	CI	P value	I^2 (%)	I^2 p value
Depression	4	512	-.27	-.45 to -.01	.002	0	.37	3	433	-.03	-.29 to .23	.81	31	.27
Anxiety	3	481	-.21	-.39 to -.03	.02	0	.52	3	434	-.17	-.36 to -.02	.08	0	.57
Mindfulness	2	Insufficient studies						1	Insufficient studies					

Moderation analyses: Guidance level

Depression

Although there was a trend of intervention participants within studies using high guidance MBSH showing lower levels of depression compared to controls and intervention participants for studies using low guidance MBSH not showing lower levels of depression compared to controls (Appendix C), the test of between-subgroup homogeneity did not reach significance (Q(1)=1.82, p=.18). Substantial and significant heterogeneity was found (Q(7)=25.76, p<.001, I^2=72%). There was minimal evidence of publication bias within the funnel plot (Appendix D) and the test of publication bias was not significant (Egger's regression = =-.50, p=.13).

Intervention participants within studies using low guidance MBSH, did not show significantly lower levels of depression than controls at post-intervention (Z=.07, p=.94, SMD=.01, 95% CI=-.35 to .37). Substantial and significant heterogeneity was found (Q(3)=9.49, p=.02, I^2=69%). There was minimal evidence of publication bias within the funnel plot (Appendix D) and the test of publication bias was not significant (Egger's regression =-.25, p=.76).

For studies using high guidance MBSH, intervention participants showed significantly lower levels of depression than controls at post-intervention (Z=-2.16, p=.03) with a small-to-large effect size (SMD=-.30, 95% CI=-.56 to -.03). Moderate, but insignificant heterogeneity was found (Q(3)=6.80, p=.08, I^2=59%). There was minimal evidence of publication bias within the funnel plot (Appendix D) and the test of publication bias was not significant (Egger's regression =-.25, p=.76).

There were insufficient depression follow-up measures reported by studies using low guidance MBSH (n=2), meaning a moderation analysis was not possible. Within the studies using low guidance MBSH, both Raevuori et al. (2021) and Sun et al. (2021) found no significant differences between the intervention and control groups. Within studies using high guidance MBSH, Segal et al. (2020) found MBSH participants showed lower levels of depression to controls. Kladnitski et al. (2020) and Strauss et al. (2023) found no significant differences between the intervention and control groups.

Anxiety

Although there was a trend of intervention participants in studies using high guidance MBSH showing lower levels of anxiety compared to controls and intervention participants within studies using low guidance MBSH not showing lower levels of anxiety compared to controls (Appendix E), the test of between-subgroup homogeneity did not reach significance ($Q(1)=2.24$, $p=.13$). Substantial and significant heterogeneity was found ($Q(5)=16.13$, $p=.006$, $I^2=69\%$). There was minimal evidence of publication bias within the funnel plot (Appendix F) and the test of publication bias was not significant (Egger's regression =-.67, $p=.15$).

For the studies using low guidance MBSH, intervention participants did not show significantly lower levels of anxiety than controls at post-intervention ($Z=-.03$, $p=.98$, SMD=-.004, 95% CI=-.27 to .26). Moderate but insignificant heterogeneity was found ($Q(2)=3.53$, $p=.17$, $I^2=42\%$). There was minimal evidence of publication bias within the funnel plot (Appendix F) and the test of publication bias was not significant (Egger's regression =-.22, $p=.89$).

However, for high guidance MBSH studies, intervention participants showed significantly lower levels of anxiety than controls at post-intervention (Z=-2.11, p=.04) with a small-to-large effect size (SMD=-.29, 95% CI=-.56 to -.02). Substantial, but insignificant heterogeneity was found (Q(2)=5.23, p=.07, I^2=63%). There was minimal evidence of publication bias within the funnel plot (Appendix F) and the test of publication bias was not significant (Egger's regression =-.70, p=.25).

There were insufficient anxiety follow-up measures reported by low guidance MBSH studies (n=2), meaning a moderation analysis was not possible. Within studies using low guidance MBSH, both Raevuori et al. (2021) and Sun et al. (2021) found no significant differences between the intervention and control groups. Within high guidance MBSH studies, both Segal et al. (2020) and Strauss et al. (2023) found MBSH participants showed lower levels of anxiety to controls. Kladnitski et al. (2020) found no significant difference between the intervention and control group.

Mindfulness

No moderation analyses were completed on mindfulness, due to insufficient studies reporting the post-intervention (one low guidance, two high guidance) and follow-up (one low guidance, one high guidance) timepoints. Both high guidance MBSH studies showed no significant differences between MBSH participants and controls on the mindfulness outcomes (Strauss et al., 2023; Strauss & Jones, 2015). The low guidance MBSH study found no significant difference between study arms at post-intervention, but found a large, significant effect favouring the intervention group at follow-up (Raevuori et al., 2021).

Unplanned post-hoc exploratory analyses: Type of MBSH

Evidence of moderate to substantial heterogeneity was present within multiple analyses. Heterogeneity was not present for the analyses using studies with active controls at post-intervention, but was present within at follow-up for the depression outcome. Even though this was non-significant, it must be attended to regardless (Thompson, 1994). It is recommended to consider differing elements of the included studies which could generate clinical heterogeneity between the studies, as this often produces statistical heterogeneity (Thompson, 1994). Following this, subgroup analyses should be completed to explore possible reasons behind the heterogeneity (Deeks et al., 2021).

Moderation analysis: Established MBSH

Depression. Although there was a trend of the established MBSH participants showing lower levels of depression compared to controls and non-established MBSH participants not showing lower levels of depression compared to controls (Appendix G), the test of between-subgroup homogeneity did not reach significance ($Q(1)=1.51$, $p=.22$). Substantial and significant heterogeneity was found ($Q(7)=25.76$, $p<.001$, $I^2=72\%$). There was minimal evidence of publication bias within the funnel plot (Appendix H) and the test of publication bias was not significant (Egger's regression =-.50, p=.13).

For non-established MBSH studies, intervention participants did not show significantly lower levels of post-intervention depression than controls ($Z=-.04$, $p=.97$, SMD=-.007, 95% CI=-.35 to .33). Substantial and significant heterogeneity was found ($Q(3)=9.17$, $p=.03$, $I^2=68\%$). There was minimal evidence of publication bias within the funnel plot (Appendix H) and the test of publication bias was not significant (Egger's regression =-.15, p=.89).

However, for the established MBSH studies, intervention participants showed significantly lower post-intervention levels of depression than controls (Z=-1.94, p=.05) with a small-to-large effect size (SMD=-.29, 95% CI=-.58 to .003). Substantial, but insignificant heterogeneity was found (Q(3)=7.15, p=.07, I^2=62%). There was minimal evidence of publication bias within the funnel plot (Appendix H) and the test of publication bias was not significant (Egger's regression =-.64, p=.10).

Although sufficient studies using non-established MBSH interventions reported the depression follow-up timepoint (n=3), only two studies using established MBSH interventions reported this, meaning a moderation analysis could not be completed on follow-up data. For all studies using non-established MBSH interventions, no significant differences between MBSH participants and controls were found on the depression follow-up outcome (Kladnitski et al., 2020; Raevuori et al., 2021; Sun et al., 2021). Within the studies using established MBSH interventions, Strauss et al. (2023) noted no significant differences between MBSH participants and controls on the depression follow-up outcome, but Segal et al. (2020) found MBSH participants showed significantly lower levels of depression than controls at this timepoint.

Anxiety. Although sufficient studies using non-established MBSH interventions reported the anxiety post-intervention (n=4) and follow-up timepoints (n=3), only two studies using established MBSH interventions reported these, meaning moderation analyses could not be completed on anxiety outcomes. Both Strauss et al. (2023) and Segal et al. (2020) found MBSH participants showed significantly lower levels of anxiety than controls at both timepoints. No studies using non-established MBSH interventions found a significant

difference in anxiety between MBSH participants and controls at either timepoint (Hulsbosch et al., 2023; Kladnitski et al., 2020; Raevuori et al., 2021; Sun et al., 2021).

Mindfulness. Insufficient studies using established MBSH interventions (n=2) and non-established MBSH interventions (n=1) reported the mindfulness post-intervention timepoint, and only one study from each sub-group reported mindfulness follow-up timepoints. Both established MBSH studies found no significant differences between MBSH participants and controls at both timepoints (Strauss et al., 2023; Strauss & Jones, 2015). The non-established MBSH study found no significant difference between study arms at post-intervention, but a large, significant effect favouring the intervention group at follow-up (Raevuori et al., 2021).

Studies not included in meta-analyses

One study did not contain the required data and no response was received from the author. Krupp (2022) used the Be Mindful intervention (low guidance and established MBSH) with a waitlist control (passive control). Results noted medium-to-large significant effects, favouring the intervention, for the depression, mindfulness and anxiety post-intervention outcomes. Depression was the only follow-up outcome reported, which remained significantly in favour of the intervention.

Rodriguez et al. (2021) supplied both study arms with Be Mindful. However, the intervention group were assigned a peer counsellor to provide brief weekly support meetings. Intervention participants showed significantly lower levels of post-intervention depression compared to controls. Additionally, the intervention group demonstrated significantly less attrition and significantly higher programme completion compared to controls. There were no differences

in level of mindfulness between intervention and control participants. Follow-up measures were not reported due to low completion.

The remaining four studies not included in the meta-analyses were secondary studies of Segal et al. (2020), which reported on subsections of the same participant pool as the primary study (Boggs et al., 2022; Dimidjian et al., 2022; Dimidjian et al., 2023; Kaufman, 2020). Both Dimidjian et al. (2022) and Kaufman (2020) analysed the subset of participants who had a history of attempted suicide or current suicidal ideation, finding a greater reduction of depressive symptoms and suicidal ideation compared to the control. Dimidjian et al. (2023) identified a large increase in mindfulness in the intervention group compared to the passive control, and Boggs et al. (2022) reported the intervention group had more depression free days during follow-up than controls.

Discussion

This systematic review and meta-analysis aimed to explore effectiveness of MBSH on individuals meeting criteria for depression. Given the population, the primary focus was on depression outcomes. MBSH arms showed significantly reduced post-intervention depression scores compared to active, but not passive controls. Additionally, there were no significant differences between MBSH and active control participants at follow-up. There were insufficient studies to allow for follow-up analyses of MBSH studies using passive controls. There was no overall moderation effect of level of guidance on depression post-intervention outcomes. However, the number of studies in the moderation analysis was small and when the sub-groups were examined individually, MBSH participants within high guidance MBSH studies showed significantly lower levels of post-intervention depression compared to

controls; whereas, this was not the case for the low guidance MBSH studies. The key findings will now be considered in turn.

It is perhaps surprising the meta-analyses showed MBSH significantly reduced post-intervention depression scores compared to active control groups, but passive control groups, given treatment effects are more likely to be found when using passive control groups (Byrd-Bredbenner et al., 2017; Freedland et al., 2011; Taylor et al., 2021). One potential explanation for this unusual finding is the substantial heterogeneity present in the MBSH vs. passive control groups meta-analysis ($I^2 = 85\%$). Given this heterogeneity implies a wide range of results were present across the studies (Sedgwick, 2015), this raises a question around whether it is reasonable to group these findings together in a meta-analysis. As the analysis for studies with active control groups had low heterogeneity ($I^2 = 0\%$), it is likely that more reliance can be placed on this meta-analysis. Heterogeneity can exist within datasets due cross-study intervention differences (Deeks et al., 2021). When looking at the diversity within the studies in terms of their populations and the nature of the interventions there was no obvious single contributor to heterogeneity; however, heterogeneity is perhaps unsurprising given that the samples varied in terms of intervention types, including a varied level of guidance.

The majority of the interventions included in the meta-analysis comparing MBSH to active controls involved a higher degree of guidance and intervention adherence. Whereas, studies included in the meta-analysis comparing MBSH to passive controls had a greater spread of level of guidance and intervention adherence, and alongside this, a greater spread of results. The majority of the studies which used passive control groups and low guidance MBSH reported low adherence to the intervention (e.g. Hulsbosch et al., 2023), which was not the

case for studies which used high guidance MBSH and active control groups (e.g. Kladnitski et al., 2020). Given higher guidance within self-help interventions has been linked to increased intervention adherence, both within the Supportive Accountability Model (Mohr et al., 2011) and in other studies (Musiat et al., 2022; Rodriguez et al., 2021), it is possible the noted effects in the meta-analysis on studies using active controls are due to intervention adherence in the studies. Considering this, it is also plausible any possible effect on post-intervention depression for studies using passive controls was diluted due to the inclusion of studies which had lower levels of guidance and adherence.

This possibility of level of guidance impacting intervention effectiveness was further examined in a moderation analysis. Consistent with the above account of the literature, the high guidance MBSH studies showed a significant pooled effect, whereas, the low guidance MBSH studies did not. These findings align with those from other systematic reviews on self-help for depression (Gellatly et al., 2007). However, it is worth noting the moderation effect for level of guidance did not reach statistical significance. Therefore, based on the meta-analysis, the sub-group findings must be treated with caution. However, given the small number of studies, it might be there was insufficient power to detect a significant moderation effect (Memon et al., 2019). Additionally, as mentioned in the narrative review, Rodriguez et al. (2021) varied level of guidance for the same MBSH, and noted the guided MBSH participants showed significantly greater adherence, greater improvements on the depression outcome and less attrition compared to unguided participants. Directly assessing level of guidance through an RCT could be considered more convincing evidence for the impact of guidance on MBSH than meta-analyses, as participants are randomised to study arms, instead of guidance level being an observational variable across studies with multiple differences.

When individuals are adhering to MBSH, it seems probable they are practicing more mindfulness, given this is the primary component of mindfulness courses. Assuming this is the case, it would infer that with increased adherence comes an increased ability to enter the being mode, due to this skill being refined by repeated mindfulness practice (Teasdale, 1999). Entering the being mode is theorised to support with disengaging from unhelpful mental processes, such as rumination (Teasdale & Segal, 2007), which is a common experience amongst individuals diagnosed with depression (Nolen-Hoeksema, 2000). Therefore, it could be theoretically understood that if higher guidance increases intervention adherence, this would likely increase the individual's ability to enter the being mode, resulting in a decrease in depressive symptoms.

Whilst studies using passive controls did not have sufficient follow-up data to complete a meta-analysis for the depression outcome, studies with active control groups did. This follow-up meta-analysis had fewer studies than the post-intervention analysis and did not maintain the significant effect found at post-intervention. It additionally had a moderate level of heterogeneity which, although it was non-significant, highlights some variation in the results and should be considered (Thompson, 1994). The only study within this follow-up subset of the active control studies where MBSH participants showed a trend of reduced depressive symptoms compared to controls utilised an established MBSH intervention (Strauss et al., 2023). The remaining two studies used non-established MBSH interventions (Kladnitski et al., 2020; Sun et al., 2021).

In order to investigate whether the degree of establishment of intervention was associated with the outcome, a unplanned post-hoc exploratory analysis was completed on the type of MBSH. A significant effect on the post-intervention depression outcome favouring the

intervention was found in the meta-analysis on studies using established MBSH, but not on studies using non-established MBSH. A further established MBSH study did not contain the required data to be included in the meta-analysis, but also showed significant effects favouring the intervention group at both post-intervention and follow-up (Krupp, 2022). There was no significant moderation effect based on whether the MBSH was grounded in a well-established mindfulness intervention or not. However, similar to the level of guidance moderation analysis, the type of MBSH moderation analysis only included a small number of studies, meaning a lack of power may have led to a type two error (Valentine et al., 2010).

It should additionally be noted there was again significant overlap between the established MBSH and high guidance MBSH datasets, and also between the non-established MBSH and the low guidance MBSH datasets, meaning there could be a confounding effect of level of guidance between these datasets. Whilst the results of the type of MBSH meta-analysis must be interpreted with caution due to it being unplanned, the low power and the moderation analysis not being significant, it remains plausible (though not proven) that non-established MBSH interventions do not provide the same standard of mindfulness intervention compared to MBSH based on established programmes, for individuals experiencing depression. However, this would need to be examined in further meta-analyses when more studies are available.

In summary, there is evidence MBSH can be helpful compared to active controls, and tentative but unproven suggestions that higher guidance MBSH and MBSH based on more established MBIs may have bigger effects on depression. As mentioned above, these findings would need to be verified by future meta-analyses with more RCTs. It is worth noting, perhaps unsurprisingly, the overall effect sizes of significant post-intervention depression

outcomes are smaller than those reported in reviews of face-to-face MBCT/MBSR (Goldberg et al., 2019; Hofmann et al., 2010). However, when compared to other self-help treatments for depression, the effect sizes are similar (Gellatly et al., 2007).

Turning to the secondary outcomes, the pattern of findings in relation to anxiety mirrored that described above with depression. Specifically, significant effects at post-intervention favouring the intervention were found for meta-analyses on studies using active controls, high guidance MBSH and established MBSH, but not for those on studies using passive controls, low guidance MBSH and non-established MBSH. Additionally, the meta-analysis for the follow-up timepoint for studies using active controls was non-significant and both the type of guidance and MBSH moderation analyses were non-significant. Due to the known relationship between anxiety and depression (Kalin, 2020), it is unsurprising the pattern of findings mirrors those for depression, and the explanations covered above in relation to depression findings are also applicable here.

No meta-analyses were completed on mindfulness outcomes, due to insufficient studies administering mindfulness measures, however; the studies which did include this were narratively reported. Despite the primary focus of MBIs being mindfulness, none of the reported studies showed a significant effect on the mindfulness outcome at post-intervention, and only one found a significant effect favouring the intervention group at follow-up (Raevuori et al., 2021). Whilst level of mindfulness would be expected to increase following an MBI, the lack of change may be explained by the use of self-report measurements across all studies. Mindfulness terms are interpreted differently by a novice compared to those who regularly practice, with the latter holding themselves to a higher standard of what it means to be mindful (Grossman, 2008). Secondly, with increasing mindfulness practice, individuals

notice the limits in their own mindfulness abilities, often leading to lower self-ratings of mindfulness (Bravo et al., 2018).

Critique

Whilst moderation analyses using RoB2 ratings could not be completed, it is still important to narratively consider these. One study was rated as "some concerns" and the remaining were rated as "high risk". The majority of studies showed either some concerns or high risk of bias within the measurement of outcome and selection of reported result domains. For several studies, this was due to not having a prospectively published trial design outlying the planned method and analyses. Consequently, it cannot be certain whether these studies amended their original method and analyses plan to showcase more significant results. Another contributing factor to the high risk of bias was the lack of blinding within studies. Whilst it is challenging to enact double blinding in therapies research, the use of single blinding the study investigators can reduce bias (Chiesa, 2011). Blinding of any type was only used within four studies.

As per reporting guidelines, means, SDs and sample sizes should be included in all RCTs (Grant et al., 2018). A number of studies were not included in the analyses due to not reporting the required data, meaning these results may not have been representative of all eligible studies. Despite all studies investigating the effects of MBSH on individuals experiencing depression, there was significant heterogeneity. There were notable differences between the studies which may have influenced the spread of the results, for example, three studies were with people who are pregnant and two used workbooks compared to the other electronic-based interventions. Furthermore, there were confounding variables in the datasets, namely control type, level of establishment, level of guidance and degree of adherence,

meaning it was not always possible in the analyses to know which factors were contributing to any effects. Additionally, several studies did not report the full sample's ethnicity. Given the majority of the studies were conducted on white young-to-middle-aged women, these findings might not apply to individuals outside of these demographics. This review's sample is unfortunately representative of wider mindfulness studies, with limited research existing on populations outside of this sample (Eichel et al., 2021). There was further variability in the length of follow-up time reported, ranging from 0 to 52 weeks. It may be more helpful for these to be grouped in future to ensure similar timepoints are assessed across studies.

Given the small number of studies included on each dataset within this review, it is possible the analyses were not powered enough to identify a significant effect in favour of the intervention (Valentine et al., 2010). Additionally, the small number of studies means the findings from the funnel plots need to be treated with caution and so the possibility of publication bias cannot be excluded (Sterne et al., 2001). Furthermore, the moderator sub-groups and different datasets were confounded with other potential moderators. For example, there were different levels of guidance and adherence within each control group dataset. There was also several incidences of significant heterogeneity and an unplanned post-hoc analysis. Consequently, findings need to be interpreted with caution. Further research is required to ascertain whether the found effects are valid.

Clinical implications

This review suggests MBSH may reduce depression and anxiety in individuals experiencing depression. Given the studies using active controls, high guidance MBSH and established MBSH showed similar effect sizes to other self-help interventions for depression (Gellatly et al., 2007), MBSH has potential to be a valid treatment option. However, given the evidence

base is not strong as of yet, unless individuals have a particular set of needs which indicates self-help would be more beneficial, it may be preferable to continue suggesting the use of face-to-face mindfulness courses at the time being. Further investigation into the moderator effects of level of guidance and type of MBSH will be needed to form more definitive conclusions. In the meantime, if MBSH is to be provided, it would likely be preferable for this to be higher guidance MBSH based on an established MBI.

Future research

The number of studies included within each meta-analysis ranged from three to five. Although three studies is sufficient for meta-analyses to be completed (Riley et al., 2011), there was often substantial heterogeneity in effect sizes. As the I^2 statistic can overestimate heterogeneity when a small number of studies are used (von Hippel, 2015), this area of research could benefit from further meta-analyses with a larger number of studies, when these become available. Additionally, due to the potential confounding effects within the datasets (such as level of guidance), further research for each dataset is required to disentangle the mechanism behind any possible effects on depression. Further to this, it was not possible to complete a moderation analysis on level of adherence due to insufficient included studies reporting MBSH intervention adherence (n=5). This may be useful to complete in future research. There were also several between-study differences which may have confounded the results across datasets, which could be separated out in future analyses. Furthermore, more studies including follow-up periods are needed to look at longer term effects.

Further research is needed looking at the impact of MBSH on more diverse population demographics given the lack of representation across genders, ethnicities and ages. Given the

differences in depression presentation and treatment across different demographics, it will be important to research MBSH with more populations (Mansour et al., 2020; Shi et al., 2021).

Given the high risk of bias across the majority of the studies, further high-quality research is needed to corroborate findings. This includes a higher number of studies using blinding and pre-registering the study method and analysis plan.

