A longitudinal mixed-methods study of
MINDfulness *A*nd *R*esponse *I*n *S*taff *E*ngagers (NHS)

MIND*ARISE*

RESEARCH PROTOCOL
30.11.2022 Version 2.0

Study Title:	A longitudinal mixed-methods study of MINDfulness *A*nd *R*esponse *I*n *S*taff *E*ngagers (NHS)	
Study Acronym:	MIND*ARISE*	
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Contents

1 Abstract

Background:
Stress in healthcare is at an all-time high with many staff requiring support with stress, burnout, poor mental health and suboptimal well-being. Mindfulness-based interventions (MBIs) can ameliorate such problems and should be made available to all NHS staff, according to recent NICE guidelines. Indeed, we know that many staff already practice mindfulness or practiced mindfulness previously. What is not clear is how much they currently engage, if more practice leads to better outcomes, what helps or hinders engagement (facilitators and barriers), or if social identification is important for engagement and outcomes, including compassion for self and others. Further inquiry is critical when seeking to optimise a) staff engagement with mindfulness and b) employer implementation of initiatives at scale.

Methods/design:
To meet these needs, we propose a prospective, longitudinal, observational, mixed-methods study of mindfulness, stress and secondary outcomes. A sample of 2000 healthcare staff with experience of mindfulness (at any level and any format) will participate in an online longitudinal panel survey to collect quantitative data on mindfulness practice (dose) and dynamic engagement factors (facilitators and barriers) and outcomes (response) at 3-month intervals for 6 months. During this process, we will pilot a new measure to reflect the World Health Organisation's (WHO) revised definition of burnout. Between 12 and 20 participants will also be selected to engage in qualitative online interviews designed to explore social identification with mindfulness in relation to psychological engagement, while a potential link between social identification and outcomes will be further analysed at the 6-month time point.

Multiple regression and multilevel modelling will determine if significant associations exist between formal and informal mindful practice (dose) and stress (primary outcome), and secondary outcomes, at baseline and over time. We will explore a range of potential covariates and mediating and moderating factors using multilevel modelling and structural equation modelling. We will also explore social identification with mindfulness using thematic analysis, and possible associations with outcomes using hierarchical linear regression and mediation analysis. The psychometric properties of the Sussex Burnout Scale will be assessed to determine its validity, reliability and factor structure.

Discussion:
Results/findings from this study should help to inform healthcare staff, employers and national policy on essential factors for mindfulness optimisation, while offering a burnout tool that is brief, free to use, and more closely aligned with the WHO's revised definition.

2 Keywords

Mindfulness, healthcare, staff, dose, engagement, facilitators, barriers, social identification, stress, burnout

3 List of abbreviations

APA: American Psychological Association
BMA: British Medical Association
BMJ: British Medical Journal
Brief SOCS-O: Sussex-Oxford Compassion Scales for others
Brief SOCS-S: Sussex-Oxford Compassion Scales for self
CBI: Copenhagen Burnout Inventory
CCG: Clinical Commissioning Group
COVID-19: Coronavirus Disease
CQ-TIC: Change Questionnaire
DASS: Depression Anxiety Stress Scales
ESRC: Economic and Social Research Council
FFMQ-15: Five-Facet Mindfulness Questionnaire
GAD-2: Generalized Anxiety Disorder-2
MBCT: Mindfulness Based Cognitive Therapy
MBI: Mindfulness Based Intervention
MBI-HSS: Maslach Burnout Inventory
MBSR: Mindfulness Based Stress Reduction
NHS: National Health Service
NICE: National Institute for Health and Care Excellence
NIHR: National Institute for Health Research
OMS-HC-15: Opening Minds Stigma Scale for Health Care Providers
ONS: Office for National Statistics
PHQ-2: Patient Health Questionnaire-2
PHQ-4: Patient Health Questionnaire-4
PPI: Patient and Public Involvement
PSS-10: Perceived Stress Scale
RCN: Royal College of Nursing
SBS: Sussex Burnout Scale
SEM: Structural Equation Modelling
SeNSS: South East Network for Social Sciences
SISI: Single-Item Social Identification measure
SRQ-E: Self-Regulation Questionnaire - Exercise
SWEMWS: Short Warwick-Edinburgh Mental Wellbeing Scale
WHO: World Health Organization