Conclusion

This review provided initial evidence for the effect of self-help MBSR/MBCT-based MBIs, on depression outcomes, for individuals experiencing depression. Significant post-intervention effects on depression favouring the intervention were found for studies using higher guidance MBSH, active control groups and established MBSH. The findings must be interpreted with caution due to substantial heterogeneity, high risk of bias within studies, and the use of unplanned post-hoc analyses. More research is required to ascertain whether valid effects are present, or whether these are due to significant overlap between datasets, limited number of studies and lack of diversity within the study samples.

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Section B: Empirical Research Paper

Examining the Feasibility of a Mindfulness Booster Course for Healthcare Staff Who Attended an eight-week Mindfulness Course

Word count: 8000

For submission to the Journal of Mindfulness

Abstract

Objectives

Healthcare workers often experience increased levels of stress. Mindfulness-Based Cognitive Therapy has been found helpful in improving healthcare staff wellbeing. However, maintaining mindfulness practice after this course can be challenging. A mindfulness booster course (MBC) could support with this, but has not yet been researched with healthcare staff.

Methods

A feasibility Randomised Controlled Trial (RCT) assessing the feasibility, acceptability and preliminary effectiveness of a newly developed online MBC for healthcare staff who have completed an eight-week mindfulness course was completed. The study randomised 58 participants into either a MBC or Treatment as Usual control. Predefined progression criteria around recruitment, retention, acceptability, outcome measure completion and preliminary effectiveness were used to assess eligibility of progressing to a larger-scale RCT. The primary outcome was level of stress, secondary outcomes included levels of depression, mindfulness, anxiety, wellbeing, self-compassion, compassion to others and burnout. All outcomes were assessed at baseline and post-intervention. Levels of stress and mindfulness were additionally assessed at mid-intervention.

Results

All progression criteria achieved a green rating. The post-intervention between-group effect size on change in the primary outcome was g=.57 (95% CI: .01 to 1.13), and the CI contained the minimum clinically important difference. Qualitative feedback framed the MBC as very helpful, very accessible, very acceptable and slightly challenging. Some participants were unable to attend all sessions.

Conclusion

These results indicated progression to a larger-scale RCT is warranted. Clinical implications are discussed and recommendations for a larger-scale RCT are provided.

Introduction

Healthcare workers have elevated levels of stress, depression and anxiety (Johnson et al., 2018; Vandevala et al., 2017), which have been further exacerbated by COVID-19 (Bohlken et al., 2020; Hammond et al., 2021; Salari et al., 2020). Healthcare workers additionally experience a chronically high workload, which is known to precipitate burnout (Iacobucci, 2021). The prevalence of burnout amongst healthcare staff is documented at around 40% (De Hert, 2020; Duarte & Pinto-Gouveia, 2016). Throughout Covid-19, healthcare staff faced additional challenges contributing to burnout, including reallocation, risk of infection and working environment changes (Gemine et al., 2021). Healthcare workers also experience repeated exposure to stress, which can lead to compassion fatigue (Robertson et al., 2021). For example, levels of compassion fatigue in nurses has been gradually increasing over time (Xie et al., 2021), which is known to impact upon patient care (Cavanagh et al., 2020).

It is important to acknowledge the systemic challenges contributing to burnout, compassion fatigue and poor staff wellbeing, such as understaffing, unfair treatment and austerity measures (Montgomery et al., 2019). It is imperative these challenges are addressed through systemic changes at multiple levels, to ensure sustainable and widespread improvements in staff wellbeing (Daniels et al., 2022). Whilst these organisational factors will not be rectified by individualised interventions, there is still potential value in improving staff wellbeing and reducing burnout, through helping staff manage in these challenging environments (Johnson et al., 2018). Poor staff wellbeing is associated with lower patient satisfaction and safety outcomes (Hall et al., 2016; Hutala et al., 2021). Consequently, it is important to consider how staff wellbeing may be enhanced to ensure a better experience for both staff and clients.

Mindfulness offers a potential avenue of support for healthcare staff (Hente et al., 2020; Strauss et al., 2021). Mindfulness is defined as intentionally paying attention to the present moment, without judgement (Black, 2011; Kabat-Zinn, 1994). Mindfulness is theorised to improve wellbeing by increasing an individual's ability to enter the being mode and promoting disengagement from unhelpful mental processes, such as rumination (Hofmann & Gómez, 2017; Teasdale & Segal, 2007). Given rumination is noted to perpetuate stress (Watkins & Roberts, 2020), it is logical mindfulness would support with decreasing stress through reducing rumination. The being mode involves accepting the mind as it is and letting go of trying to change this (Williams, 2008). The being mode is associated with increased flexibility in responding to thoughts, enabling individuals to break away from habitual thought patterns not conducive to wellbeing (Williams et al., 2011). Drawing on this theory, interventions incorporating mindfulness have been developed. The most common of these are Mindfulness-Based Stress Reduction (MBSR) and Mindfulness-Based Cognitive Therapy (MBCT; Hofmann & Gómez, 2017). These consist of eight-week group courses where individuals learn mindfulness skills aimed at improving wellbeing. Examples of mindfulness practices include mindful eating, body scans, sitting meditation, mindful yoga and walking meditation, as well as then incorporating mindfulness into daily life (Baer, 2014). MBCT is theorised to promote wellbeing by increasing an individual's awareness of their relationship to inner experiences (Sipe & Eisendrath, 2012), particularly through adjusting cognitive and emotional reactivity (Gu et al., 2015). Numerous meta-analyses found mindfulness-based interventions (MBIs) reduced stress, anxiety and depression in demanding roles such as healthcare providers (Govia et al., 2020; Lomas et al., 2019). MBIs have also been documented to significantly reduce burnout and compassion fatigue in healthcare staff (Duarte & Pinto-Gouveia, 2016). This is unsurprising, as mindfulness is noted to increase levels of compassion and improve workplace relationships, a factor which contributes to

burnout (Conversano et al., 2020; Glomb et al., 2011; Lasalvia et al., 2009). In light of this evidence, the National Institute for Health and Care Excellence (2022) recommend employers offer mindfulness courses and mindfulness on a continuous basis to all employees, which can be in a group and/or online.

It is theorised repeated mindfulness practice continues to strengthen the ability to enter the being mode, and so practicing mindfulness more frequently and for longer durations is suggested to amass greater benefits (Teasdale & Segal, 2007). The evidence in relation to this remains somewhat inconclusive, possibly in part due to the challenge of accurately measuring mindfulness practice (Bondolfi et al., 2010). However, there is some congruent evidence demonstrating a positive correlation between increased mindfulness practice and wellbeing outcomes (Parsons et al., 2017).

Maintaining mindfulness after MBCT is thought to fortify the skills acquired during the course and appears to be associated with greater prevention of depressive relapse (Segal et al., 2019). Consequently, sustained practice after an MBI would likely help maintain staff wellbeing. However, individuals often report finding it difficult to find time and maintain lone mindfulness practice following mindfulness courses (Langdon et al., 2011; Parra et al., 2019). Maintaining practice after mindfulness courses may be particularly challenging for healthcare staff, given the time and resource pressures they experience (Farr & Cressey, 2015). This is evidenced by the fact that although mindfulness courses show benefits for healthcare staff, many discontinue their mindfulness practice beyond the courses (Chmielewski et al., 2020).

A proposed method of supporting practice following mindfulness courses is through mindfulness booster sessions (Deckersbach et al., 2012; Hente et al., 2020; Simpson et al., 2018). It has been suggested booster sessions/courses following MBCT may lead to better outcomes (Mathew et al., 2010; McCartney et al., 2021). These comprise a group of individuals completing mindfulness exercises together for a set time (Adams, 2016), and have potential to provide routine and social support around mindfulness, which are associated with maintaining mindfulness practice (Birtwell et al., 2019). There has been some research on mindfulness booster sessions/courses.

Williams et al. (2022) created an eight-week MBCT follow-on course, which focused on awareness of feeling tone (a specific foundational element of mindfulness) and was noted to decrease levels of stress and depression. Similar positive outcomes were found in the 12-week MBCT/MBSR follow-on programme curated by Maloney et al. (2024), involving 2-hour-and-15-minute sessions and 30-45-minutes of daily home practice, during which participants were encouraged to consolidate learning from MBCT/MBSR and learn new skills. Additionally, a recent paper has documented the benefit of mindfulness booster sessions for undergraduates who attended a single mindfulness workshop (Radosavljevic & Farb, 2023). However, none of these studies were with healthcare staff. Given healthcare staff experience chronically intense and stressful workloads (Iacobucci, 2021; Robertson et al., 2021), the outcomes of mindfulness booster sessions/courses for this demographic may differ. Furthermore, all interventions either involved the addition of new learning, centred around one aspect of mindfulness, had significant time-commitments, or were a follow-on course from a single-session mindfulness workshop, meaning no research has been conducted on post-MBCT/MBSR booster sessions focusing purely on continuing and consolidating skills learned in MBIs. Therefore, the current study aims to begin a programme of research

examining the feasibility, acceptability and effectiveness of a Mindfulness Booster Course (MBC) for healthcare staff following MBSR/MBCT.

Guidelines suggest such programmes of research should begin with an initial assessment of feasibility prior to a full-scale intervention evaluation (Skivington et al., 2021). Consequently, this specific research project aims to conduct a feasibility Randomised Controlled Trial (RCT) of an MBC for healthcare staff compared to a Treatment as Usual (TAU) control. This research endeavours to embody NHS values through improving lives, being committed to quality of care and enhancing compassion (Department of Health and Social Care, 2023). This MBC aims not only to enhance these for staff, but to have a positive repercussions for NHS patients through the patient-staff interactions.

Aims and research questions

The aim of this study was to conduct a feasibility RCT of an MBC compared to TAU, to assess whether the MBC is feasible and acceptable for healthcare staff to progress to a full-scale RCT. The progression criteria in Table 1 were used to assess the eligibility of a subsequent, larger-scale RCT.

Table 1
Progression Criteria

Progression criteria	Measurement	Green	Amber	Red
Recruitment to the study	Number of participants recruited over 10-months	40-50	24-39	<24
Retention in the intervention	Proportion of participants who attend at least half of the booster sessions	≥50%	25-49%	<25%
Retention in the study	Proportion of participants who remain in the study	≥50%	25-49%	<25%
Mindfulness booster course acceptability	Response to Likert type questions and content analysis of qualitative data	The majority of participants report the intervention is acceptable as it is or with minor adjustments	There are inconsistent reports of acceptability or the intervention requires bigger adjustments	The majority of participants report the intervention is unacceptable or requires adjustments which cannot be completed
Completion of outcome measures	Completion rate of the outcome measures	≥60%	40-59%	<40%
Preliminary indicator of effectiveness for the primary outcome	Estimate of the between group effect size of the MBC compared to TAU on the 10-item Perceived Stress Scale from baseline to post-intervention	Effect size on the primary outcome is in favour of intervention arm and 95% confidence interval for that effect size contains (or is greater than) the minimal clinically important difference found by Drachev et al. (2020).	Effect size is in favour of TAU, but the minimum clinically important difference is included in the 95% confidence interval on the primary outcome	Effect size is in favour of TAU, and the minimum clinically important difference is not included in the 95% confidence interval on the primary outcome

The research questions in relation to feasibility and acceptability were:

1. Can sufficient participants be recruited to an MBC following an eight-week staff mindfulness programme to make the course feasible?
2. Is the retention of participants within the MBC intervention sufficient?
3. Is the retention of participants within the study sufficient?
4. Is the MBC acceptable for the participants?
5. Is the level of outcome measure completion sufficient?

Whilst feasibility studies can include a preliminary assessment of intervention outcomes, it is not the purpose of such studies to definitively assess these (Office for Health Improvement and Disparities, 2020). For the current study, preliminary indicators of effectiveness of the MBC were examined on a range of outcomes:

1. Primary outcome: The study aimed to obtain an initial estimate of the between-group effect size in relation to the primary outcome (change in stress from baseline to post-intervention), examine whether the direction of the estimate is in favour of the intervention arm and assess whether the effect size confidence interval (CI) contained the minimum clinically important difference (MCID).
2. Secondary outcomes: The study aimed to obtain initial estimates of the between-group effect sizes in relation to the secondary outcomes (change from baseline to post-intervention in depression, mindfulness, amount of mindfulness practice, self-compassion, compassion to others, anxiety, burnout and wellbeing from baseline to post-intervention) and examine whether the directions of the estimates are in favour of the intervention arm.

Method

Design

This study used a feasibility RCT design, with randomisation on a 1:1 basis to each arm:

1. MBC plus TAU
2. TAU-only control group

The study was pre-registered (https://clinicaltrials.gov ID:NCT05721716; Appendix I).

Self-reported outcome measures were completed at the three-timepoints below within the 12-week study. The intervention was eight-weeks, running from weeks two-to-nine.

1. Baseline (T0, weeks 0-1)
2. Mid-intervention (T1, week 5)
3. Post-intervention (T2, weeks 11-12)

Expert-by-experience involvement

Three one-hour expert-by-experience groups were run during the design stage. These were with individuals who had previously completed or taught an eight-week staff mindfulness course. The semi-structured groups discussed practical, evaluative and content-related elements of the MBC (Appendix J). All individuals expressed interest in the MBC. Several suggestions from these groups were directly incorporated into the MBC, such as a variety of mindfulness practices, discussion time, shorter sessions, weekly email reminders with the same Zoom link and session times off the hour/half-past. Suggestions around areas for feedback questions and outcome measures were also included. For example, questions on wellbeing, connection with colleagues, impact on work, self-compassion, helpfulness and repeat attendance. The expert-by-experience groups were also asked for their opinion on the progression criteria, all of whom thought they were appropriate. Some feedback and outcome

measure suggestions were already included in progression criteria, including levels of accessibility and challenge of the MBC.

Participants

In line with guidance for feasibility studies (Hooper, 2019), the recruitment target was 40-50 participants (20-25 per study arm) over a 10-month period. As recruitment was a feasibility aspect the study examined, participant details are reported in the results.

Participants were eligible for inclusion if they were:

1. A current NHS staff member from the South-East, South-West and/or London.
2. Completed an eight-week staff mindfulness course within the past three-years. Individuals were considered to have "completed" a mindfulness course if they attended four or more sessions (Simpson et al., 2017; Teasdale et al., 2000; Verweij et al., 2018).

Exclusion criteria were individuals who were currently on sick leave, planning on undertaking another eight-week MBI or who previously found practicing mindfulness distressing.

Participants were recruited both through advertisement at the end of MBCTs and emailing staff who previously completed an MBCT. Eligible participants were directed by the participant information sheet (Appendix K) to email the main researcher to express interest in the study. Upon emailing, a Qualtrics consent form was provided (Appendix L). After consenting, participants were emailed a “consent confirmation” email, which ensured no-one consented on the individual’s behalf (Appendix M). Participants were randomly allocated to

their study arm after they had consented and entered their email into the baseline questionnaire. All participants were offered a £10 voucher in recognition of participation.

Treatment as usual

Neither study arm were restricted in accessing other forms of support. Participants in TAU were encouraged to continue maintaining their wellbeing and mindfulness practice however they wished.

MBC

The MBC facilitator was a Clinical Psychologist who is a British Association of Mindfulness-Based Approaches Registered Mindfulness Teacher. The course involved eight weekly 30-minute scheduled group sessions, which occurred between the weeks commencing Monday 22nd May and Monday 10th July 2023. Table 2 shows a summarised version of the full session plans (Appendix N). The participants were provided with potential timeslots and asked to specify which would be appropriate for them (Appendix O). Using this information, participants were allocated to a fixed weekly group slot in groups of five-to-eight. In instances of annual leave or illness, participants were offered the opportunity to attend different a different timeslot as a one-off, but in general, sessions were undertaken with the same people. All sessions occurred online, on Zoom. Participants were reminded of sessions the day before by email, which included the Zoom link. Sessions were split into a 15-minute mindfulness practice followed by a 15-minute discussion. Discussion involved reflection on the mindfulness practice and speaking about between-session practice. Home practice worksheets were provided (Appendix P), along with links to supplementary mindfulness materials/recordings. The MBC group timeslots are listed below in Table 3.

Table 2

Summary of MBC session plans

Session number	Session plan
1	Introductions and ground rules Sitting meditation practice Brief discussion around the exercise and home practice Bells practice
2	Introductions and ground rules if new members Sitting meditation practice Brief discussion around the exercise and home practice Bells practice
3	Mindful movement Brief discussion around the exercise and home practice Bells practice
4	Sitting meditation practice Brief discussion around the exercise and home practice Bells practice
5	Body scan Three-minute breathing space Brief discussion around the exercise and home practice Bells practice
6	Mindful movement Breathing space Brief discussion around the exercise and home practice Bells practice
7	Sitting meditation practice Brief discussion around the exercise and home practice Bells practice
8	Self-guided practice with bells Brief discussion around the exercise and the course more generally Signpost to further support eg. Mindfulness drop-ins within the host trust Bells practice

Table 3

Allocated timeslots for the Mindfulness Booster Courses, based on participant preference

Timeslot	Number of individuals allocated
Tuesdays 9:00-9:30am	8
Thursdays 8:15-8:45am	7
Thursdays 5:30-6:00pm	5
Fridays 8:30-9:00am	7

Progression criteria

Progression criteria are predetermined conditions, which determine whether further research on an intervention should be completed (Mbuagbaw et al., 2019). The developed MBC progression criteria were consistent with recommendations, and included a green-amber-red traffic light system (e.g. Avery et al., 2017). The MBC progression criteria were predefined and pre-registered, as recommended for feasibility studies (Skivington et al., 2021). The progression criteria were used to determine viability of a further RCT. This would be warranted if outcomes are categorised as all "green", or a mixture of "green" and "amber".

The recruitment target was based on recommendations by Hooper (2019), where a sample size between 24-50 is suggested for feasibility studies. This range is based on the suggestions from Julious (2005) and Sim and Lewis (2012). Retention targets were made taking into account the estimated attendance at current staff drop-ins within the host trust, which was identified at under 5% attendance. Other mindfulness feasibility studies have used 60% (e.g. Pitt et al., 2020), but given the substantially smaller current rate of attendance, it was considered that achieving 50% would be a substantial achievement. The acceptability criterion was developed based on recommendations from feasibility studies (Bowen et al., 2009; Pitt et al., 2020). The completion of outcome measures progression criterion was developed based on completion rates for outcome measures within other mindfulness studies (Strauss et al., 2021). The preliminary outcome measure progression criterion was based on another mindfulness feasibility study (Strauss et al., 2018).

Measures

Outcome measures were administered via the online platform, Qualtrics. Measures were completed by the participants remotely, without the research team present.

Primary outcome measure: 10-item Perceived Stress Scale (PSS-10)

The PSS-10 (Cohen et al., 1983; Appendix Q) was used to measure the primary outcome, stress. The PSS-10 comprises 10-questions, measured on a Likert scale from 0 (never) to four (very often). Questions ask about experiences of stress and ability to manage this. Total scores range from 0-40, with lower scores representing lower stress levels. The PSS-10 demonstrates adequate test-retest reliability, sufficient internal consistency (Cronbach's α>.70), and good construct validity and good concurrent validity (Lee, 2012). A good level of internal consistency was evident within the current study (Cronbach's α=.86; McDonald's ω=.86; Appendix R).

Secondary outcome measures

Secondary outcomes included levels of depression, mindfulness, self-compassion, compassion to others, anxiety, wellbeing, burnout and amount of mindfulness practice.

8-item Patient Health Questionnaire (PHQ-8). The PHQ-8 (Kroenke et al., 2009; Appendix S) was used to assess levels of depression symptoms. The PHQ-8 comprises eight-questions, scored on a Likert scale from 0 (not at all) to three (nearly every day). Questions ask around different topics related to experiences of depression, including mood, self-esteem, concentration and sleep. Total scores range from 0-24, with lower scores indicating lower symptoms of depression. The PHQ-8 has good internal consistency (α=.88) and sufficient convergent validity, correlating with the Hamilton Depression Rating Scale (Shin et al., 2019). It has substantial face validity, good criterion validity and strong construct validity (Kroenke et al., 2009). A good level of internal consistency was evident within the current study (α=.88; ω=.89; Appendix T).

15-item Five-Facet Mindfulness Questionnaire (FFMQ-15). The FFMQ-15 (Baer et al., 2012; Appendix U) was used to measure levels of mindfulness. The FFMQ-15 comprises 15-questions measured on a Likert scale from one (never or very rarely true) to five (very often or always true). Questions ask about ability to pay attention to the present moment and step back from thoughts. Total scores range from 15-75, with higher scores representing higher levels of mindfulness. The FFMQ-15 demonstrates adequate internal consistency (α: .64 to .83) and has significantly similar convergent validity to the FFMQ-39 (Gu et al., 2016). Within the current study, a good level of internal consistency was evident (α=.87; ω=.85; Appendix V). The FFMQ-15 has satisfactory construct validity (Feliu-Soler et al., 2021).

Amount of mindfulness. Participants were asked about amount of mindfulness practice through four open-ended questions: days engaged in formal mindfulness practice, minutes of formal mindfulness practiced on each day, days engaged in mindfulness in everyday life and minutes of informal mindfulness practiced on each day (Appendix W).

Sussex-Oxford Compassion to Self Scale (SOCS-S). The SOCS-S (Gu et al., 2020; Appendix X) was used to assess self-compassion. The SOCS-S comprises 12-questions measured on a Likert scale from one (not true at all) to five (always true), with total scores ranging from 12-60, where higher scores represent higher self-compassion. Questions centre around responses to the self and understanding of suffering. The SOCS-S demonstrates adequate internal consistency (α: .75 to .93) and shows evidence of convergent and discriminant validity, by correlating with an existing Self-Compassion Scale (Gu et al., 2020).

Within the current study, a good level of internal consistency was evident (α=.86; ω=.85; Appendix Y).

Sussex-Oxford Compassion Scale to Others Scale (SOCS-O). SOCS-O (Gu et al., 2020; Appendix Z) was used to measure levels of compassion for others. The SOCS-O comprises 12-questions scored on a Likert scale from one (not at all true) to five (always true), with total scores ranging from 12-60, where higher scores represent higher levels of compassion towards others. Questions focus on responses to other's suffering. The SOCS-O demonstrates adequate internal consistency (α: .74 to .94) and shows evidence of convergent and discriminant validity, through correlations with empathy and compassion for others scales (Gu et al., 2020). Within this study, an excellent level of internal consistency was evident (α=.92; ω=.92; Appendix AA).

7-item Generalised Anxiety Disorder Assessment (GAD-7). The GAD-7 (Spitzer et al., 2006; Appendix BB) was used to measure symptoms of anxiety. The GAD-7 comprises seven-questions, scored on a Likert scale from 0 (not at all) to 3 (nearly every day), with total scores ranging from 0-21, where higher scores representing higher levels of anxiety. The questionnaire asks about topics such as worry, relaxation and restlessness. The GAD-7 demonstrates excellent internal consistency (α=.92) and good test-retest reliability (Spitzer et al., 2006). An excellent level of internal consistency was evident within this study (α=.91; ω=.92; Appendix CC). It demonstrates strong criterion validity, good construct validity and good convergent validity, correlating with other anxiety measures (Spitzer et al., 2006).

Short Warwick-Edinburgh Mental Wellbeing Scale (SWEMWS). The SWEMWS (Stewart-Brown et al., 2009; Appendix DD) was used to assess mental wellbeing. The

SWEMWS comprises seven-questions, scored on a Likert scale from one (none of the time) to five (all of the time), with total scores ranging from 7-35, where higher scores indicate higher mental wellbeing. Questions focus on current feelings, clarity of thought and thoughts about the future. The SWEMWS has excellent internal consistency (α=0.887; 0.93) and demonstrates acceptable convergent and construct validity (Shah et al., 2021). Within this study, an excellent level of internal consistency was evident (α=.90; ω=.90; Appendix EE).

Sussex Burnout Scale (SBS). The SBS (Strauss & Cavanagh, 2024; Appendix FF) was used to measure burnout. The SBS comprises three-questions, scored on a Likert scale from one (rarely/never) to five (every day/almost every day), with total scores ranging from three to 15, where higher scores indicating higher burnout. Questions centre around focus, energy and efficiency at work. The SBS shows good internal consistency and concurrent validity (Strauss et al., in prep). Within this study, a good level of internal consistency was evident (α=.85; ω=.85; Appendix GG). This is comparable to other measures of burnout (de la Fuente et al., 2015; Pérez-Fuentes et al., 2018).

Feedback questionnaire

A feedback questionnaire was created, with Likert and open-ended questions around helpfulness, acceptability, accessibility, level of challenge and impact of the MBC (Appendix HH). Both the intervention and control group were asked to share what other forms of support they have accessed throughout the study period (Appendix II).

Questionnaire for non-participants

Individuals who were eligible, but unable to participate were invited to share their reason for not participating (Appendix JJ).

Procedure

Data collection

Participants were emailed a Qualtrics link to baseline measures and demographics questions (Appendix KK). Participants were required to input their email addresses so responses could be matched. Mid-intervention, participants were emailed the link to mid-point measures (PSS-10, FFMQ-15 and amount of mindfulness questions). A final link was emailed to participants after the intervention finished, which included all questionnaires and a feedback questionnaire. Reminder emails were sent if participants did not complete questionnaires within three-days (Appendix LL). The researcher did not access participants scores until after the study was completed, to reduce risk of bias.

Randomisation

Participants were randomised after entering their email into the baseline questionnaire. First, the researcher listed participants in the order they completed baseline measures. Following this, each individual on the list was randomly assigned into either study arm using the online Simple Randomisation Service provided by Sealed Envelopes. This employed block randomisation (with random permuted blocks) to ensure groups were balanced intermittently, and meant the researcher could not tell in advance who would be allocated to which group, minimising selection bias.

Ethical considerations

The MBC did not involve any mindfulness practices outside of those within MBCT/MBSR, and had shorter session/practice length. Given one of the inclusion criteria was the completion of an eight-week mindfulness course, all participants had awareness of how these

mindfulness exercises impacted their personal distress levels. Participants who previously experienced distress because of practicing mindfulness were asked not to participate. Participants were also welcome to withdraw from the study or intervention at any point. Finally, participants were able to speak with the lead researcher, or mindfulness facilitator, if they had any questions or were experiencing study-related distress. Potential participants were made aware of possible risks within the information sheet, prior to consenting.

As the intervention was online, there were no in-person participant-facilitator interactions. Within group spaces, privacy was managed through establishing appropriate group rules to protect all individuals, as per usual protocol for group-based therapeutic interventions. Data collected was pseudo-anonymised, encrypted and stored on a password protected computer for the course of the project. It will be kept securely for ten years and then disposed of securely, as recommended by the Medical Research Council (2022). The data collected in this study may be used for future research continuing the evaluation of the MBC.

Analysis plan

Predefined progression criteria were used to analyse measures of feasibility/acceptability and preliminary indicators of effectiveness (Table 1). Qualitative data from the feedback questionnaire were analysed using content analysis. The coding frame was refined following an independent-rater applying it to one randomly selected participant. Following this, the inter-rater reliability of the final coding frame was assessed through a further five randomly selected participants (20% of intervention sample) being coded by the independent-rater. The Cohen's kappa for this was $\kappa \geq .78$, placing it within the substantial agreement range (McHugh, 2012). It was frequently the case that participant answers did not solely apply to only one question, meaning responses were applied to codes across the whole coding frame

rather than question by question. Therefore, a single Cohen's kappa is provided. For each measure, the preliminary indicators of effectiveness were calculated using SPSS, by computing the Hedge's g between-group effect size for the pre-post mean change scores (MCS). This means the effect size provided a standardized measure of the difference between the MBC group's mean pre-post change score and the control group's mean pre-post change score. For each measure, the effect size's 95% confidence interval was calculated by SPSS, by standardizing the 95% t-interval. Means and SDs were also reported. The MCS for FFMQ-15, amount of mindfulness, SWEMWS, SOCS-S and SOCS-O were calculated by subtracting T0 from T2, as if these domains improved, scores would increase. The MCS for GAD-7, PHQ-8 and SBS were calculated through subtracting T2 from T0, as if these domains improved, scores would decrease. Therefore, for all questionnaires, a positive MCS showed an improvement in scores. Given this is a feasibility study with insufficient power, no further statistical analyses were completed (Teresi et al., 2022). This analysis plan aligns with pre-registration.

Results

Participant demographics

Participant demographics are depicted in Table 4. Three participants from the control group did not complete the demographics section of the questionnaire. Most participants identified as female (83.64%), from White ethnic backgrounds (90%), heterosexual (80%) and had a postgraduate degree/equivalent (54.5%). The end date of participants original eight-week mindfulness course ranged from two-to-45 months before the start of the intervention (Table 5). Given participants were randomised, no formal tests of between-group baseline differences were completed (De Boer et al., 2015). Visually, groups appeared to be roughly balanced.

Table 4
Participant demographics

Demographic	MBC group (29)	Control Group (26)	Overall sample (55)
Mean age in years (SD)	44.44 (12.05)	45 (10.06)	44.71 (11.06)
Gender (%)			
Female	24 (83)	22 (85)	46 (83.64)
Male	5 (17)	3 (12)	8 (14.55)
Prefer not to say	0 (0)	1 (3)	1 (1.81)
Transgender (%)			
Yes	1 (3)	0 (0)	1 (2)
No	27 (94)	25 (96)	52 (94)
Prefer not to say	0 (0)	1 (4)	1 (2)
Missing response	1 (3)	0 (0)	1 (2)
Ethnicity (%)			
Asian or Asian British - Indian, Pakistani, Bangladeshi, any other Asian background	0 (0)	2 (8)	2 (4)
Japanese	1 (3.45)	0 (0)	1 (2)
Mixed - White and Black Caribbean, White and Black African, White and Asian, Any other mixed background	0 (0)	1 (4)	1 (2)
White - British, Irish, any other White background	27 (93.10)	23 (88)	50 (90)
Missing response	1 (3.45)	0 (0)	1 (2)
Marital status (%)			
Cohabiting/In a long-term relationship/Married/civil partnership	21 (73)	20 (77)	41 (75)
Single/Separated/Divorced – Not in a long-term relationship	7 (24)	5 (19)	12 (22)

Prefer not to say	1 (3)	1 (4)	2 (3)
Sexual orientation (%)			
Asexual	1 (3.5)	0 (0)	1 (2)
Bisexual	1 (3.5)	1 (3.8)	2 (3.5)
Gay	1 (3.5)	2 (7.7)	3 (5.5)
Heterosexual – straight	25 (86)	19 (73.1)	44 (80)
Lesbian	0 (0)	2 (7.7)	2 (3.5)
Prefer not to say	1 (3.5)	2 (7.7)	3 (5.5)
First language (%)			
English	28 (97)	25 (96)	53 (96)
Hungarian	0 (0)	1 (4)	1 (2)
Japanese	1 (3)	0 (0)	1 (2)
Highest educational attainment (%)			
GCSE or equivalent	1 (3)	0 (0)	1 (2)
A-level or equivalent	2 (7)	3 (12)	5 (9)
Undergraduate degree or equivalent	15 (52)	4 (15)	19 (34.5)
Postgraduate degree or equivalent	11 (38)	19 (73)	30 (54.5)
Have a mental or physical health condition that has lasted for 12 months or more, or is expected to last for 12 months or more. Ie, identifies as having a disability (%)			
No	23 (79)	18 (69)	41 (75)
Yes	6 (21)	8 (31)	14 (25)
Impact of disability (%)			
No - not at all	1 (17)	3 (37.5)	4 (29)
Yes - a little	2 (33)	5 (62.5)	7 (50)
Yes - a lot	3 (50)	0 (0)	3 (21)
Religion or belief (%)			
Atheist, agnostic or no religion	17 (58.6)	13 (50)	30 (55)

Buddhist	1 (3.4)	0 (0)	1 (1)
Christian - including Church of England, Catholic, Protestant and all other Christian denominations	5 (17.2)	6 (23)	11 (20)
Higher power	1 (3.4)	0 (0)	1 (2)
Hindu	0 (0)	1 (4)	1 (2)
Multifaith	0 (0)	1 (4)	1 (2)
Muslim	0 (0)	1 (4)	1 (2)
Pagan	1 (3.4)	0 (0)	1 (2)
Spiritual but not formally religious	2 (7)	0 (0)	2 (4)
Other - did not specify	2 (7)	1 (4)	3 (5)
Prefer not to say	0 (0)	3 (11)	3 (5)
Annual household income before tax (%)			
£10,001 - £20,000	1 (3.45)	0 (0)	1 (2)
£20,001 - £30,000	5 (17.2)	5 (19)	10 (18)
£30,001 - £40,000	1 (3.45)	2 (7.7)	3 (5.5)
£40,001 - £50,000	3 (10.3)	3 (11.5)	6 (11)
£50,001 - £60,000	3 (10.3)	3 (11.5)	6 (11)
£60,001 - £70,000	1 (3.45)	3 (11.5)	4 (7)
£70,001 - £80,000	2 (6.9)	4 (15.4)	6 (11)
£80,001 - £90,000	3 (10.3)	2 (7.7)	5 (9)
£90,001 - £100,000	5 (17.2)	0 (0)	5 (9)
£100,001 - £150,000	1 (3.45)	2 (7.7)	3 (5.5)
£200001	0 (0)	1 (4)	1 (2)
Prefer not to say	4 (14)	1 (4)	5 (9)
Job (%)			
Administrator/other admin support	4 (14)	1 (3.85)	5 (9)
Allied health professional, e.g. occupational therapist, paramedic, dietitian etc.	4 (14)	2 (7.69)	6 (11)
Clinical Support Worker	1 (3.4)	0(0)	1 (1.8)
Dentist	0 (0)	2 (7.69)	2 (3.6)

Graduate Mental Health Practitioner	1 (3.4)	0 (0)	1 (1.8)
Management	1 (3.4)	2 (7.69)	3 (5.4)
Mental Health Peer Co-ordinator	0 (0)	1 (3.85)	1 (1.8)
Midwife	0 (0)	1 (3.85)	1 (1.8)
Nurse/nursing assistant	10 (34.4)	2 (7.69)	12 (22)
Project Management	1 (3.4)	0 (0)	1 (1.8)
Psychological Professions	7 (24)	10 (38.45)	17 (31)
Public Health, e.g. health trainer, environmental health professional, school nurse etc.	0 (0)	1 (3.85)	1 (1.8)
Social care, non-NHS	0 (0)	1 (3.85)	1 (1.8)
Wider healthcare team, e.g. social worker, communications/public relations, employment specialist etc.	0 (0)	2 (7.69)	2 (3.6)
Prefer not to say	0 (0)	1 (3.85)	1 (1.8)

Table 5

Number of months between finishing the eight-week mindfulness course and participating in the current study

Number of months (%)	**MBC (29)**	**TAU (27)**	**Overall (56)**
2-4	6 (21)	4 (15)	10 (18)
5-7	5 (17)	2 (7)	7 (12.5)
8-10	3 (10.25)	8 (30)	11 (19.5)
11-13	4 (14)	1 (4)	5 (9)
14-16	3 (10.25)	4 (15)	7 (12.5)
17-19	2 (7)	2 (7)	4 (7)
20-26	3 (10.25)	4 (15)	7 (12.5)
36-45	3 (10.25)	2 (7)	5 (9)

The percentage of individuals who accessed additional support during the course was broadly similar across study arms. Out of those who completed the post-intervention measures, 18/25 in the MBC (72%) and 19/27 (70%) within TAU accessed other forms of support (Table 6).

Table 6
Summary of additional support accessed by each study arm

Additional method of support	MBC group (18 participants)	TAU group (19 participants)
Mindfulness drop-ins/sessions that were not part of the research project	5	6
Psychological therapy	4	6
Medication	3	3
Self-help book or app	13	3
Other	Nature based practice Mindfulness app Facilitating mindfulness for DBT group Podcasts Yoga	Two counselling sessions Tarot

Note: participants were able to select multiple options

Progression criteria

Recruitment to the study

Figure 1 depicts study recruitment and retention through a flow diagram based on the CONSORT model (Schulz et al., 2010). Study recruitment was finished early, due to recruiting over the required number of participants within three-weeks of one recruitment wave (Wednesday 29th March to Thursday 20th April 2023). The progression criteria stated recruitment would achieve a "green" rating if 40-50 participants were recruited over 10-months. In reality, 60 participants consented within three-weeks, with 58 of these individuals inputting their emails onto the baseline questionnaire and therefore being randomised. Furthermore, eight additional individuals expressed interest before the deadline but did not consent in time and nine further individuals expressed interest after the consent deadline.

Four individuals provided reasons for not being able to participate in the study through the "non-participant survey" (Table 7).

Figure 1

CONSORT diagram, based on Schulz et al. (2010)

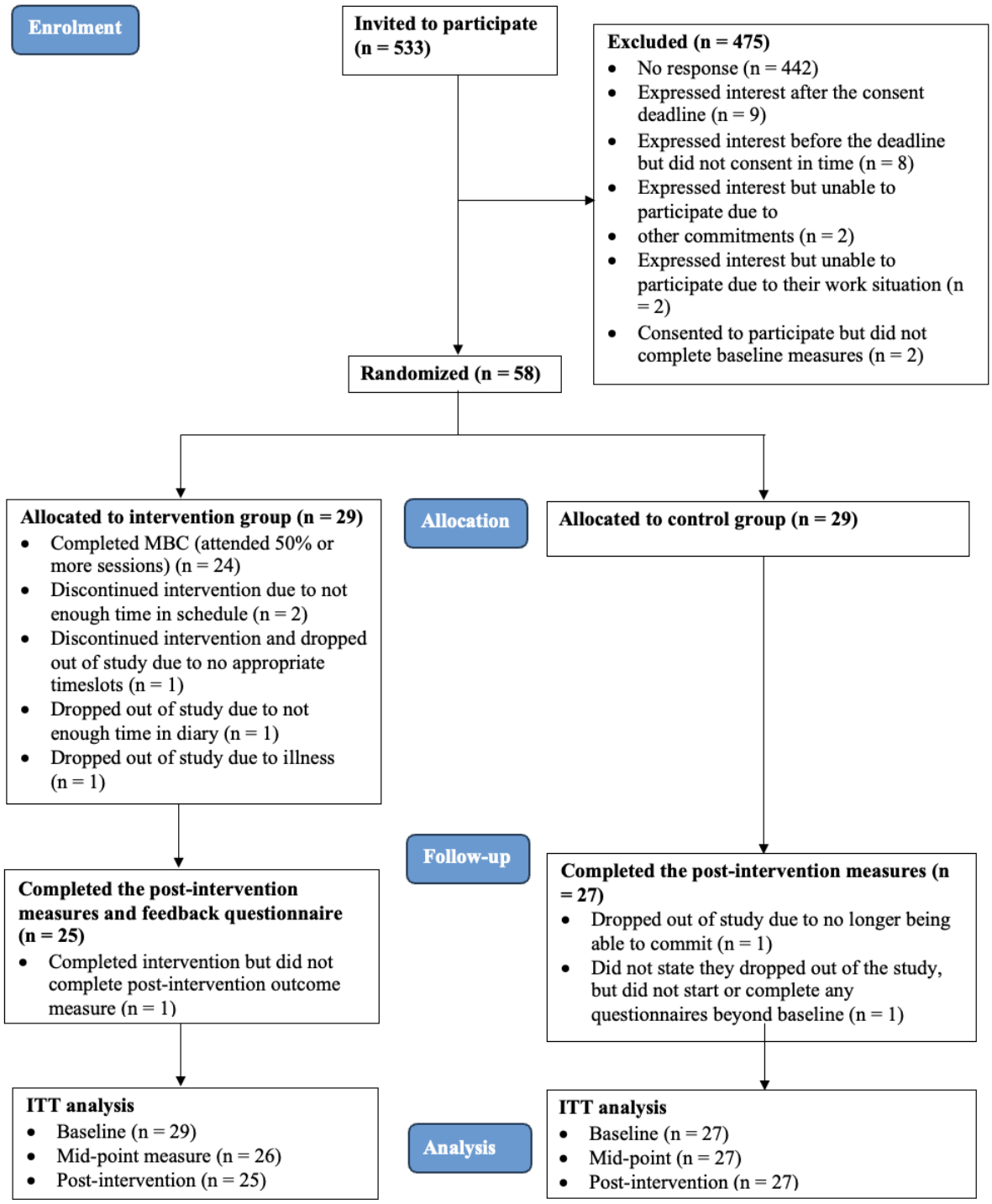


Table 7

Summary of non-participant survey results

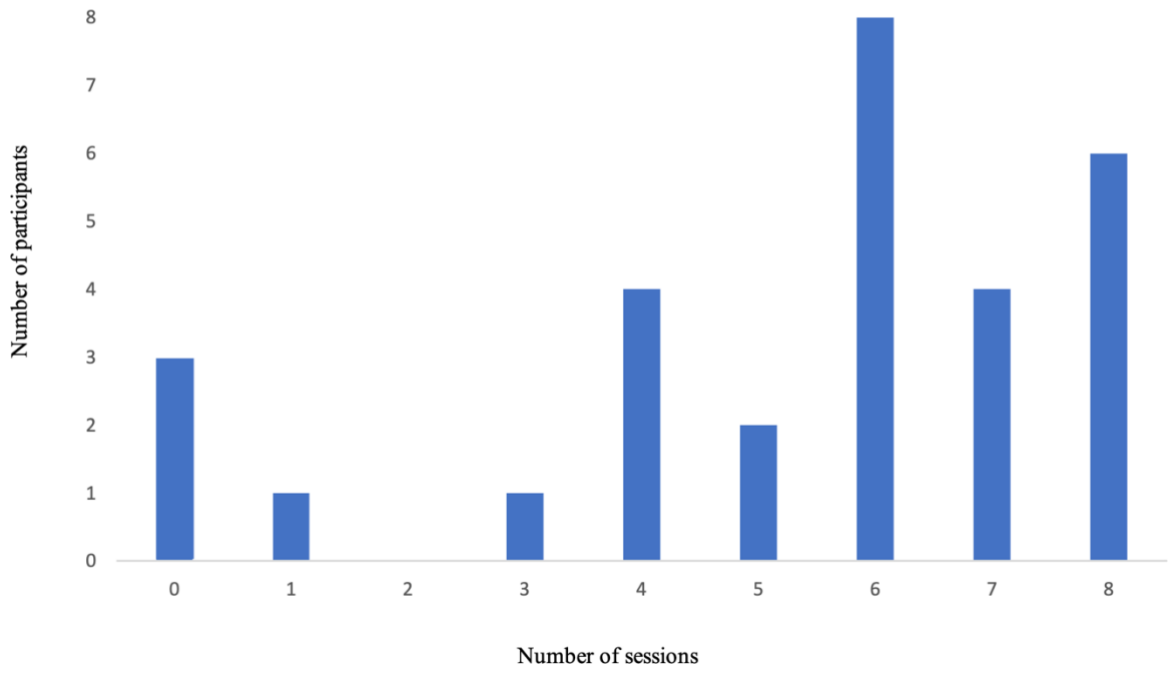
Reason for being unable to participate in the study
I'm abroad until the end of May.
Due to commitments at work and home.
I'm no longer employed with SPFT as I work for Surrey and Borders who sadly don't have a mindfulness offer. Otherwise I would have loved to participate. Booster sessions sound great.
I would have liked to have participated but I only now work bank for the trust so could not have guaranteed my attendance at the sessions.

Retention in the intervention

Retention in the intervention was measured by the proportion of participants who attended at least half (four) MBC sessions (Simpson et al., 2017; Teasdale et al., 2000; Verweij et al., 2018). For this criterion to be categorised as "green", 50% or more of participants would need to attend four or more sessions. As can be seen in Figures 1 and 2, 24/29 (83%) of the individuals in the MBC arm attended four or more sessions, meaning this criterion was met. Out of the five individuals who attended fewer than four sessions, two were unable to commit time out of their work schedule, one could no longer attend any of the offered timeslots, one individual attended one session but was unwell for the remaining, and the final individual attended three sessions.

Figure 2

Number of sessions attended by each participant



Retention in the study

Retention in the study was measured through the proportion of individuals who remained in the study until completion. For this criterion to be categorised as "green", 50% or more of participants would need to remain in the study. Out of the 58 individuals randomised, 53 (91%) remained in the study. Two individuals from TAU and three from the MBC group dropped out of the study. Reasons for dropping out were being unable to commit time out of work, sickness and no longer being able to commit to the study.

MBC acceptability

Acceptability of the MBC was measured through Likert responses and content analysis of qualitative feedback. Out of the 28 individuals still in the study at post-intervention, 25 completed the post-intervention questionnaire. No adverse events were reported during the

study. One individual attended one MBC session before being signed off sick from work (unrelated to the study).