4 Background

The NHS is one of the United Kingdom's largest and most critical workforces, with 1.6 million employees providing essential services to patients despite sector-wide problems with workplace stress, burnout and suboptimal well-being (The King's Fund, 2020; Health and Social Care Committee, 2021). COVID-19 has greatly exacerbated these problems, adding to the need for effective prevention and management strategies (Greenberg & Tracy, 2020). According to a recent survey of 595,000 NHS staff, 44% felt unwell because of work-related stress in the previous year, 29.3% developed musculoskeletal problems, 34.2% were exposed to a COVID-19 ward, 18.5% were redeployed, 10.4% had to shield for their own safety, and 26.5% often thought about quitting their jobs (NHS Survey Coordination Centre, 2021). A flurry of recent survey evidence testifies to the seriousness of the situation. We have learned that a third of doctors are burnt out (BMJ, 2020). Nine out of every 10 nurses are concerned for nurses' well-being, citing problems such as longer working hours, increased levels of

responsibility, worse staffing levels and rising patient needs (RCN, 2020). The number of healthcare staff reporting very high mental health symptoms has roughly quadrupled, with a third of reports proving severe (Gilleen et al., 2021). Indeed, headlines and leader warnings of an "NHS on its knees" sound initially hyperbolic yet only tell half the story (e.g., Nursing Notes, 2021; The Guardian, 2019). According to a systematic review of 46 studies, suboptimal staff well-being and moderate-to-high burnout could be linked to negative patient safety outcomes, including medical errors (Hall et al., 2016). Likewise, compassion-fatigue is of growing concern for healthcare staff presented with "the daily parade" of patients with COVID-19 (Alharbi, Jackson & Usher, 2020). Unless serious efforts are made to mitigate stresses and protect health and well-being at work, the indirect toll on patients could be considerable.

This study is a direct response to the needs of all healthcare staff (not just patient-facing staff) for support that is effective, feasible and pragmatic. Specifically, we will be evaluating the role of mindfulness in supporting NHS staff wellbeing and mental health (specific outcomes to include: stress, burnout, wellbeing, mental health [anxiety & depression], and compassion for self and others, along with the proposed mechanism, mindfulness). Mindfulness refers to the active cultivation of awareness that results from paying attention to the present moment, deliberately and without judgement (Kabat-Zinn, 2013). Mindfulness-based interventions (MBI) seek to foster such attention and awareness by meditative teaching and mindful practices descended from, but no longer representing, the Buddhist tradition (Shapero et al., 2018). Such practices are widely associated with stress reduction, mental health symptom reduction, prophylaxis for depressive relapse, improved quality of life and well-being, along with improved social outcomes essential for caring, such as empathy, compassion and prosocial behaviour (e.g., Taylor et al., 2021; Musa et al., 2020; Donald et al., 2019; Kriakous et al., 2020; Khoury et al., 2013; Luberto et al., 2018; Querstret et al., 2020). Empirical support is also growing for benefits of MBIs for healthcare staff prior to/in response to COVID 19, not least for stress reduction, and improvements in well-being, anxiety and depression (e.g., Rodrigues-Vega et al., 2020; Strauss et al., 2021). Unsurprisingly, this reflects in national drivers to make MBIs available for NHS staff at work, e.g., Mindful Nation UK (Mindfulness All-Party Parliamentary Group 2015), the NHS Workforce Health and Wellbeing Framework (NHS Employers, 2018), and recent NICE guidelines promoting employer provision and facilitation of access to MBIs for all NHS staff (NICE, 2022). At the same time, several important questions still remain unanswered.

Traditional MBIs including Mindfulness Based Stress Reduction (MBSR) and Mindfulness Based Cognitive Therapy (MBCT) are usually comprised of an eight-week group intervention with two-hour sessions and daily recommended practice of 30-60 mins. It may be that these formats are particularly challenging for busy healthcare staff yet worth retaining because of their effectiveness over briefer MBIs. Conversely, it may be that healthcare staff are spending protracted amounts of time engaging with traditional MBIs where briefer formats are equally effective. In this study, we attend to the unresolved issue of dose-response, which is the term used to describe this relationship between amount of engagement with mindful practices and outcomes. By extension, we address potential facilitators and barriers to MBI engagement and implementation, and further explore whether group attitudes have any bearing on psychological engagement and outcomes.