Likert questions. Four of the 19 questions in the feedback questionnaire used a Likert scale (Table 8).

Table 8

Summary of Likert responses in feedback questionnaire

Question (number of responses)	**Responses n (%)**					**Majority response (%)**
	1	2	3	4	5	
	Very unhelpful	Unhelpful	Neither helpful nor unhelpful	Helpful	Very helpful	
How helpful has the mindfulness booster course been for you? (25)	0 (0)	0 (0)	3 (12)	9 (36)	13 (52)	Very helpful (52)
	Very inaccessible	Inaccessible	Accessible	Very accessible	n/a	
How accessible did you find the mindfulness booster course? (25)	0 (0)	1 (4)	6 (24)	18 (72)	n/a	Very accessible (72)
	Very unacceptable	Unacceptable	Acceptable	Very acceptable	n/a	
How acceptable did you find the mindfulness booster course? (24)	0 (0)	0 (0)	6 (25)	18 (75)	n/a	Very acceptable (75)
	Not at all challenging	Slightly challenging	Moderately challenging	Highly challenging		
How challenging did you find the mindfulness booster sessions? (24)	8 (33)	11 (46)	4 (17)	1 (4)	n/a	Slightly challenging (46)

The course was rated as either helpful or very helpful by 88% of participants. As shown in Table 9, when asked about the helpfulness of the intervention, the main categories of the content analysis described the MBC "acted as a reminder of the previously learned mindfulness practices and benefits of mindfulness" and "increased regularity and likelihood of both formal mindfulness practice and mindfulness in everyday life".

All bar one participant (96%) rated the MBC as accessible or very accessible. The inaccessible rating was due to being unable to attend the timeslots offered. As shown in Table 10, when asked how accessible the MBC was, the main category within the content analysis stated "it was easy to access the online Zoom sessions".

All respondents (100%) rated the MBC as either acceptable or very acceptable. As shown in Table 11, when asked how acceptable the MBC was, the main categories within the content analysis were the "course had an excellent facilitator" and they "found the MBC acceptable, enjoyable and helpful".

The challenge Likert rating varied, with 79% of participants rating the MBC as either not challenging at all or slightly challenging and 21% rating it as moderately or highly challenging. As seen in Table 12, the main categories within the content analysis described "internal and external distractions make it challenging to engage with and focus on the formal mindfulness practices" and "did not find the MBC sessions challenging, they were pitched at the correct level".

Table 9

Summary of content analysis for qualitative feedback around the following question: "If the course was helpful, please briefly explain how it helped. If wasn't helpful, please briefly explain why."

Question	Categories	Number of participants	Sample quote (participant number)
If the course was helpful, please briefly explain how it helped. If wasn't helpful, please briefly explain why.	Acted as a reminder of the previously learned mindfulness practices and benefits of mindfulness	11	"Refresher of the different types of practice." (p.3)
	Increased regularity and likelihood of both formal mindfulness practice and mindfulness in everyday life	10	"Pushed me to set aside regular times in my working day for either formal practice or mindful breathing space." (p.25)
	Pre-arranged and allocated timeslot provided structure to weekly mindfulness which increased commitment	7	"It gave my meditation a more formal, structured element to it - which was helpful for getting me back on track with mindfulness practice, as I had been tending to lapse for months at a time/ be quite on and off with it…having the weekly 'appointment' encouraged me to practice on a daily basis as I wanted to get the most out of the experience." (p.11)
	Supported with reconnecting with mindfulness and developing motivation to practice	6	"It was a support to develop the momentum to sustain my own practice." (p.24)
	Learned new practices	1	"I learned some new practices." (p.15)
	Felt energised after sessions	1	"It was always worth it and I felt more energised after the session." (p.19)

Table 10

Summary of content analysis for qualitative feedback around the following question: "How accessible did you find the mindfulness booster course?"

Question	Categories	Number of participants	Sample quote (participant number)
Please briefly explain what contributed most to the rating you have just given to the question: How accessible did you find the mindfulness booster course?	It was easy to access the online Zoom sessions	15	"Easy to access on zoom." (p.5)
	Positive experience with MBC facilitator and administrator	8	"Understanding mindfulness teacher regarding missed weeks due to ill health" (p.1).
	Appreciated the range and convenience of timeslots	8	"Really appreciated the range of times provided" (p.2)
	Shorter, regularly scheduled and consistently structured sessions made the course more manageable	5	"Just the right time with it being 30 minutes, seemed manageable to fit into daily life" (p.9)
	Unable to attend all sessions	3	"I was unable to attend the times given. My job don't really let me have time for this type of thing and I was doing another study thing at the time." (p.17)

Table 11

Summary of content analysis for qualitative feedback around the following question: "How acceptable did you find the mindfulness booster course?"

Question	Categories	Number of participants	Sample quote (participant number)
Please briefly explain what contributed most to the rating you have just given to the question: How acceptable did you find the mindfulness booster course?	Course had an excellent facilitator	9	"[Facilitator] has a very warm and welcoming teaching style and leads the course very well." (p.22)
	Found the MBC acceptable, enjoyable and helpful	9	"I looked forward to the session each week." (p.7)
	Enjoyed being in a like-minded group of people	6	"It seemed well attended and it was good to see others were also committed to the sessions like me." (p.13)
	The timeslots were appropriate	3	"Right amount of time and frequency." (p.21)
	Welcoming and safe environment	3	"It was easy to be in, welcoming, friendly." (p.2)
	Builds on the 8-week course	2	"easier to return having completed the longer course last year. Therefore practice was familiar." (p.21)
	Appreciated the Zoom chat function for feedback	1	"Liked the way we provided feedback by typing into the chat." (p.11)

Table 12

Summary of content analysis for qualitative feedback around the following question: "How challenging did you find the mindfulness booster course?"

Question	Categories	Number of participants	Sample quote (participant number)
Please briefly explain what contributed most to the rating you have just given to the question: How challenging did you find the mindfulness booster sessions?	Internal and external distractions make it challenging to engage with and focus on the formal mindfulness practices	7	"Found my mind was often very busy so sometimes difficult to concentrate on practicing - mindful walking and movement helped on these days." (p.18)
	Did not find the MBC sessions challenging, they were pitched at the correct level	7	"It was enjoyable rather than challenging" (p.8)
	Creating time to attend sessions	5	"Challenging to make the time in the morning" (p.24)
	No pressure to do challenging elements	2	"We were not put under any pressure to do anything that felt too difficult or challenging" (p.4)
	Learning new things can be challenging	2	"I think it's good to be challenged when learning new things." (p.25)
	Some occasions were more challenging to engage in than others	2	"Some exercises were harder to engage in**,** some I was able to engage in well." (p.12)
	Out of the habit of mindfulness practice	1	"Not in the habit of formal mindfulness practice." (p.9)

A further two questions involved a "yes/no" response followed by an open-text response (Table 13).

Table 13
Summary of yes/no responses in the feedback questionnaire

Question	**Responses (%)**	
	Yes	No
Would you be likely to want to attend the mindfulness booster course again in future?	22/25 (88)	3/25 (12)
Would you recommend the mindfulness boost course to colleagues who have previously attended a staff mindfulness group?	24/24 (100)	0/24 (0)

As summarised in Table 14, when asked their reason behind wanting to attend the MBC again in future or not, the main category was participants "noticed changes and benefits from the course". Other categories included two participants who "do not feel more sessions are needed right now" and one individual who "would prefer ongoing sessions". The three individuals from these final two categories said they would not attend the MBC again. When asked to provide an explanation for why participants would recommend the MBC to colleagues, the main category was "it was helpful and others would likely benefit from it".

Table 14

Summary of content analysis for qualitative feedback for yes/no questions

Question	Categories	Frequency of category	Sample quote
Please briefly explain what contributed most to the rating you have just given to the question: Would you be likely to want to attend the mindfulness booster course again in future?	Noticed changes and benefits from the course	6	"I've found it to have been particularly valuable, and really enjoyed attending. I can absolutely see the benefit of attending mindfulness booster courses in the future." (p.4)
	Would like to attend	4	"I value this session and would like to attend whenever it is available" (p.23)
	Appreciated the morning session	4	"Was a lovely way to start my day." (p.16)
	Opportunity to return to mindfulness and engage in additional learning	3	"I find these so helpful to refresh and keep up with regular practice." (p.3)
	Supported integration of regular mindfulness practice and mindfulness in daily life	3	"Ensured that I practiced mindfulness weekly and reminded me to include practice in my daily life." (p.18)
	To regularly connect with other likeminded individuals in a group	3	"It was lovely to reconnect with colleagues that have done it before and also to meet new people that have the same interest." (p.25)
	Increased motivation and encouraged practice	2	"Stay motivated." (p.1)
	Do not feel more sessions are needed right now	2	"I think I need to motivate and embed this for myself now." (p.22)
	Would prefer ongoing sessions	1	"I would like to join ongoing sessions rather than a boost." (p.5)
	Mindfulness is valuable for mental health workers	1	"The value of the Mindfulness courses should not be under estimated when doing a difficult job in mental health." (p.19)
	Would like to if there were other timeslots available	1	"If I could attend on the future at a better time I would want to." (p.17)

Please briefly explain what contributed most to the rating you have just given to the question: Would you recommend the mindfulness booster course to colleagues who have previously attended a staff mindfulness group?	It was helpful and others would likely benefit from it	8	“I feel that staff members would benefit this course.” (p.16)
	Would recommend as it helps to reconnect you with mindfulness practice and supports mindfulness skills	7	“I think it's a great way of helping people to reconnect with mindfulness and to consider how best to incorporate it into our lives.” (p.4)
	The facilitation and group set-up were appropriate	3	“The group did not feel too 'pressured' and discussions were short or that you could type instead. I also liked the group sizes.” (p.12)
	Would recommend	3	“100%.” (p.2)
	Enjoyed the flexibility around home-tasks and selection of practices	1	“Was easy to access. I liked how there was not much 'formal homework' and that we could choose our own practices for the week.” (p.12)

Remaining content analysis. Table 15 depicts categories derived from the remaining content analysis. The full set of qualitative responses and coding frame can be seen in Appendices MM and NN respectively.

The question around impact of the MBC on mindfulness practice produced several categories. Participants described that the MBC was a "reminder of different practices" and supported with "re-connecting with mindfulness". When asked about the impact of the MBC on wellbeing, the main categories were "increased clarity and awareness around thoughts and feelings" and the course "encouraged individuals to re-focus on their own lives and wellbeing". When asked about the impact of the MBC on connection with colleagues, the main category was participants had "not noticed an impact on connection with colleagues", followed by "increased awareness around thoughts, feelings and responses within interactions". The main category derived from asking about impact of the MBC on work, was "reduced stress levels". When asked whether participants would make any changes to the MBC, the main category was that participants "felt the course worked well as is", followed by a "request for more of the course". This included individuals asking for ongoing sessions, a longer course and yearly courses. Participants were offered an opportunity to comment at the end of the feedback questionnaire. The main category from this was "the facilitator was brilliant and had a calming presence".

Table 15

Summary of remaining content analysis categories and example quotations

Question	Categories	Frequency of category	Sample quote
In what ways, if any, has attending the mindfulness booster course impacted on your mindfulness practice?	Reminder of different practices	6	"Great reminders of the different approaches." (p.8)
	Re-connecting with mindfulness	6	"Helped me to reconnect with mindfulness practice and to begin integrating it back into my life. Following the initial course, I found it difficult to maintain my use of mindfulness." (p.4)
	Increased self-compassion, both in general and around mindfulness practice	5	"I am less critical of myself if I cannot focus on mindfulness tasks and accept that my mind is a "busy place". In the past, I would be more frustrated at this! I am more able to label my emotions and notice sensations in my body before 'proceeding' with the emotion." (p.12)
	Increased formal and informal mindfulness practice	4	"Ensured that I practice at least once a week; encouraged me to attend the drop in classes at work. encouraged me to make time for mindfulness in my daily life." (p.18)
	Clarified the benefits of regular short mindfulness practice	3	"More aware of how just practicing for even 5 mins can make such a difference to my daily life and support my health and wellbeing." (p.16)
	Interested in doing further training	1	"Renewed my interest in applying for the Adapted Mindfulness teaching." (p.19)
In what ways, if any, has attending the mindfulness booster course impacted on your wellbeing?	Increased clarity and awareness around thoughts and feelings	7	"More aware of certain 'triggers' for negative thinking to emerge, and I have felt more in control of things. I feel less controlled by ingrained patterns of worrying and more able to make choices about what I focus my attention on." (p.11)
	Encouraged individuals to re-focus on their own lives and wellbeing	5	"It has helped to focus me in life" (p.14)

	Helped individuals to recognise when they needed to slow down and pause	4	“I am more aware of the present moment and can 'notice' when my mind is in the past/future.” (p.12)
	Supported the development or re-establishment of healthy routines, both in mindfulness and general life	4	“I have changed my morning routine and now have a mindful breakfast outside in the garden every day which has helped me immensely. I do feel more present and aware of thoughts, feelings and sensations which helps me to appreciate life in a moment by moment way.” (p.23)
	Increased acceptance and understanding, both in mindfulness practice and in life generally	4	“Realising that mindfulness is challenging and that is OK, I don't have to fight it. Acceptance is key.” (p.15)
	Increased grounding and calmer mood	4	“Generally engenders feelings of centredness, calmness and relaxation.” (p.7)
	Improved ability to manage stress	4	“To be more aware daily of mindfulness has helped in moments of stress at work and at home.” (p.9)
	Helped individuals to reduce judgement	3	“Helped me to reflect and be less judgemental about my thoughts.” (p.3)
	Mindfulness positively improved wellbeing	2	“Positively.” (p.6)
	Little impact on general wellbeing, but the day of the MBC session was better than other days	1	“The weekly sessions themselves haven’t really had much impact on general well-being, although the day they happen usually starts better because of them.” (p.24)
In what ways, if any, has attending the mindfulness booster course impacted on connection with colleagues?	Not noticed an impact on connection with colleagues	10	“I'm not sure that it has had any further impact on my connection with colleagues.” (p.5)
	Increased awareness around thoughts, feelings and responses within interactions	5	“I have been more in tune with my emotions; if there's any workplace conflict (very, very rarely!) I feel more able to notice my reactions before acting on emotion.” (p.12)
	Increased compassion towards colleagues	4	“It has been positive and helped me to be more compassionate and present when talking to colleagues” (p.23)

	Connection with group members	3	"I felt connected to the colleagues that also took the course-it felt like we were all trying to make similar improvements e.g. deal with stress more healthily." (p.18)
	More open-minded	1	"More open minded." (p.1)
In what ways, if any, has attending the mindfulness booster course impacted on how you are at work?	Reduced stress levels	9	"Grounding myself when in stressful situations at work." (p.9)
	Sharing mindfulness with others	5	"Can use the skills briefly with clients (I now have a better understanding of mindfulness so feel that I am better at explaining mindfulness than before)." (p.12)
	Positive impact on work life and other areas of life	4	"This has a positive impact on work, wellbeing and personal life." (p.23)
	Increased awareness of self at work and ability to respond mindfully	4	"Less quick to get frustrated and irritated as I find it easier to put things into perspective when things go wrong at work." (p.11)
	No change noticed	3	"I haven't noticed a change here." (p.3)
	Increased awareness of mind and body	3	"It has made a real difference to my work life and I feel that I am more aware of my body and mind whilst at work." (p.16)
	Increased compassion at work	2	"Feel less critical on myself." (p.12)
Are there any changes to the mindfulness booster course that you'd recommend?	Felt the course worked well as is	11	"No - fitted really well for me." (p.21)
	Request for more of the course	8	"Would be appreciated if it can be run again (and often!)." (p.7)
	Request for longer sessions	2	"Make each session slightly longer to increase the impact." (p.8)
	Revisiting different exercises and explanations	3	"I would have liked to go back through other practices we learned in the main course, such as gratitude, negative thought patterns, etc." (p.9)
	Support for practicing mindfulness outside of the sessions	2	"Maybe suggestions for home practice - sometimes I found it hard to think what I should commit myself to doing." (p.13)

	Sharing which techniques will be practiced in each session	1	“Perhaps knowing in advance what practice techniques would be used so I could prepare a little better- eg body scanning- being in a room where I can lie down.” (p.10)
	Break between sessions and work	1	“Maybe change the morning session to 8:15 so that people don’t have to go straight into meetings after it.” (p.5)
Do you have any other comments you’d like to make about the mindfulness booster course?	The facilitator was brilliant and had a calming presence	10	“The teacher ([facilitator]) was excellent.” (p.14)
	Thank you	7	“Thanks!” (p.1)
	The course was helpful	4	“As I have said previously I found it extremely helpful” (p.20)
	The administrative elements ran smoothly	2	“Thank you to [administrator] for helping the sessions to run seamlessly by sending us our links out every week!” (p.4)
	Incorporation of more recent mindfulness literature and practices	1	“It would be great if the booster course could incorporate some of the most recent developments in mindfulness - as set out in 'Deeper Mindfulness' by Mark Williams and Danny Penman i.e. on 'feeling tones', which I have found really helpful to my own practice.” (p.11)
	Interested in outcome of research	1	“I would be very interested to know the results of the two groups.” (p.19)

Completion of outcome measures

Completion of outcome measures was assessed through their rate of completion. For this criterion to be categorised as "green", 60% or more of the study participants needed to fully complete the set of outcome measures. Out of the 58 individuals randomised, all 58 (100%) began the baseline measures. The completion rate of each questionnaire is shown in Table 16. The full set of questionnaires was completed by 24/29 (83%) of the MBC, 26/29 (90%) of TAU and 50/58 (86%) of all study participants.

Table 16
Number of individuals who completed each questionnaire

Measure	**Intervention (MBC, 29)**	**Control (TAU, 27)**
	N (%)	N (%)
PSS-10		
T0	29 (100%)	27 (93%)
T1	26 (90%)	26 (90%)
T2	25 (86%)	27 (93%)
FFMQ-15		
T0	29 (100%)	27 (93%)
T1	26 (90%)	26 (90%)
T2	25 (86%)	27 (93%)
Days engaged in formal mindfulness practice		
T0	29 (100%)	27 (93%)
T1	26 (90%)	27 (93%)
T2	24 (83%)	27 (93%)
Minutes of formal mindfulness practiced on each day		
T0	29 (100%)	26 (90%)
T1	26 (90%)	26 (90%)
T2	24 (83%)	27 (93%)
Days engaged in mindfulness in everyday life		
T0	28 (97%)	26 (90%)
T1	26 (90%)	27 (93%)
T2	24 (83%)	27 (93%)
Minutes of informal mindfulness practiced on each day		
T0	29 (100%)	26 (90%)
T1	26 (90%)	26 (90%)
T2	24 (83%)	27 (93%)
PHQ-8		
T0	29 (100%)	26 (90%)
T2	25 (86%)	27 (93%)

GAD-7		
T0	29 (100%)	27 (93%)
T2	25 (86%)	27 (93%)
SBS		
T0	29 (100%)	27 (93%)
T2	25 (86%)	27 (93%)
SWEMWS		
T0	29 (100%)	27 (93%)
T2	25 (86%)	27 (93%)
SOCSS		
T0	29 (100%)	27 (93%)
T2	25 (86%)	27 (93%)
SOCSO		
T0	29 (100%)	26 (90%)
T2	25 (86%)	27 (93%)

Preliminary indicator of effectiveness: Primary outcome

In line with pre-registration, the preliminary indicator of effectiveness on stress was examined through estimation of the between-group effect size that measured the difference in 'T0 minus T2 change scores' between MBC and TAU. As can be seen from Table 17, this showed a positive signal of efficacy, with a small to large effect size (g=.57, 95% CI=.01 to 1.13). For this progression criterion to be categorised as "green", the effect size needed to be in favour of the intervention arm, and its 95% CI needed to contain or exceed the PSS-10 MCID, which is considered to fall between 2.19 and 2.66 points (Drachev et al., 2020). When this MCID is converted to an effect-size, it was within the 95% CI found in this study. Given this, and the fact the effect size favours the intervention arm, this criterion is green. Furthermore, the 95% CI meets a more stringent criterion of being entirely above zero, meaning there is a strong preliminary signal of efficacy by the post-intervention time-point. As this was a feasibility study that was not powered or planned to definitively test hypotheses, only descriptive statistics and CIs are presented here (Teresi et al., 2022).

Given the PSS-10 was additionally administered at the mid-point measure, the signal of efficacy was also calculated for this timepoint by comparing 'T0 minus T1 change scores' between the two arms. This was not a pre-registered analysis timepoint, but is reported regardless as the information was collected. The effect size favoured the intervention arm, but was not as strong, and had a 95% CI that crossed zero. This is unsurprising, given the MBC is only part way through at T1. Table 17 shows a summary of the primary indicator of effectiveness results.

Table 17
Summary of preliminary indicators of effectiveness for primary outcome

Measure	**Intervention (MBC)**			**Control (TAU)**			**Between group Hedges g effect size (95% CI)**
	n	Mean (SD)	Mean change from baseline (SD)	n	Mean (SD)	Mean change from baseline (SD)	
PSS-10							
T0	29	17.04 (5.97)		27	18.23 (4.89)		
T1	26	17.25 (6.52)	.1 (3.96)	26	19 (7.02)	-.88 (5.16)	.12 (-.43 to .66)
T2	25	14.38 (4.40)	2.67(3.31)	27	17.81 (5.17)	.42 (4.33)	.57 (.01 to 1.13)

Preliminary indicators of effectiveness: Secondary outcomes

The preliminary indicators of effectiveness of the MBC on the secondary outcomes (levels of depression, anxiety, mindfulness, wellbeing, self-compassion, compassion to others and burnout) were measured through estimation of effect sizes of the MBC compared to TAU. The secondary outcomes were not included within the progression criteria, so have not been categorised as green, amber or red, nor was it examined whether the 95% CIs contained the MCID for each measure.

T0 to T2 MCS. All of the secondary outcomes, bar minutes of informal mindfulness practiced on each day, had between-group effect sizes that favoured the intervention group and consequently showed positive signals of efficacy. Furthermore, the 95% CIs for the FFMQ-15, PHQ-8 and days engaged in mindfulness in everyday life effect sizes were entirely above zero, providing strong preliminary signals of efficacy on these outcomes (Table 18)

T0 to T1 MCS. All of the secondary outcomes, bar minutes of informal mindfulness practiced on each day, had between-group effect sizes that favoured the intervention group and consequently showed positive signals of efficacy. In addition, the 95% CIs for the FFMQ-15 and days engaged in formal mindfulness practice effect sizes did not cross zero, showing strong preliminary signals of efficacy (Table 18).

Table 18

Summary of preliminary indicators of effectiveness for secondary outcomes

Measure	Intervention (MBC)			Control (TAU)			Between group Hedges g effect size (95% CI)
	n	Mean (SD)	Mean change from baseline (SD)	n	Mean (SD)	Mean change from baseline (SD)	
FFMQ-15							
T0	29	50.04 (8.13)		27	49.38 (8.45)		
T1	26	53.21 (7.00)	4.40 (4.58)	26	49.46 (8.35)	0.00 (5.53)	.84 (.23 to 1.45)
T2	25	56.63 (7.56)	6.65 (6.16)	27	49.38 (8.22)	-.21 (4.87)	1.22 (.58 to 1.86)
Days engaged in formal mindfulness practice							
T0	29	1.86 (1.88)		27	1.92 (2.00)		
T1	26	2.71 (1.90)	.80 (1.82)	27	1.52 (2.00)	-.42 (1.67)	.69 (.08 to 1.28)
T2	24	2.90 (1.92)	1.05 (2.11)	27	1.84 (1.84)	-.08 (2.34)	.50 (-.10 to 1.09)
Minutes of formal mindfulness practiced on each day							
T0	29	9.31 (8.57)		26	10.52 (11.53)		
T1	26	12.86 (8.15)	3.73 (9.42)	26	9.42 (12.37)	-1.15 (10.93)	.47 (-.13 to 1.05)
T2	24	11.55 (7.44)	1.60 (9.60)	27	11.04 (13.02)	.13 (16.78)	14.26 (-.48 to .69)
Days engaged in mindfulness in everyday life							
T0	28	3.67 (2.54)		26	3.92 (2.36)		
T1	26	5.10 (2.28)	1.05 (2.06)	27	3.84 (2.36)	.04 (2.01)	.49 (-.11 to 1.08)
T2	24	5.00 (2.21)	1.40 (2.44)	27	3.80 (2.48)	-.08 (2.22)	.63 (.03 to 1.22)
Minutes of informal mindfulness practiced on each day							
T0	29	8.50 (6.25)		26	9.98 (8.55)		

T1	26	8.14 (8.43)	-.13 (8.01)	26	17.24 (47.93)	7.65 (48.69)	-.21 (-.79 to .38)
T2	24	7.71 (6.86)	-.58 (5.56)	27	19.46 (59.00)	9.88 (60.80)	-.23 (-.81 to .36)
PHQ-8							
T0	29	6.04 (5.95)		26	5.85 (4.88)		
T2	25	3.63 (3.10)	2.67 (3.31)	27	6.31 (5.26)	.42 (4.33)	.57 (.01 to 1.13)
GAD-7							
T0	29	6.58 (5.84)		27	6.54 (5.20)		
T2	25	4.04 (3.51)	2.65 (5.08)	27	6.19 (4.46)	.46 (4.83)	.44 (-.16 to 1.02)
SBS							
T0	29	7.75 (2.85)		27	8.00 (3.92)		
T2	25	7.42 (3.20)	.60 (2.70)	27	8.19 (2.98)	-.04 (2.44)	.25 (-.34 to .83)
SWEMWS							
T0	29	23.00 (4.32)		27	23.12 (5.12)		
T2	25	18.42 (4.52)	-4.75 (3.45)	27	16.50 (4.21)	-6.58 (4.43)	.45 (-.15 to 1.4)
SOCSS							
T0	29	44.54 (6.09)		27	45.38 (4.29)		
T2	25	48.75 (7.02)	4.15 (4.94)	27	44.00 (6.33)	-1.42 (4.81)	1.12 (.49 to 1.75)
SOCSO							
T0	29	51.29 (4.96)		26	53.92 (4.29)		
T2	25	53.00 (5.08)	1.25 (3.97)	27	52.69 (4.61)	-1.08 (4.48)	.52 (-.10 to 1.13)

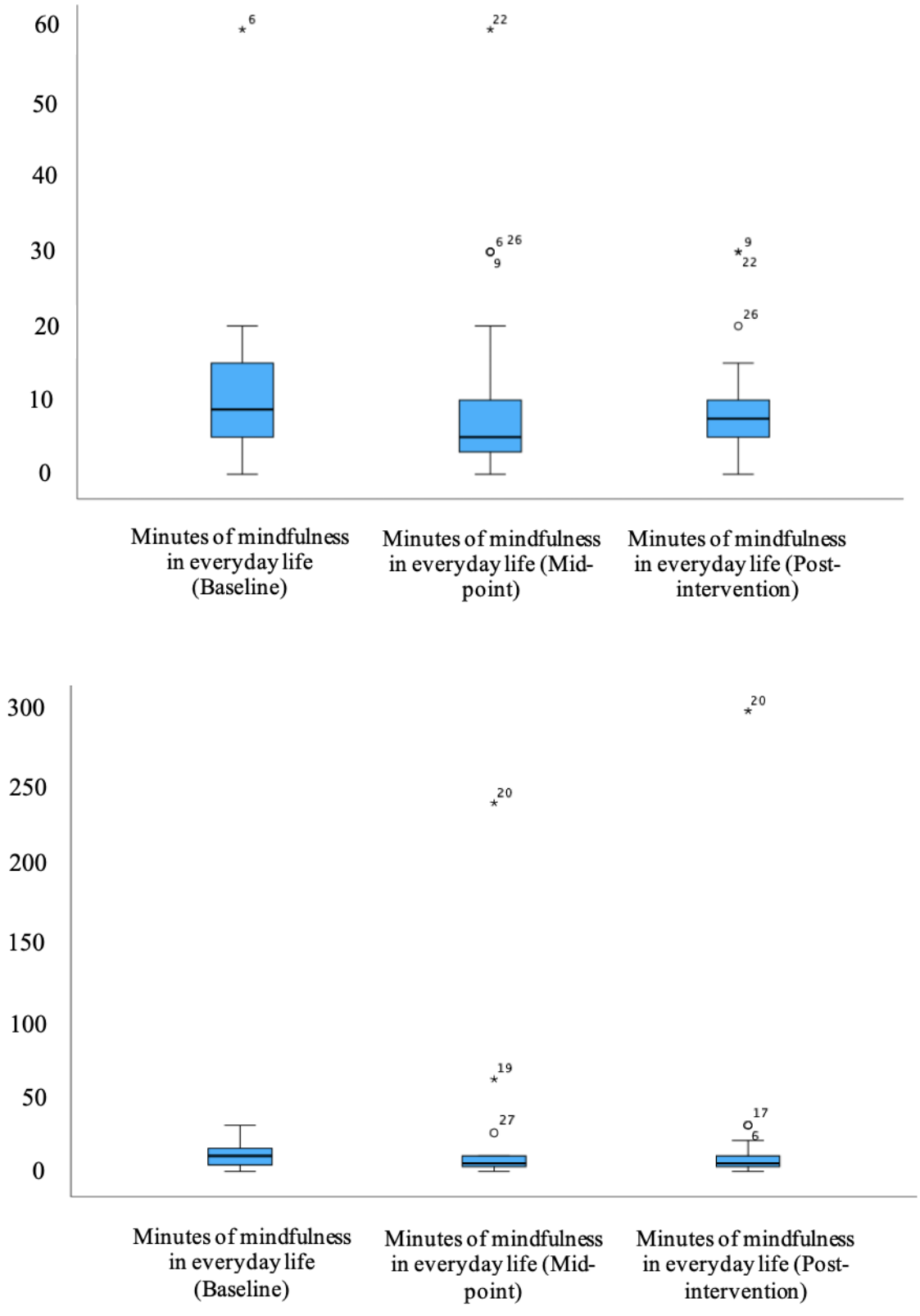
Outliers were identified within the minutes of mindfulness in everyday life data (Figure 3). Therefore, the median and interquartile range (IQR) of these timepoints were calculated (Table 19).

Table 19
Medians and interquartile ranges of the minutes of mindfulness in everyday life timepoints

Minutes of mindfulness in everyday life	**MBC group**	**TAU group**
	T0	
Median (IQR)	8.75 (10)	10 (11.50)
	T1	
Median (IQR)	5 (7)	5 (7)
	T2	
Median (IQR)	7.5 (5)	5 (7)

Figure 3

Boxplot showing the outlier datapoints for the minutes of mindfulness in everyday life question timepoints (Top image: Intervention group, bottom image: Control group)



A summary of progression criteria results is presented in Table 20.

Table 20
Summary of progression criteria results

Progression criteria	Measurement	Finding	Rating
Recruitment to the study	Number of participants recruited over 10-months	60 recruited over three-weeks. 58 randomised.	Green (40-50)
Retention in the intervention	Proportion of participants who attend at least half of the booster sessions	24/29 (83%) individuals attended at least half of the sessions.	Green (≥50%)
Retention in the study	Proportion of participants who remain in the study	53/58 (91%) individuals remained in the study after randomisation.	Green (≥50%)
Mindfulness booster course acceptability	Response to Likert type questions and content analysis of qualitative data	All participants rated the MBC as either "acceptable" or "very acceptable". Feedback was positive.	Green (The majority of participants report the intervention is acceptable as it is or with minor adjustments)
Completion of outcome measures	Completion rate of the outcome measures	Overall: 50/58 (86%) MBC: 24/29 (83%) TAU: 26/29 (90%)	Green (≥60%)
Preliminary indicator of effectiveness for primary measure	Estimate of effect size of booster intervention compared to treatment as usual (TAU)	T0-T2 PSS-10 MCS showed a positive signal of efficacy for the intervention. The effect size CI contained the MCID and did not cross zero.	Green (Effect size is in favour of TAU and the minimum clinically important difference is included in the 95% confidence interval on the primary outcome)

Discussion

This study was a feasibility RCT assessing the feasibility, acceptability and preliminary signal of efficacy of an MBC for healthcare staff who previously attended MBSR/MBCT. All predefined progression criteria (recruitment, retention, acceptability, completion of outcome measures and a preliminary signal of efficacy) were categorised as green. This, along with feedback, indicated the MBC is a feasible and acceptable intervention, which warrants further research. These results are favourable in comparison to another feasibility trial of an MBCT in terms of recruitment and acceptability of intervention (Lewis et al., 2023).

Feasibility

Although 10-months was considered an appropriate window for multiple waves of recruitment, a "green" level of participants (60 consented, 58 randomised) were recruited within one three-week wave of advertising the MBC. This suggests there is an appetite for the MBC and recruitment for a larger RCT would be feasible. This is further corroborated by 88% of participants stating they would complete the course again, and 100% saying they would recommend the MBC to a colleague.

The retention rates for the study (53/58; 91%) and intervention (24/29; 83%) were high. Additionally, 50/58 (86%) individuals completed all questionnaires. A category identified within the content analysis was a "request for more sessions", suggesting some individuals were not only keen to attend sessions, but would attend more if these were available. These suggest a further RCT would be feasible in terms of retention and outcome measure completion. These findings are promising, particularly since previous research has noted healthcare staff can have higher attrition from mindfulness courses due to limited time and challenging schedules (Bu et al., 2019; Irving et al., 2009).

Acceptability

All participants rated the intervention as “acceptable” or “very acceptable”. Likert ratings for the remaining questions were also promising, with 88% of individuals rating the MBC as “helpful” or “very helpful”, 96% rating it as “accessible” or “very accessible” and 79% rating it as “not challenging at all” or “slightly challenging”. Some individuals were unable to make any of the offered timeslots or unable to commit due to work schedules/bank roles. Additionally, content analysis themes included being “unable to attend all sessions” (n=3) and finding “creating time to attend sessions” (n=5) challenging. Given the variety of professionals involved in this study, there will have been several different working patterns. Previous research has acknowledged the challenge of finding time within healthcare workers schedules to attend MBIs, and recommends the implementation of less time-intensive and more flexible interventions (Shapiro et al., 2005). This was attempted with the MBC, and appeared to be valued. Qualitative feedback described an appreciation of the range and flexibility of timeslots, short length of sessions and use of Zoom. Further expert-by-experience input is needed to make the MBC accessible to all staff. Perhaps a survey could be administered to those who struggled to attend (as an expert-by-experience group would require individuals to create time in their schedules to attend).

The qualitative feedback was positive overall. Many categories within the content analysis aligned with those from other studies looking at mindfulness sessions, including themes of enjoying being in a group, experiencing benefits, increased mindfulness and finding it challenging to focus on mindfulness practice (Hertenstein et al., 2012; Hwang et al., 2023; Lundgren et al., 2018). Many participants described experiencing increased awareness of thoughts/feelings, ability to manage stress, compassion and wellbeing. These categories are

reflective of qualitative feedback obtained from other healthcare workers who have completed mindfulness courses (Morgan et al., 2015), suggesting the experiences within the MBC were similar to these.

Although the majority of participants rated the course as very acceptable, several suggestions were made to improve the intervention. Nine individuals requested more of the course, indicating these participants found the course feasible and acceptable enough to continue. In line with the rationale for setting up this MBC, repeats of the course may be beneficial for maintaining practice, through re-establishing routine and social support around mindfulness (Birtwell et al., 2019) and continuing to strengthen the ability to enter the being mode (Teasdale & Segal, 2007). Additionally, there was a suggestion to incorporate a brief reminder on why mindfulness is helpful. Revisiting mindfulness psychoeducation has been found to increase motivation to practice (Stjernswärd & Hansson, 2020); however, some individuals may not feel this reminder is necessary as they may have completed their eight-week course more recently.

Some recommendations conflicted with other categories. For example, three participants requested longer sessions, but others commented on the appropriateness of the timeslots and stated shorter sessions made the course manageable. Additionally, two individuals suggested more variety in exercises, whereas other participants felt this was adequately addressed. A recommendation was made to provide more support for practicing mindfulness outside of sessions, but others mentioned they appreciated the relaxed attitude towards home practice. Individuals were provided with links to resources which could have been used for home practice, but perhaps this required more signposting. Given the mixture of opinions on these areas, it may be future courses have different options, to accommodate different preferences.

Preliminary indicators of effectiveness

Given the study was not designed to be a fully powered RCT, definitive conclusions cannot be drawn regarding efficacy. However, feasibility RCTs can be used to look for preliminary trends that are suggestive of efficacy (Office for Health Improvement and Disparities, 2020). There was a positive signal of efficacy on the primary outcome measure, and the 95% CI contained the MCID and did not cross zero. Although it will need to be formally tested in a definitive RCT, this suggests the MBC may have the potential to reduce stress compared to TAU. This is consistent with a range of mindfulness theory, for example, the Monitor and Acceptance Theory of mindfulness developed by Lindsay and Creswell (2017). This theory infers mindfulness reduces stress through increasing awareness of internal states and enabling acceptance of experiences, as opposed to ruminating or suppressing thoughts, resulting in improved processing of internal states and emotion regulation (Lindsay & Creswell, 2019).

Although the remaining outcomes were not included in progression criteria, all between-group effect sizes, except for both timepoints of the minutes of informal mindfulness practiced on each day, showed positive trends. These results align with other research on mindfulness courses for healthcare professionals (Burton et al., 2017). Qualitative feedback also corroborated these results. When using means, the timepoints for minutes of informal mindfulness practiced on each day showed an unexpected trend favouring the control group. However, the medians and IQRs were roughly similar across the study arms. Mindfulness in everyday life can range from engaging mindfully in activities such as eating and walking, or it can be considered to include “every moment” between formal mindfulness practices (Siegel, 2009, p.100). Considering this, responses may have included different interpretations of the question, resulting in a wide spread of results, with some very high answers. Perhaps in

future research, responses could be recorded using drop-down options and further explanation could be provided.

Given results showed tentative signals that MBC participant mindfulness levels and days of mindfulness practice increased from baseline to post-intervention, it is possible improvements were linked to an increase in mindfulness. This finding would be consistent with theory proposed by Teasdale and Segal (2007), whereby repeated mindfulness practice is hypothesised to improve wellbeing through strengthening the individual's ability to enter the being mode, resulting in improved wellbeing. A larger RCT could assess whether amount of mindfulness practice mediates other outcomes.

Although it was not a progression criteria condition, the effect size CI for the post-intervention timepoint of the primary measure did not cross zero. This indicates the signal of efficacy at the post-intervention timepoint was even stronger than required by the progression criteria, as it showed there was no possibility of results favouring the control group. Whilst both timepoints of the primary measure showed a positive signal of efficacy, the between-group effect size CI for the midpoint measure crossed zero. This indicates the signal of efficacy at mid-intervention was not as strong as the post-intervention timepoint. This might signal towards the importance of having a minimum of eight-sessions within the course, as the effect size grew whilst the participants progressed through the MBC.

Strengths

This study provides preliminary evidence supporting the feasibility and acceptability of the MBC, with all the progression criteria achieving "green". An RCT study design was used, where participants were randomised to reduce risk of bias. Although a passive control was

used, retention and engagement were high across both arms. Additionally, the study was pre-registered and did not deviate from this plan. As this study included the designing of the MBC, experts-by-experience were included from the development stage, to shape the course to the needs and wants of potential participants. Additionally, feedback obtained in the post-intervention questionnaire can now be used to further develop and tailor the intervention.

Limitations

Whilst the use of a feasibility RCT design is important when in the initial pilot stages of an intervention, it does not allow for a definitive measure of intervention effectiveness (Office for Health Improvement and Disparities, 2020). This leaves a component of the intervention un-investigated. Additionally, a passive control was used. Passive controls do not allow for participant blinding, meaning participant expectations can influence results (Baskin et al., 2003). A bespoke active control group could help to reduce the bias a passive control introduces (Locher et al., 2018). It will be important for any future active control design to not contain any mindfulness elements, but to be parallel to the MBC on any non-specific factors (Pérez-Aranda et al., 2019), such as the online group element, timeslots and the presence of a facilitator.

No follow-up outcome measures were completed, meaning signals of efficacy beyond post-intervention are unknown. Additionally, the reported participant demographics indicated the sample was predominantly from a White ethnic background, identified as female and had a postgraduate education. Disappointingly, this demographic is reflective of other mindfulness research (Eichel et al., 2021). NHS England (2023) reported 24.2% of the NHS workforce identify as from a Black and Minority Ethnic background. Within the host trust, 14.3% of staff identify as from a minority ethnic group (NHS, 2023). Additionally, healthcare workers

from ethnically minoritised backgrounds are at increased risk for workplace bullying, harassment and reduced career progression opportunities (British Medical Association, 2021). Possibly due to these additional challenges, mindfulness interventions have been reported as less effective within study samples of ethnically minoritised individuals (Waldron et al., 2018). Given this, it is crucial there is increased representation within mindfulness studies, as without the inclusion of ethnically minoritised individuals in research, the findings may not be applicable. Research must be accessible to all groups to encourage participation. Inclusion of group facilitators from ethnically minoritised backgrounds and targeted advertising may support participation (Hussain-Gambles et al., 2004), and additional expert-by-experience groups of individuals from ethnically minoritised groups could be used to develop ideas.

Research and clinical implications

The all green progression criteria indicated the MBC is feasible and acceptable for healthcare staff. Therefore, a larger-scale RCT of the MBC is warranted. Future timeslots could try to capture other cohorts of staff, for example, bank staff. To achieve this, perhaps it could be made clear within the participant information sheet individuals can attend different timeslots if needed. Additionally, individuals who may struggle to attend could be invited as experts-by-experience to complete a survey (or attend a meeting if preferred), to provide input on what would support their attendance. Furthermore, suggestions from study participants could be incorporated, by offering a range of session lengths, providing choice on session content and providing links to supporting materials in a weekly post-session email. Finally, as mentioned above, when measuring amount of mindfulness practice, drop-down boxes and further explanations could be used to ensure the data collected is cohesive and individuals are interpreting questions in the same way.

Summary of recommendations and conclusions

This study was a feasibility RCT aiming to assess the feasibility, acceptability and preliminary effectiveness of the MBC. All predefined progression criteria (recruitment, acceptability of intervention, retention, completion of outcome measures and preliminary indicators of effectiveness) were categorised as “green”, signalling the MBC is feasible and acceptable, and a larger-scale RCT is warranted. A further RCT could use the effect size on the primary outcome in the present study as a basis for a power calculation, integrate participant feedback into the MBC and access a wider range of participants, both in terms of demographics and work patterns.

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Section C: Appendices of Supporting Material

Appendix A

Prospero registration

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Appendix B

RoB2 ratings

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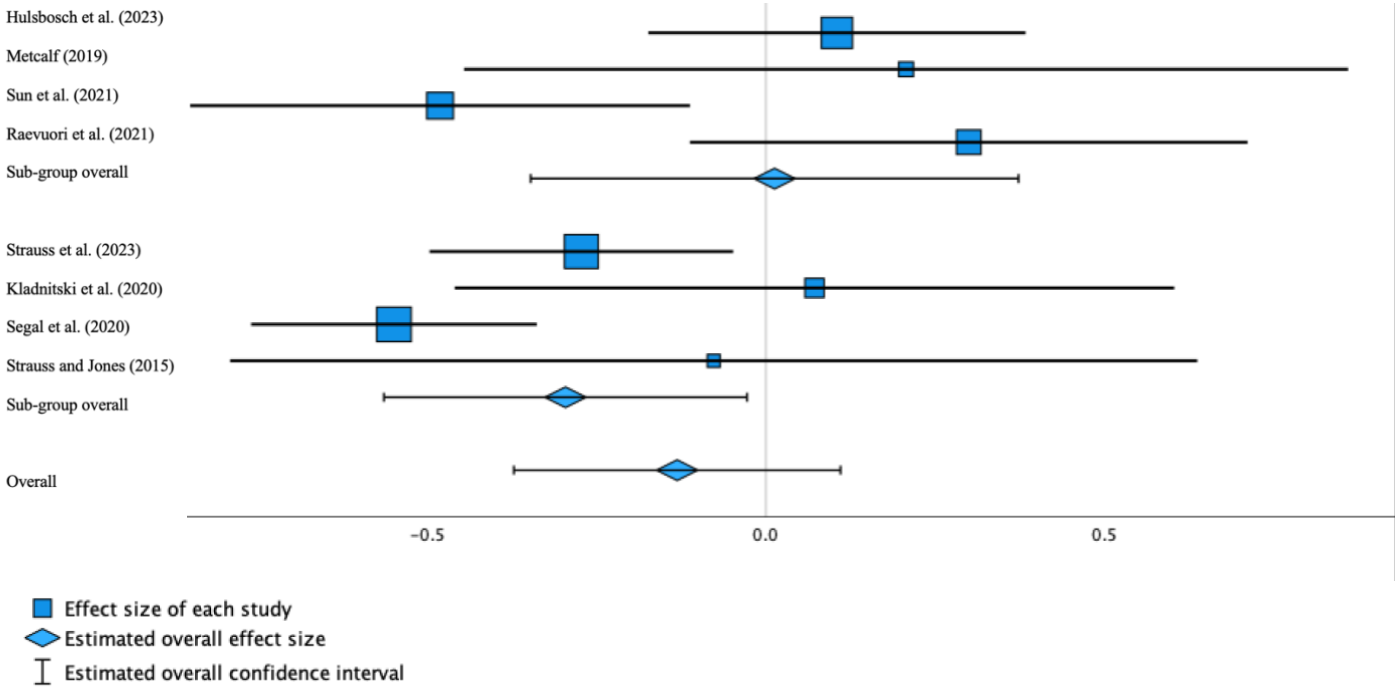
Appendix C

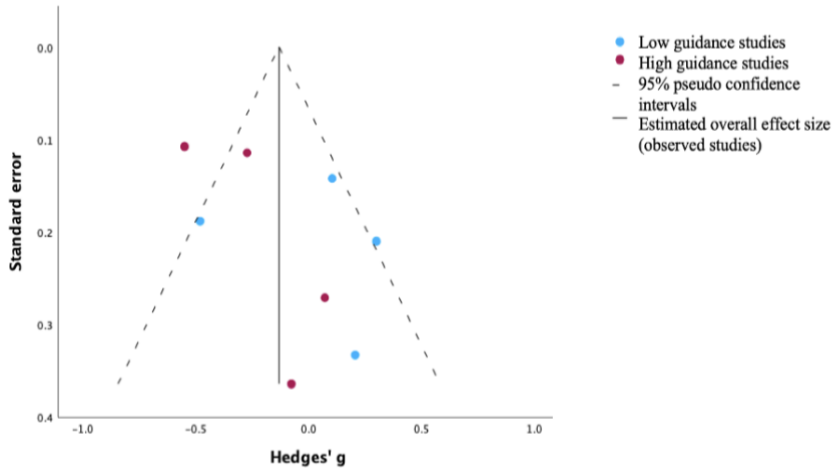
Forest plot for the guidance level moderation analysis of the post-intervention depression outcome



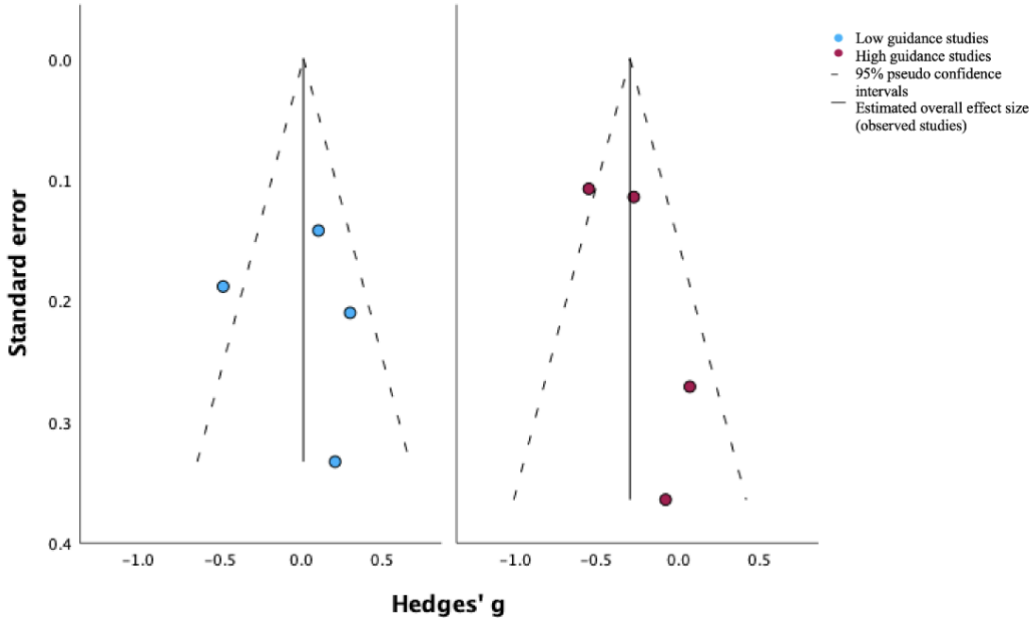
Appendix D

Funnel plots for guidance level moderation analysis of the post-intervention depression outcome, including combined (top), low guidance (bottom left) and high guidance (bottom right) funnel plots

Combined funnel plot for low and high guidance studies

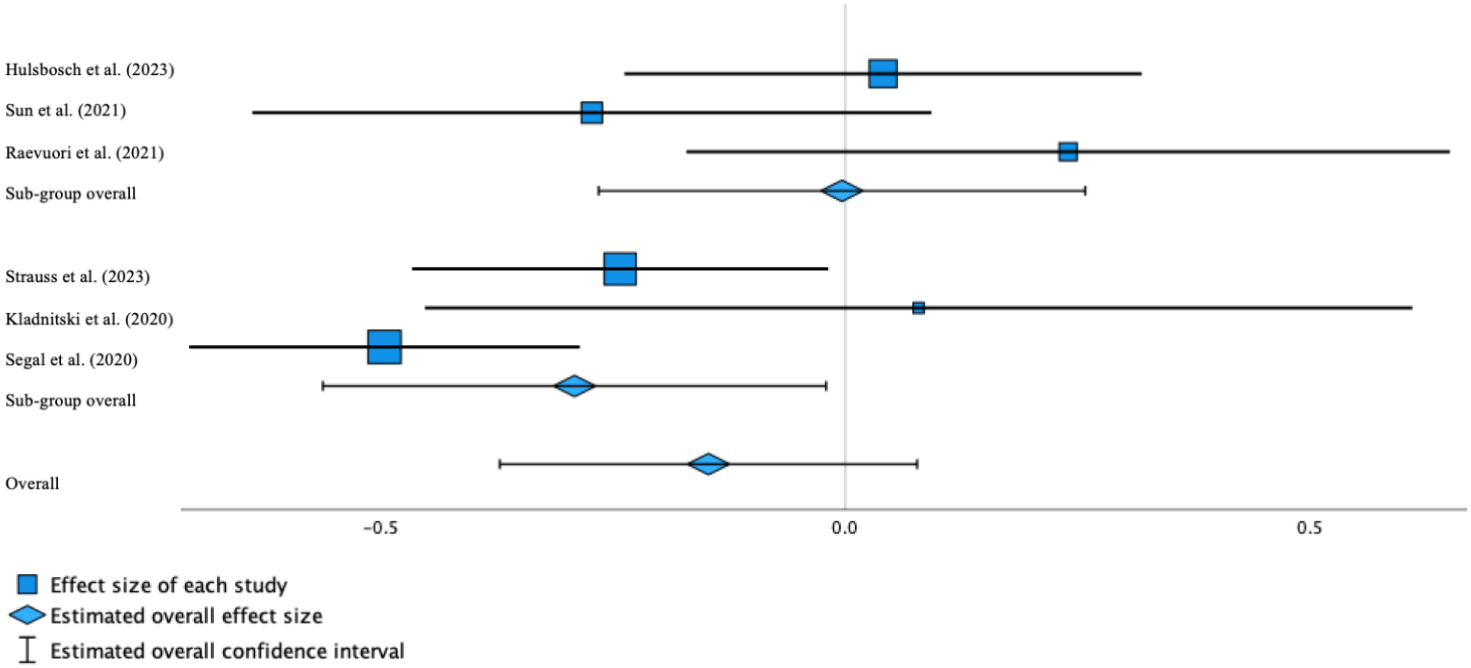


Funnel plots for low guidance (left) and high guidance (right) studies



Appendix E

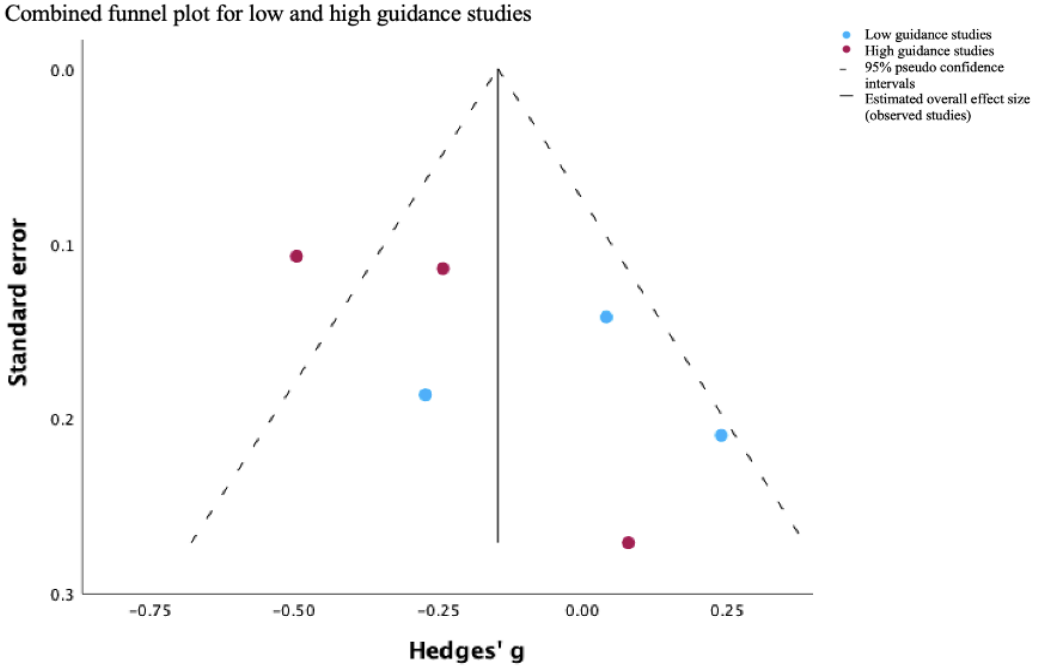
Forest plot for the guidance level moderation analysis of the post-intervention anxiety outcome



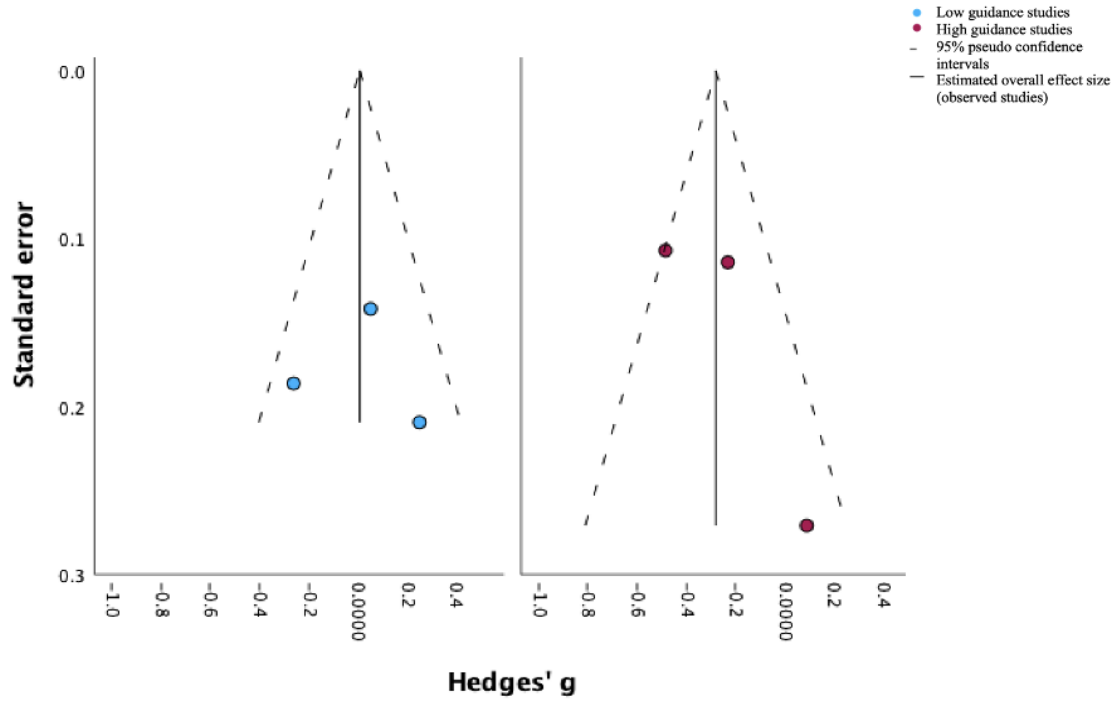
Appendix F

Funnel plots for guidance level moderation analysis of the post-intervention anxiety outcome, including combined (top), low guidance (bottom left) and high guidance (bottom right) funnel plots

Combined funnel plot for low and high guidance studies

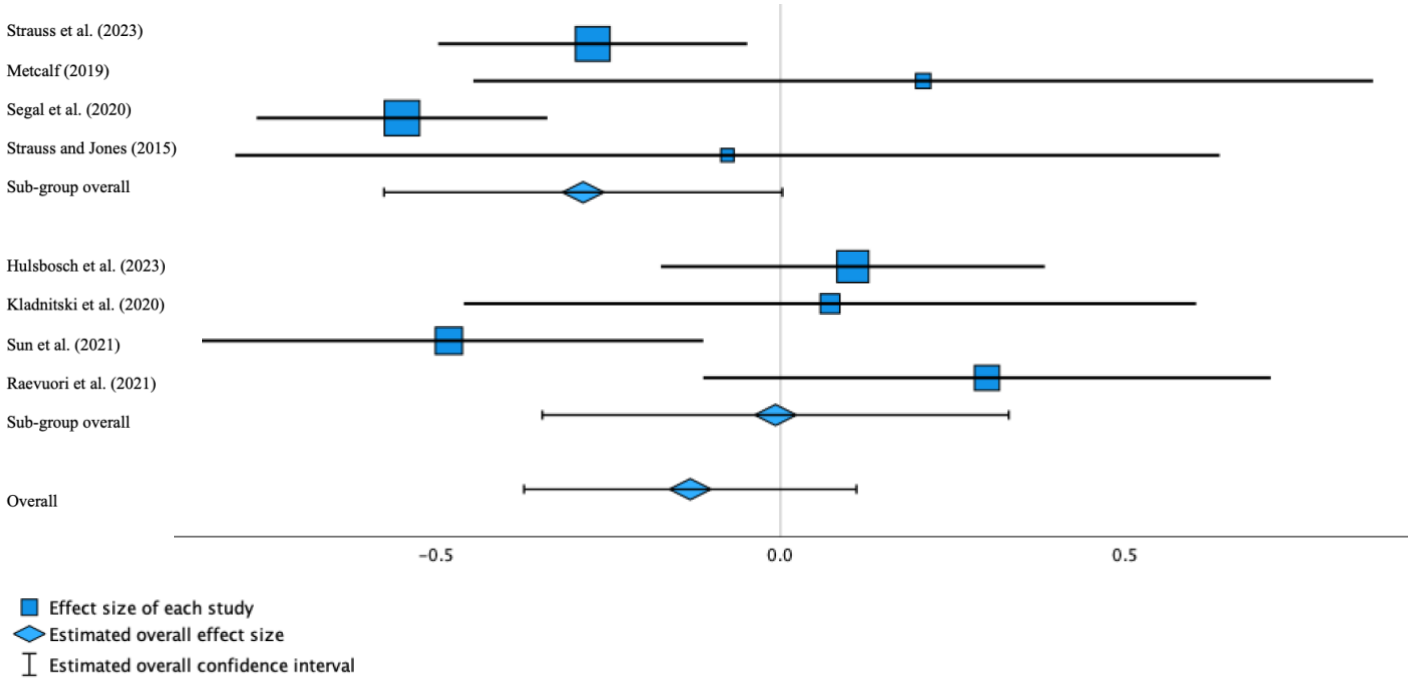


Funnel plots for low guidance (left) and high guidance (right) studies



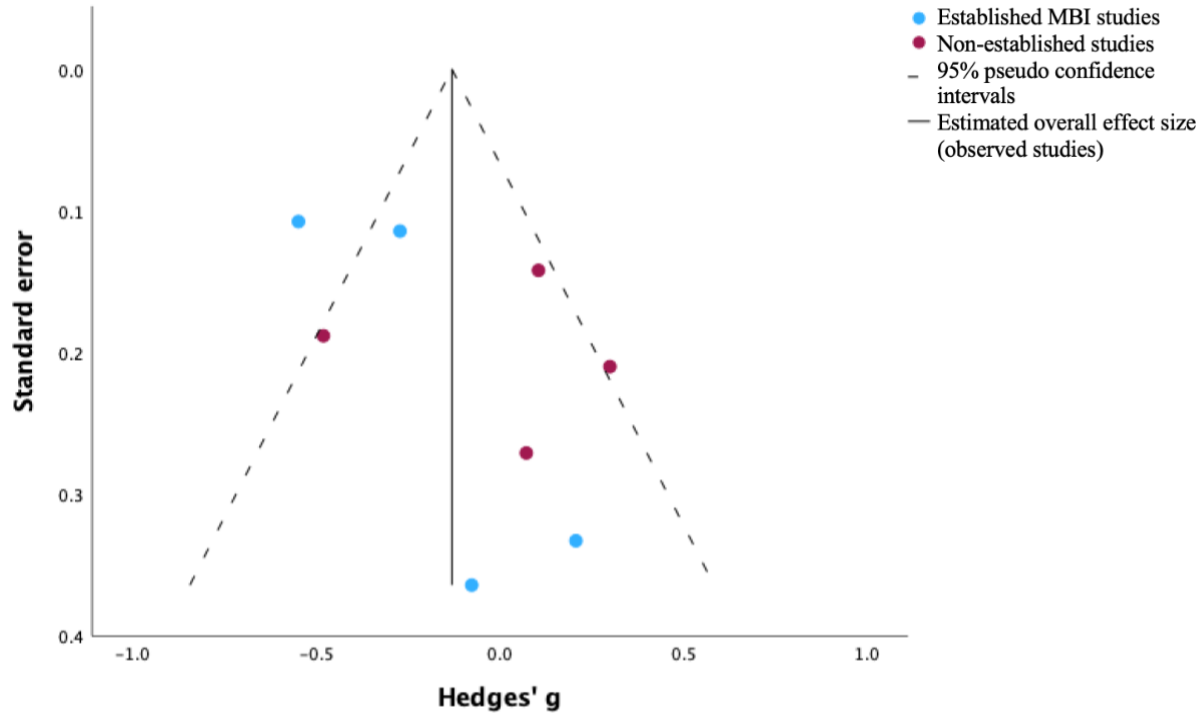
Appendix G

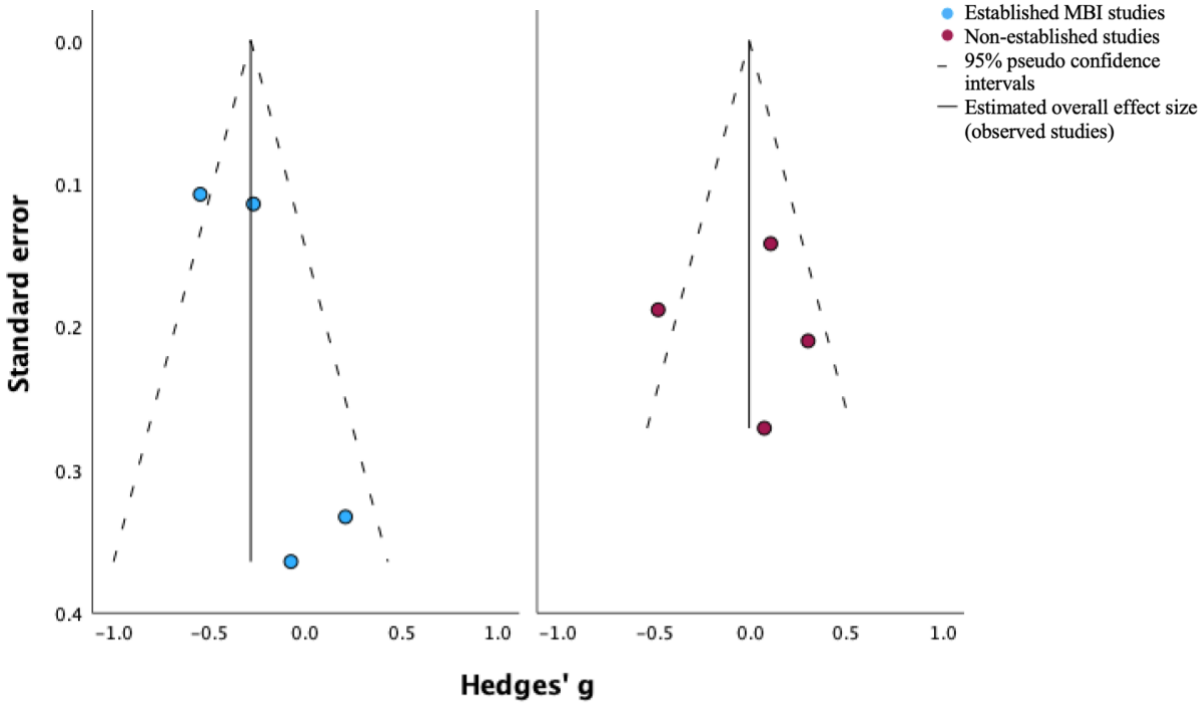
Forest plot of the moderation analysis on type of MBSH on the depression post-intervention measure



Appendix H

Funnel plots of the moderation analysis on type of MBSH on the depression post-intervention measure, including combined (top), established MBSH (bottom left) and non-established (bottom right) funnel plots





Appendix I

Pre-registration of the Feasibility RCT on ClinicalTrials.Gov

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Appendix J

Summary of Expert-by-Experience focus group discussion areas and responses

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Appendix K

Participant information sheet

Date: 13/02/2023 Version number: 3

[redacted]

Canterbury Christ Church University

Salomons Institute for Applied Psychology

One Meadow Road, Tunbridge Wells, Kent TN1 2YG

www.canterbury.ac.uk/appliedpsychology

Information about the research

A Feasibility Randomised Controlled Trial of a Mindfulness Booster Course following an 8-week Staff Mindfulness Programme

Hello. Kirsten Walker (Trainee Clinical Psychologist at Canterbury Christ Church University), Dr Fergal Jones (Consultant Clinical Psychologist) and Professor Clara Strauss (Consultant Clinical Psychologist) would like to invite you to take part in a research study.

What is the purpose of the study?

[redacted] currently offers monthly drop-in sessions for individuals who have attended an 8-week staff mindfulness course. These sessions are currently not very well attended, so we are conducting a research project to develop and evaluate a new drop-in programme which we hope will be more accessible for staff. This research aims to explore the feasibility, acceptability and effectiveness of a newly developed mindfulness booster course for staff who have completed an 8-week mindfulness course. If the study suggests this mindfulness booster course is feasible, acceptable and potentially effective, the findings will be used to make a case for further research into this and may subsequently result in provisions for such a booster course.

Why have I been invited and who can participate?

You have been invited as we believe you are a current staff member within [redacted] who has completed an 8-week staff mindfulness course. This study is open to [redacted] staff members who have completed an 8-week mindfulness course in the past 3-years (where they attended 5 or more out of the 8 sessions), who are not currently on sick leave, have not previously experienced distress when practicing mindfulness and are not planning on undertaking another 8-week mindfulness course in the near future.

Do I have to take part?

It is up to you to decide whether to join the study. If you agree to take part, we will then ask you to sign a consent form. You are free to withdraw at any time, without giving a reason.

Randomised Controlled Trial (RCT)

The study will employ an RCT design, which some of you are likely already familiar with. For those of you who are not, there is a description of what this means below.

If you sign up for this study, you will be randomly assigned either to partake in the mindfulness booster course or to not partake in this. Both groups will be asked to complete sets of questionnaires at beginning of the study, in the middle and at the end. At the end of the study, we will compare questionnaire data for those who received the mindfulness booster course and those who did not, to gain an initial indication of whether the mindfulness booster course is helpful or not.

What will happen to me if I take part?
If you are randomly allocated to the intervention group, you will be asked to participate in the 8-week mindfulness booster course and will complete questionnaires monthly. If you are randomly allocated to the control group, then we will ask you to complete questionnaires at same time as intervention group. You have an equal chance of being put into either group.

The mindfulness booster course will have weekly sessions occurring for 30 minutes. These drop-ins will be online. Alternatively, if you are placed into the control group, you will be able to continue maintaining your wellbeing and mindfulness practice however you wish.

Both groups will be asked to complete questionnaires throughout the study. A set of questionnaires will be emailed to you before the study begins and at the end of the study. Additionally, you will be asked to complete three of the questionnaires in the middle of the study. Some demographic information will be collected alongside the pre-study questionnaire and a feedback form will be emailed alongside the post-study questionnaire.

Expenses and payments
As a token of appreciation for participating in the study, participants will be offered the option of receiving £10 in vouchers at the end of the study.

What are the possible disadvantages and risks of taking part?
We think the risks associated with taking part in this research are low. This is because all participants will have already attended a full 8-week mindfulness course, meaning mindfulness practice will be familiar to them. Additionally, any participants who have previously experienced distress as a result of practicing mindfulness are asked not to participate. Participants are also welcome to withdraw form study or intervention at any point.

What are the possible benefits of taking part?
This research aims to develop a feasible, acceptable and effective mindfulness booster course. By participating in this study, you are supporting research investigating how best to maintain mindfulness practice following an 8-week mindfulness course. If you are assigned to the intervention group, you will be asked to partake in the mindfulness booster course. It is possible you may experience some benefit from this; however, we cannot promise this, as this study is beginning the process of examining whether this mindfulness booster course is beneficial or not.

What will happen if I don't want to carry on with the study?
There are two possible ways of withdrawing in this study. Firstly, if you are a part of the intervention arm, you may choose to withdraw from the mindfulness booster course but remain willing to complete questionnaires. Secondly, participants from either arm of the study may wish to withdraw from the study altogether. Either of these can be done at any point throughout the study without reason. If you decide to fully withdraw from the study, we will retain data up to the point of withdrawal because in RCTs it is important to have information on all participants regardless of how long they stay in the study.

Concerns and Complaints
If you have a concern about any aspect of this study, you should contact [redacted] in the first instance. Alternatively, you may contact [redacted] If you remain dissatisfied and wish to complain formally, you can do this by contacting [redacted]

Additionally, you can get in contact with Patient Advice and Liaison Services (PALS) if you have any concerns or complaints, by calling [redacted] or by emailing [redacted] Further details regarding PALS can be found here: [redacted]

Will information from or about me from taking part in the study be kept confidential?
All personal information which is collected from or about you during the course of the research will be kept strictly confidential. The only time we would be obliged to pass on information from you to a third party would be if, as a result of something you told us, we were to become concerned about your safety or the safety of someone else.

What will happen to the results of the research study?
If you wish to be kept up to date with the findings of the study, you have the option to do so. This can be through receiving an anonymous summary of the results. Additionally, we intend to publish this research. Only anonymised data, including anonymised quotes from open-ended questions on questionnaires, will be included in any publications. Fully anonymous quantitative data will be uploaded to a publicly available repository, to be made available indefinitely, in line with open science principles.

This study is the start of a broader piece of research on the maintenance of mindfulness practice following 8-week mindfulness courses. Consequently, there is an intention for the anonymous data from this study to be available for use in future research around this topic.

How will we use information about you?
We will need to use information from you for this research project. This information will include your name, contact details, some demographic characteristics, and your answers to online questionnaires measuring stress, mindfulness, wellbeing, mood, compassion, and burnout. If you are randomly allocated to receive the mindfulness booster course, it will also include your answers to questions about your experiences of the course. The research team will use this information to conduct the research. It may also be used by those who monitor research in the University and NHS Trust to check that the study is being done properly. People who do not need to know who you are will not be able to see your name or contact details. Your data will have a code number instead.

We will keep all the information about you safe and secure. Once we have finished the study, we will keep the data securely for ten years and then securely destroy it. We will write our reports and publications in a way that no-one can work out that you took part in the study. We will deposit fully anonymous data from the study in a publicly accessible repository so that other researchers can check our work.

In the unlikely event that you lose capacity to consent during the study following giving informed consent, you would be withdrawn from the study. However, identifiable data already collected with consent would be retained and used in the study. No further data would be collected and no other research procedures would be carried out on or in relation to you.

What are your choices about how your information is used?
You can stop being part of the study at any time, without giving a reason, but we will need to keep information that we have already collected from you. You'll have the right to check the accuracy of data we held about you and correct any errors.

The data collected in this study may be used for future research continuing the evaluation of the mindfulness booster course, by either researchers at Canterbury Christ Church University or [redacted]

Where can you find out more about how your information is used?
You can find out more about how we use your information

- at www.hra.nhs.uk/information-about-patients/ (please note that although this research project involves staff rather than patients, the same general principles in relation to data protection as outlined on that web-page will apply)
- in a leaflet available from www.hra.nhs.uk/patientdataandresearch (please note that, contrary to what is said in this leaflet, we will not be accessing any participant's staff or medical records)
- by asking one of the research team
- by sending an email to [redacted]
- by phoning Kirsten Walker on [redacted]
- at https://www.canterbury.ac.uk/services/governance-and-legal-services/data-protection which details Canterbury Christ Church University's approach to data protection and provides contact details for the University's Data Protection Officer

Who is sponsoring and funding the research?
Canterbury Christ Church University.

Who has reviewed the study?
All research in the NHS is looked at by an independent group of people, called a Research Ethics Committee, to protect your interests. This study has been reviewed and approved by The Salomons Ethics Panel, Salomons Institute for Applied Psychology, Canterbury Christ Church University and by the Health Research Authority.

Further information and participating
If having read the above you are interested in taking part, or if you have any further questions, please email [redacted] by Thursday 20th April 2023.

Appendix L

Consent Qualtrics form

Please read the items below and click on each item if you consent to that item.

- [ ] 1. I confirm that I have read and understand the information sheet dated 13/02/2023 (version 3) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.
- [ ] 2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason.
- [ ] 3. I understand that relevant data collected during the study may be looked at by supervisors [Fergal Jones and Clara Strauss] and the research team. I give permission for these individuals to have access to my data.
- [ ] 4. I agree that anonymous quotes from my feedback form and other anonymous data may be used in published reports of the study findings
- [ ] 5. I agree for my anonymous data to be used in further research studies by Canterbury Christ Church University or [redacted] on this topic
- [ ] 6. I consent to being contacted about the possibility of participating in future research by [redacted] or Canterbury Christ Church University. (Please note that you can decline this, and still participate in the current study.)
- [ ] 7. I agree to take part in the above study.

Appendix M

Consent confirmation email template

[Subject]: Consent confirmation – Mindfulness Booster Course Research

Dear [Name],

Thank you for providing electronic consent to participate in the following study: A Feasibility Randomised Controlled Trial of a Mindfulness Booster Course following an 8-week Staff Mindfulness Programme. I have attached a copy of the information sheet for your record.

In the unlikely event that you did not consent to this study and someone has entered your email address incorrectly, please inform me by responding to this email as soon as possible.

Yours sincerely,

Kirsten Walker

Appendix N

Plan for each MBC session

Session 1

- Introductions
- Ground rules: same as for eight week course, i.e. confidentiality, respect for each other, invitational nature, only follow guidance that feels ok to do so, more you practice more likely you are to benefit balanced with not putting pressure/demands on self, me being available for individual discussion in between session if issues arise that don't what to / don't have time to bring to group
- Sitting practice: posture guidance (incl. possibility of not sitting) and trauma sensitive set up, then bringing attention to the breath or an alternative anchor, then expanding to body (practice usually about 10 mins, given time taken for introductions)
- Brief sharing of experiences of this practice using chat (or verbally if very small number of participants)
- Individually planning what to do for home practice + a drop box link will be emailed after the session to give access to MBCT tracks (and weblink to shorter versions of these) in case participants have lost tracks from their original staff mindfulness course
- Bells to finish

Action: email drop box link

Session 2

- Brief introductions, if someone new joined today
- Recapped ground rules, if someone new joined
- Sitting practice: as for session 1, but for 15 mins
- Experiences of this practice using chat (or verbally if very small number of participants)
- Individually planning what to do for home practice using a practice of dropping in a question and noticing whatever arises in response (Question(s): What mindfulness practice would it be helpful and feasible for me to do this week? + if time: What will support me to do this practice?) + if time, share in chat or verbally
- Bells to finish

Session 3

- Walking practice in a straight line or small loop for about 10 mins, then sitting practice with breath or alternative anchor for about 5 mins.
- Experiences of this practice using chat (or verbally if very small number of participants)
- Individually planning home practice, as per session 3
- Bells to finish

Session 4

- As per session 3, except that the mindfulness practices was a five stage sitting practice, with stages of breath (or alternative anchor), body, sounds, thoughts & images, returning to breath (or alternative anchor).

Session 5

- Brief body scan (sitting or lying) with trauma sensitive introduction (about 13 mins)
- Three stage breathing space, incl. option of using a different anchor in stage 2, and action step (about 2 mins)
- Experiences of this practice using chat (or verbally if very small number of participants)
- Individually planning home practice, as per session 3
- Bells to finish

Session 6

- Mindful movement, incl. guidance about being careful and only making movements that feel ok for the body (about 10 mins)
- Breathing space, with choice about anchor
- Individually planning home practice, as per session 3
- Bells to finish

Session 7

- Five stage sitting practice, with stages of breath (or alternative anchor), body, sounds, thoughts & images, returning to breath (or alternative anchor).
- Experiences of this practice using chat (or verbally if very small number of participants)
- Individually planning home practice (as per session 3) except that the plan is now for after the course is over, and this final home practice week within the course will be putting that in practice.
- Bells to finish

Session 8

- Self-guided practice of their choice (15 mins). Bells rung to mark quarters, in case wish to change anchor part way through. Occasional, general guidance re wondering mind and bringing attention to chosen anchor.
- Check out, participant by participant, verbally: what learnt from course and what plan to do re mindfulness going forward
- Signposted to information that could support ongoing practice after the end of the study, such as [redacted] drop ins.
- Bells to finish

Appendix O

Options of timeslots for the Mindfulness Booster Course (drop downs options provided on timeslots not coloured in black)

Please select any times that you would be able to do the booster course sessions on from the options below. Please specify as many different possibilities as you can. Thank you.

	Tuesday	Wednesday	Thursday	Friday
08:00-08:30				
08:15-08:45				
08:30-09:00				
08:45-09:15				
09:00-09:30				
13:00-13:30				
13:15-13:45				
13:30-14:00				
16:00-16:30				
16:15-16:45				
16:30-17:00				
16:45-17:15				
17:00-17:30				
17:15-17:45				
17:30-18:00				

If you know the dates of any leave you are planning to take over the next 3 months, please could you include the dates here:

To note: the course will start the week commencing 22nd May 2023

drop down:
Can always do
Can usually do
Can usually do but would prefer other times
Cannot do

Appendix P

Home practice worksheet

Home Practice Record Form

Day & Date	Practice	Observations / Comments
Thursday Date:		
Friday Date:		
Saturday Date:		
Sunday Date:		
Monday Date:		
Tuesday Date:		
Wednesday Date:		

Appendix Q

10-item Perceived Stress Scale

This has been removed from the electronic copy.

Appendix R

Reliability statistics for PSS-10 within current study

Reliability Statistics

McDonald's Omega	N of Items
.859	10

Item Statistics

	Mean	Std. Deviation	N
T0_PSS1	1.9286	.78293	56
T0_PSS2	1.8393	.84803	56
T0_PSS3	2.2679	.72591	56
T0_PSS6	1.9286	.84975	56
T0_PSS9	1.7679	.85261	56
T0_PSS10	1.6071	.90812	56
Reverse scored T0_PSS4	1.4107	.73303	56
reverse scored T0_PSS5	1.5357	.85204	56
reverse scored T0_PSS7	1.6964	.65836	56
reverse scored T0_PSS8	1.7857	.70619	56

Reliability Statistics

Cronbach's Alpha	N of Items
.864	10

Item Statistics

	Mean	Std. Deviation	N
T0_PSS1	1.9286	.78293	56
T0_PSS2	1.8393	.84803	56
T0_PSS3	2.2679	.72591	56
T0_PSS6	1.9286	.84975	56
T0_PSS9	1.7679	.85261	56
T0_PSS10	1.6071	.90812	56
Reverse scored T0_PSS4	1.4107	.73303	56
reverse scored T0_PSS5	1.5357	.85204	56
reverse scored T0_PSS7	1.6964	.65836	56
reverse scored T0_PSS8	1.7857	.70619	56

Appendix S

8-item Patient Health Questionnaire

This has been removed from the electronic copy.

Appendix T

Reliability statistics for PHQ-8 within current study

Reliability Statistics

Cronbach's Alpha	N of Items
.882	8

Item Statistics

	Mean	Std. Deviation	N
T0_PHQ1	.6071	.84592	56
T0_PHQ2	.7143	.86790	56
T0_PHQ3	.9286	.89152	56
T0_PHQ4	1.2321	.95329	56
T0_PHQ5	.8393	.94920	56
T0_PHQ6	.5714	.78293	56
T0_PHQ7	.7500	.99544	56
T0_PHQ8	.1964	.64441	56

Reliability Statistics

McDonald's Omega	N of Items
.885	8

Item Statistics

	Mean	Std. Deviation	N
T0_PHQ1	.6071	.84592	56
T0_PHQ2	.7143	.86790	56
T0_PHQ3	.9286	.89152	56
T0_PHQ4	1.2321	.95329	56
T0_PHQ5	.8393	.94920	56
T0_PHQ6	.5714	.78293	56
T0_PHQ7	.7500	.99544	56
T0_PHQ8	.1964	.64441	56

Appendix U

15-item Five-Factor Mindfulness Questionnaire

This has been removed from the electronic copy.

Appendix V

Reliability statistics for FFMQ-15 within current study

Reliability Statistics

Cronbach's Alpha	N of Items
.865	15

Item Statistics

	Mean	Std. Deviation	N
T0_FFMQ1	3.3091	.97890	55
T0_FFMQ2	3.5636	.83364	55
T0_FFMQ5	3.3818	.87116	55
T0_FFMQ6	3.0727	.97856	55
T0_FFMQ10	3.0727	.87886	55
T0_FFMQ11	3.8545	.73076	55
T0_FFMQ12	3.3636	.77850	55
T0_FFMQ15	3.0000	.86066	55
reverse t0 3	2.9455	.84805	55
reverse t0 4	4.0182	1.06268	55
reverse t0 7	3.5455	.78924	55
reverse t0 8	2.7091	.73718	55
reverse t0 9	3.8545	1.14533	55
reverse t0 13	2.7455	.72567	55
reverse t0 14	3.5455	1.24452	55

Reliability Statistics

McDonald's Omega	N of Items
.845	15

Item Statistics

	Mean	Std. Deviation	N
T0_FFMQ1	3.3091	.97890	55
T0_FFMQ2	3.5636	.83364	55
T0_FFMQ5	3.3818	.87116	55
T0_FFMQ6	3.0727	.97856	55
T0_FFMQ10	3.0727	.87886	55
T0_FFMQ11	3.8545	.73076	55
T0_FFMQ12	3.3636	.77850	55
T0_FFMQ15	3.0000	.86066	55
reverse t0 3	2.9455	.84805	55
reverse t0 4	4.0182	1.06268	55
reverse t0 7	3.5455	.78924	55
reverse t0 8	2.7091	.73718	55
reverse t0 9	3.8545	1.14533	55
reverse t0 13	2.7455	.72567	55
reverse t0 14	3.5455	1.24452	55

Appendix W

Amount of mindfulness questions

On how many **days** in the past 7 days have you engaged in formal mindfulness practice? (e.g. body scan, mindful movement, sitting meditation or the breathing space)

On the days that you engaged in formal mindfulness practice in the past 7 days, how many **minutes** each day did you practice on average?

On how many **days** in the past 7 days have you engaged in mindfulness in your everyday life?

On the days that you engaged in mindfulness in your everyday life in the past 7 days, how many **minutes** each day did you do this on average?

Appendix X

Sussex-Oxford Compassion to Self Scale

This has been removed from the electronic copy.

Appendix Y

Reliability statistics for SOCS-S within current study

Reliability Statistics

McDonald's Omega	N of Items
.845	12

Item Statistics

	Mean	Std. Deviation	N
T0_SOCSS1	3.9643	.63143	56
T0_SOCSS2	4.5000	.57208	56
T0_SOCSS3	3.3393	.69483	56
T0_SOCSS4	3.4821	.80884	56
T0_SOCSS5	3.6071	.59325	56
T0_SOCSS6	3.9107	.64036	56
T0_SOCSS7	4.4107	.59625	56
T0_SOCSS8	3.2143	.92862	56
T0_SOCSS9	3.0714	.78293	56
T0_SOCSS10	3.5536	.91293	56
T0_SOCSS11	3.4286	.80582	56
T0_SOCSS12	4.5000	.60302	56

Reliability Statistics

Cronbach's Alpha	N of Items
.859	12

Item Statistics

	Mean	Std. Deviation	N
T0_SOCSS1	3.9643	.63143	56
T0_SOCSS2	4.5000	.57208	56
T0_SOCSS3	3.3393	.69483	56
T0_SOCSS4	3.4821	.80884	56
T0_SOCSS5	3.6071	.59325	56
T0_SOCSS6	3.9107	.64036	56
T0_SOCSS7	4.4107	.59625	56
T0_SOCSS8	3.2143	.92862	56
T0_SOCSS9	3.0714	.78293	56
T0_SOCSS10	3.5536	.91293	56
T0_SOCSS11	3.4286	.80582	56
T0_SOCSS12	4.5000	.60302	56

Appendix Z

Sussex-Oxford Compassion to Others Scale

This has been removed from the electronic copy.

Appendix AA

Reliability statistics for SOCS-O within current study

Reliability Statistics

Cronbach's Alpha	N of Items
.917	12

Item Statistics

	Mean	Std. Deviation	N
T0_SOCSO1	4.0909	.44191	55
T0_SOCSO2	4.5636	.56972	55
T0_SOCSO3	4.3636	.55656	55
T0_SOCSO4	4.2545	.55170	55
T0_SOCSO5	4.3455	.61518	55
T0_SOCSO6	4.2727	.52545	55
T0_SOCSO7	4.6182	.52673	55
T0_SOCSO8	4.4727	.63405	55
T0_SOCSO9	4.2909	.59854	55
T0_SOCSO10	4.2364	.69292	55
T0_SOCSO11	4.0727	.63405	55
T0_SOCSO12	4.5818	.56735	55

Reliability Statistics

McDonald's Omega	N of Items
.915	12

Item Statistics

	Mean	Std. Deviation	N
T0_SOCSO1	4.0909	.44191	55
T0_SOCSO2	4.5636	.56972	55
T0_SOCSO3	4.3636	.55656	55
T0_SOCSO4	4.2545	.55170	55
T0_SOCSO5	4.3455	.61518	55
T0_SOCSO6	4.2727	.52545	55
T0_SOCSO7	4.6182	.52673	55
T0_SOCSO8	4.4727	.63405	55
T0_SOCSO9	4.2909	.59854	55
T0_SOCSO10	4.2364	.69292	55
T0_SOCSO11	4.0727	.63405	55
T0_SOCSO12	4.5818	.56735	55

Appendix BB

7-item Generalised Anxiety Disorder Assessment

This has been removed from the electronic copy.

Appendix CC

Reliability statistics for GAD-7 within current study

Reliability Statistics

Cronbach's Alpha	N of Items
.914	7

Reliability Statistics

McDonald's Omega	N of Items
.915	7

Item Statistics

	Mean	Std. Deviation	N
T0_GAD1	1.2500	.87905	56
T0_GAD2	.9107	.97751	56
T0_GAD3	1.0179	.92424	56
T0_GAD4	1.0179	.92424	56
T0_GAD5	.5179	.87368	56
T0_GAD6	.9643	.87312	56
T0_GAD7	.6964	.98939	56

Item Statistics

	Mean	Std. Deviation	N
T0_GAD1	1.2500	.87905	56
T0_GAD2	.9107	.97751	56
T0_GAD3	1.0179	.92424	56
T0_GAD4	1.0179	.92424	56
T0_GAD5	.5179	.87368	56
T0_GAD6	.9643	.87312	56
T0_GAD7	.6964	.98939	56

Appendix DD

The Short Warwick-Edinburgh Mental Wellbeing Scale

This has been removed from the electronic copy.

Appendix EE

Reliability statistics for SWEMWS within current study

Reliability Statistics

Cronbach's Alpha	N of Items
.901	7

Item Statistics

	Mean	Std. Deviation	N
T0_SWEM1	3.3393	.87960	56
T0_SWEM2	3.5179	.91435	56
T0_SWEM3	2.9464	.79589	56
T0_SWEM4	3.3214	.69038	56
T0_SWEM5	3.2679	.72591	56
T0_SWEM6	3.3214	.81144	56
T0_SWEM7	3.3929	.88787	56

Reliability Statistics

McDonald's Omega	N of Items
.901	7

Item Statistics

	Mean	Std. Deviation	N
T0_SWEM1	3.3393	.87960	56
T0_SWEM2	3.5179	.91435	56
T0_SWEM3	2.9464	.79589	56
T0_SWEM4	3.3214	.69038	56
T0_SWEM5	3.2679	.72591	56
T0_SWEM6	3.3214	.81144	56
T0_SWEM7	3.3929	.88787	56

Appendix FF

The Sussex Burnout Scale

This has been removed from the electronic copy.

Appendix GG

Reliability statistics for SBS within current study

Reliability Statistics

Cronbach's Alpha	N of Items
.849	3

Item Statistics

	Mean	Std. Deviation	N
T0_SBS1	2.7500	1.33825	56
T0_SBS2	2.5714	1.33290	56
T0_SBS3	2.5357	1.17496	56

Reliability Statistics

McDonald's Omega	N of Items
.854	3

Item Statistics

	Mean	Std. Deviation	N
T0_SBS1	2.7500	1.33825	56
T0_SBS2	2.5714	1.33290	56
T0_SBS3	2.5357	1.17496	56

Appendix HH

MBC feedback questionnaire

Feedback form questions

1. How helpful has the mindfulness booster course been for you? Likert type response scale: 1=very unhelpful, 2=unhelpful, 3=neither helpful nor unhelpful, 4=helpful, 5=very helpful

2. If the course was helpful, please briefly explain how it helped. If wasn't helpful, please briefly explain why. Open text response box

3. How accessible did you find the mindfulness booster course? Likert type response scale: 1=very inaccessible, 2=inaccessible, 3=accessible, 4=very accessible

4. Please briefly explain what contributed most to the rating you have just given: open text response.

5. How acceptable did you find the mindfulness booster course? Likert type response scale: 1 = very unacceptable, 2=unacceptable, 3=acceptable, 4=very acceptable

6. Please briefly explain what contributed most to the rating you have just given: open text response.

7. How challenging did you find the mindfulness booster sessions? Likert type response scale: 1= not at all challenging, 2=slightly challenging, 3=moderately challenging, 4=highly challenging

8. Please briefly explain what contributed most to the rating you have just given: open text response.

9. In what ways, if any, has attending the mindfulness booster course impacted on your mindfulness practice? open text response.

10. In what ways, if any, has attending the mindfulness booster course impacted on your wellbeing? open text response.

11. In what ways, if any, has attending the mindfulness booster course impacted on connection with colleagues? open text response.

12. In what ways, if any, has attending the mindfulness booster course impacted on how you are at work?

13. Are there any changes to the mindfulness booster course that you'd recommend?

14. Would you be likely to want to attend the mindfulness booster course again in future? Yes/No

15. Please give a brief reason for your previous answer.

16. Would you recommend the mindfulness boost course to colleagues who have previously attended a staff mindfulness group? Yes/No

17. Please give a brief reason for your previous answer.

18. Do you have any other comments you'd like to make about the mindfulness booster course?

Thank you for completing this questionnaire.

Appendix II

Question asking about other forms of support accessed throughout the study (intervention group: top; control group: bottom)

18. Please indicate below any therapies, interventions, courses or medical treatments that you have undertaken to help your mental wellbeing, in addition to the mindfulness booster course, since the start of this research project. Please select all that apply.

- ☐ Mindfulness drop-ins/sessions that were not part of the research project
- ☐ Psychological therapy
- ☐ Medication
- ☐ Self-help book or app
- ☐ Other, please specify:

Please indicate below any therapies, interventions, courses or medical treatments that you have undertaken to help your mental wellbeing, since the start of this research project. Please select all that apply.

- ○ Mindfulness drop-ins/sessions that were not part of the research project
- ○ Psychological therapy
- ○ Medication
- ○ Self-help book or app
- ○ Other, please specify:

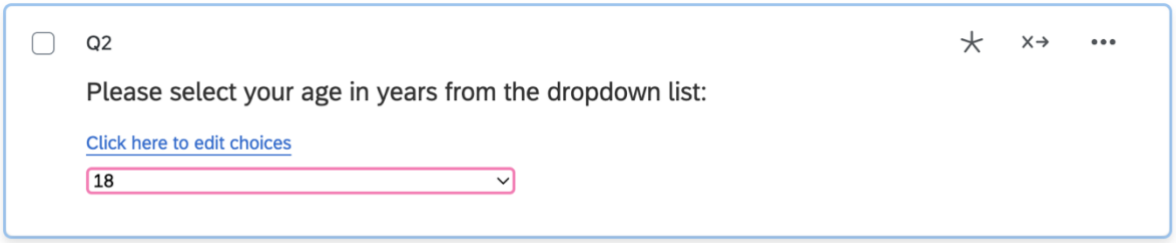
Appendix JJ

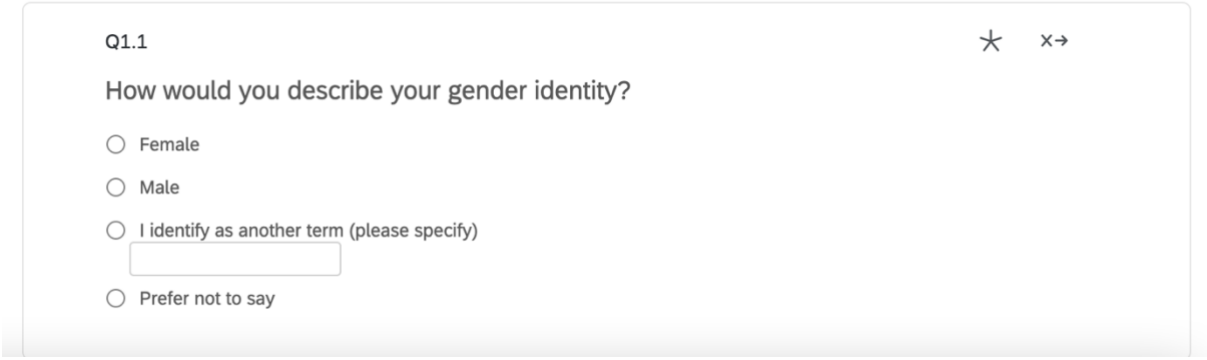
Non-participant questionnaire

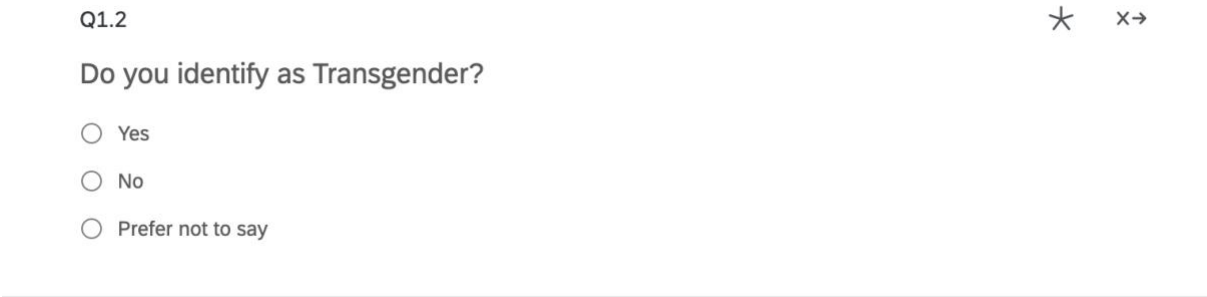
Thank you for clicking on this survey link. It's helpful for us to understand why people may be unable to, and/or prefer not to, participate in this research project. Therefore, we'd be grateful if you would anonymously complete the following. My reason(s) for not participating in this reason are:

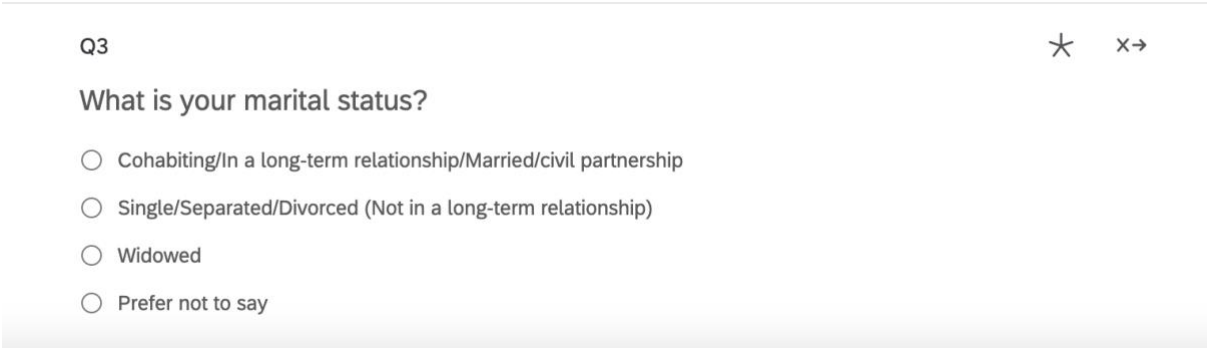
Appendix KK

Baseline demographics questionnaires









Q53

Do you have a mental or physical health condition that has lasted for 12 months or more, or is expected to last for 12 months or more?

- ○ Yes
- ○ No

Q10

Display this question

If Do you have a mental or physical health condition that has lasted for 12 months or more, or is ex... Yes Is Selected

Does this condition (or conditions) reduce your ability to carry out day-to-day activities?

- ○ No - not at all
- ○ Yes - a little
- ○ Yes - a lot
- ○ Prefer not to say

Q5

Please indicate which of the following best describes your highest educational attainment

- ○ None
- ○ GCSE or equivalent
- ○ A-level or equivalent
- ○ Undergraduate degree or equivalent
- ○ Postgraduate degree or equivalent
- ○ Prefer not to say

Q7

Which of these ethnic groups best describes you?

- ○ Asian or Asian British (Indian, Pakistani, Bangladeshi, any other Asian background)
- ○ Black or Black British (Caribbean, African, Any other Black background)
- ○ Mixed (White and Black Caribbean, White and Black African, White and Asian, Any other mixed background)
- ○ White (British, Irish, any other White background)
- ○ Prefer not to say
- ○ Other ethnic groups (Chinese, any other ethnic group). Please describe:

What is your annual household income before tax?

- ○ £0 - 10,000
- ○ £10,001 - £20,000
- ○ £20,001 - £30,000
- ○ £30,001 - £40,000
- ○ £40,001 - £50,000
- ○ £50,001 - £60,000
- ○ £60,001 - £70,000
- ○ £70,001 - £80,000
- ○ £80,001 - £90,000
- ○ £90,001 - £100,000
- ○ £100,001 - £150,000
- ○ £150,001 - £200,000
- ○ £200,001+
- ○ Prefer not to say

Q11

Which category best describes your religion or belief?

- ◯ Atheist, agnostic or no religion
- ◯ Buddhist
- ◯ Christian (including Church of England, Catholic, Protestant and all other Christian denominations)
- ◯ Hindu
- ◯ Jewish
- ◯ Muslim
- ◯ Sikh
- ◯ Prefer not to say
- ◯ Other (please specify)

Q8

What category best describes your sexual orientation?

- ◯ Bisexual
- ◯ Gay
- ◯ Heterosexual (Straight)
- ◯ Lesbian
- ◯ I identify as another term (please specify)
- ◯ Prefer not to say

Q9

What is your first language?

Appendix LL

Initial survey and reminder emails. Order: initial baseline survey email for intervention and control (top), reminder baseline survey for intervention and control (second), initial mid-point survey for both intervention and control (third), reminder mid-point survey for both intervention and control (fourth), control post-intervention survey (fifth), intervention post-intervention survey (sixth), control post-intervention survey reminder (seventh), intervention post-intervention survey reminder (eighth).

Subject: Mindfulness Booster Course: Baseline questionnaires and demographics survey

Hello,

Thank you for agreeing to participate in the research project on mindfulness booster courses for NHS staff.

The first stage of this project involves completing a questionnaire, which will provide us with some demographic information and baseline scores on the outcome measures. Please can you complete this questionnaire as soon as possible (ideally before the end of this week), by clicking on the following link:

https://cccusocialsciences.az1.qualtrics.com/jfe/form/SV_2647GakIfUpOm0u

If you have any technical difficulties accessing or completing the questionnaire, please let me know.

After this questionnaire has been completed, you will be randomly allocated by computer to either the control or mindfulness booster group, and I will email again with details of the next steps.

Thank you for your help.

Best wishes,
Kirsten

Subject: Mindfulness Booster Course: Baseline questionnaires and demographics survey reminder

Hello,

Thank you again for agreeing to participate in the research project on mindfulness booster courses for NHS staff.

This email is to remind you about the questionnaire that we are asking all participants to complete. The link for this is below:

https://cccusocialsciences.az1.qualtrics.com/jfe/form/SV_2647GakIfUpOm0u

Please can you complete this questionnaire as soon as possible, and by no later than 5pm on Friday 12th May 2023. Unfortunately, we will not be able to include you in the project if the questionnaire is not completed by then.

If you are having any technical difficulties accessing or completing the questionnaire, please let me know as soon as possible.

After this questionnaire has been completed, you will be randomly allocated by computer to either the control or mindfulness booster group, and I will email again with details of the next steps.

Thank you.

Best wishes,
Kirsten

Subject: Mindfulness Booster Course: Mid-point questionnaires

Hello,

Thank you again for agreeing to participate in the research project on mindfulness booster courses for NHS staff.

The middle stage of this project involves completing a questionnaire, which will provide us with some mid-point scores on the outcome measures. Please could you complete this questionnaire as soon as possible, and by no later than Friday 23rd June 2023, by clicking on the following link:

https://cccusocialsciences.az1.qualtrics.com/jfe/form/SV_eQjF9shfSjvZ51Y

If you have any technical difficulties accessing or completing the questionnaire, please let me know.

Thank you for your help.

Best wishes,
Kirsten

Subject: Mindfulness Booster Course: Mid-point questionnaires reminder

Hello,

Thank you again for agreeing to participate in the research project on mindfulness booster courses for NHS staff. This email is just to remind you of the mid-point survey that I emailed about earlier in the week. This will provide us with some mid-point scores on the outcome measures.

This is a much shorter questionnaire than the baseline questionnaire, so should be much quicker to complete (roughly 5-10 minutes).

Please could you complete this questionnaire today if possible, by clicking on the following link:

https://cccusocialsciences.az1.qualtrics.com/jfe/form/SV_eQjF9shfSjvZ51Y

If you have any technical difficulties accessing or completing the questionnaire, please let me know.

Thank you for your help.

Best wishes,
Kirsten

Subject: Mindfulness Booster Course: Post-study questionnaires and feedback form

Hello,

Thank you again for agreeing to participate in the research project on mindfulness booster courses for NHS staff.

The last stage of this project involves completing a questionnaire, which will provide us with some final scores on the outcome measures and feedback on the mindfulness booster course. Please could you complete this questionnaire as soon as possible, and by no later than Friday 28th July 2023, by clicking on the following link:

https://cccusocialsciences.az1.qualtrics.com/jfe/form/SV_0BzhZZDqHFXdAIm

It should take roughly 15-20 minutes. If you have any technical difficulties accessing or completing the questionnaire, please let me know.

Thank you for your help.

Best wishes,
Kirsten

Subject: Mindfulness Booster Course: Post-study questionnaires and feedback form

Hello,

Thank you again for participating in the research project on mindfulness booster courses for NHS staff. We hope you found the booster course helpful.

The last stage of this project involves completing a questionnaire, which will provide us with some final scores on the outcome measures and feedback on the mindfulness booster course. Please could you complete this questionnaire as soon as possible, and by no later than Friday 28th July 2023, by clicking on the following link:

https://cccusocialsciences.az1.qualtrics.com/jfe/form/SV_5AVxmK6iJUMzj7g

It should take roughly 20-25 minutes. If you have any technical difficulties accessing or completing the questionnaire, please let me know.

Thank you for your help.

Best wishes,
Kirsten

Subject: Reminder: Mindfulness Booster Course post-study questionnaires and feedback form

Hello,

Thank you again for agreeing to participate in the research project on mindfulness booster courses for NHS staff. This email is just to remind you of the final questionnaire which will be closing after Friday 28th July 2023.

The questionnaire should take roughly 15-20 minutes, the link for this is below. If you have any technical difficulties accessing or completing the questionnaire, please let me know.

https://cccusocialsciences.az1.qualtrics.com/jfe/form/SV_0BzhZZDqHFXdAIm

Thank you for your help.

Best wishes,
Kirsten

Subject: Reminder: Mindfulness Booster Course post-study questionnaires and feedback form

Hello,

Thank you again for participating in the research project on mindfulness booster courses for NHS staff. This email is just to remind you of the final questionnaire which will be closing after Friday 28th July 2023.

The questionnaire should take roughly 20-25 minutes, the link is below. If you have any technical difficulties accessing or completing the questionnaire, please let me know.

https://cccusocialsciences.az1.qualtrics.com/jfe/form/SV_5AVxmK6iJUMzj7g

Thank you for your help.

Best wishes,
Kirsten

Appendix MM

Full set of qualitative responses to feedback questions

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Appendix NN

Coding frame for content analysis

Coding frame

Questions in bold, related themes listed below

If the course was helpful, please briefly explain how it helped. If wasn't helpful, please briefly explain why.

Increased regularity and likelihood of both formal mindfulness practice and mindfulness in everyday life
Acted as a reminder of the previously learned mindfulness practices and benefits of mindfulness
Pre-arranged and allocated timeslot provided structure to weekly mindfulness which increased commitment
Supported with reconnecting with mindfulness and developing motivation to practice
Learned new practices
Felt energised after sessions

How accessible did you find the mindfulness booster course?

It was easy to access the online Zoom sessions
Positive experience with MBC staff
Appreciated the range and convenience of timeslots
Shorter, regularly scheduled and consistently structured sessions made the course more manageable
Unable to attend all sessions

How acceptable did you find the mindfulness booster course?

Course had an excellent facilitator
Found the MBC course acceptable, enjoyable and helpful
Enjoyed being in a like-minded group of people
The timeslots were appropriate
Welcoming and safe environment
Builds on the 8-week course
Appreciated the Zoom chat function for feedback

How challenging did you find the mindfulness booster sessions?

Internal and external distractions make it challenging to engage with and focus on the formal mindfulness practices
Did not find the MBC sessions challenging, they were pitched at the correct level
Creating time to attend sessions
No pressure to do challenging elements
Out of the habit of mindfulness practice
Some occasions were more challenging to engage in than others
Learning new things can be challenging

In what ways, if any, has attending the mindfulness booster course impacted on your mindfulness practice?

Reminder of different practices
Re-connecting with mindfulness
Increased self-compassion, both in general and around mindfulness practice
Increased formal and informal mindfulness practice
Clarified the benefits of regular short mindfulness practice
Interested in doing further training

In what ways, if any, has attending the mindfulness booster course impacted on your wellbeing?

Increased clarity and awareness around thoughts and feelings
Encouraged individuals to re-focus on their own lives and wellbeing
Helped individuals to recognise when they needed to slow down and pause
Increased acceptance and understanding, both in mindfulness practice and in life generally
Increased grounding and calmer mood
Supported the development or re-establishment of healthy routines, both in mindfulness and general life
Improved ability to manage stress
Helped individuals to reduce judgement
Mindfulness positively improved wellbeing

Little impact on general wellbeing, but the day of the MBC session was better than other days

In what ways, if any, has attending the mindfulness booster course impacted on connection with colleagues?

Not noticed an impact on connection with colleagues
Increased awareness around thoughts, feelings and responses within interactions
Increased compassion towards colleagues
Connection with group members
More open-minded

In what ways, if any, has attending the mindfulness booster course impacted on how you are at work?

Reduced stress levels
Sharing mindfulness with others
Positive impact on work and other areas of life
Increased awareness of self at work and ability to respond mindfully
No change noticed at work
Increased awareness of mind and body
Increased compassion at work

Are there any changes to the mindfulness booster course that you'd recommend?

Felt the course worked well as is
Request for more sessions
Request for longer sessions
Revisiting different exercises and explanations
Support for practicing mindfulness outside of the sessions
Sharing which techniques will be practiced in each session
Break between sessions and work

Would you be likely to want to attend the mindfulness booster course again in future?

Noticed changes and benefits from the course
Would like to attend
Appreciated the morning session
Opportunity to return to mindfulness and engage in additional learning
Supported integration of regular mindfulness practice and mindfulness in daily life
To regularly connect with other likeminded individuals in a group
Do not feel more sessions are needed right now
Increased motivation and encouraged practice
Would prefer ongoing sessions
Would like to attend if there were other timeslots available
Mindfulness is valuable for mental health workers

Would you recommend the mindfulness booster course to colleagues who have previously attended a staff mindfulness group?

It was helpful and others would likely benefit from it
Would recommend as it helps to reconnect you with mindfulness practice and supports mindfulness skills
The facilitation and group set-up were appropriate
Would recommend
Would recommend if you have completed an eight-week course
Enjoyed the flexibility around home-tasks and selection of practices

Do you have any other comments you'd like to make about the mindfulness booster course?

The facilitator was brilliant and had a calming presence
Thank you
The course was helpful and informative
The administrative elements ran smoothly
Incorporation of more recent mindfulness literature

Interested in outcome of research

Appendix OO

Ethical approval: Canterbury Christ Church University

This has been removed from the electronic copy.

Appendix PP

Ethical approval: Health Research Authority

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Appendix QQ

Confirmation of capability and capacity within host trust

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Appendix RR

Feedback report to ethics panels (HRA and Salomons Canterbury Christ Church University), NHS Research and Development Team for Host Trust and Study Participants

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Appendix SS

Author guideline notes for submission to Mindfulness journal

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