Dose Response

How much do healthcare staff with experience of mindfulness currently practice, is practice predictive of later stress, wellbeing and mental health, and is dose (i.e., amount of mindfulness practice) associated with these outcomes? The answer to this question in a range of populations (not just healthcare staff) varies considerably by study, necessitating further

research to establish more reliable consensus. For example, a meta-regression by Strohmaier (2020) found no evidence of dose-response between mindfulness practice dose and psychological outcomes like depression, though there was an improvement in mindfulness, which is presupposed as the mode of action for any benefits. Recent research using intensive experience sampling has diverged further, finding no evidence of cumulative/lasting dose-response between engagement with mindfulness meditation and state mindfulness, while daily dose was predictive of daily state mindfulness (Levi et al., 2021). By contrast, a meta-analysis of home practice and outcomes by Parson's et al. (2017) did find small associations between dose and improvements on a range of psychological outcomes. Recent RCTs also point towards the possibility that more mindfulness practice leads to better outcomes, for example when looking at levels of psychological distress and mental well-being in students (Galante et al., 2021).

Certainly, there is a shortage of evidence regarding dose-response relationships specific to healthcare staff who practice mindfulness. There is also a shortage of evidence for informal, as well as formal, mindfulness practices. As highlighted by Birtwell et al. (2019), there is no agreed definition of informal practices, though it generally means bringing mindful attention and awareness to everyday activities, routines and moments, separate from time devoted to formal meditation exercises like mindful breathing, body scan and other mindful exercises. To date, most of the evidence for dose-response between mindful practice and outcomes relates to formal practices, partly due to the difficulty associated with measuring informal practices. However, both practices require consideration. Frequency of informal practices was previously shown to predict the observing facet of mindfulness (Cebolla et al., 2017). Moreover, hierarchical regressions by Birtwell et al. (2019) revealed more robust effects for informal practices on positive wellbeing than formal practices when controlling for teacher status and years of practice, as well as associations between informal practices and psychological flexibility that did not manifest with formal practices.

Most notably, there is a lack of longitudinal evidence to determine whether trajectories of healthcare stress differ by dose. If national drivers to prescribe, or roll-out, MBIs to healthcare staff are to be followed, it is first incumbent upon researchers to establish dose-response in staff who do/previously did practice and whether more is actually better *over time*. Longitudinal studies are inevitably more dynamic, costly and complicated, however they also allow us to make directional inferences and more sophisticated recommendations when seeking to optimise engagement with mindfulness at scale. We will be answering previous calls for studies that explore optimal duration for MBI practices and programmes while helping to determine if greater benefits derive from continued engagement (Taylor et al., 2021). As a separate exploratory analysis, we will explore healthcare role as a potential moderator. We will also be considering nine protected characteristics (Office for National Statistics [ONS], 2018), in line with National Institute for Health Research (NIHR, 2020) recommendations to strengthen inclusion in research, as well as recommendations from the clinical academic publishing community to report on the fit of data to diverse participant groups (e.g., The Lancet, 2021). Should we find associations between practice dose and outcomes, the implications will be manifold. Importantly, staff will be able to see if more practice is better overall, and by extension if it is worth investing more time in mindfulness practices, as would usually be expected of traditional formats such as MBSR. We will have an indication as to the professional/role-based specificity and transferability of this research to the broader population. Likewise, employers will have vital information on which to base an array of managerial decisions, including MBI selection and the need for protected time and other resources, when seeking to implement national guidelines for wellbeing in the workplace (NICE, 2022).

Engagement and Implementation

What other factors are important for engagement with, and implementation of, mindfulness in relation to outcomes? Drop-out rates for MBIs can range anywhere from 15-30% (Birtwell et al., 2019). For healthcare staff (including healthcare students), this number can be as high as 53%, or even 63% (Kriakous et al., 2020; Spinelli, Wisener & Khoury, 2019). Indeed, the value of engagement cannot be overstated, since it is likely to underscore the relationship between mindfulness and outcomes that staff and employers might seek to optimise. By engagement, we refer to both the physical act of participating in practices and the following five psychological factors: motivation to assign time, intention to practice, commitment to being more mindful in daily life, believing in the potential benefits, and being present to the therapeutic relationship (Banerjee, Cavanagh & Strauss, 2017b). The latter are unique in that they present simultaneously *as* psychological engagement and internal facilitators of physical engagement or practice/s. Moreover, these five psychological factors map closely onto a variety of measures, making it possible to measure aspects of engagement by proxy.

Readiness for change (sometimes referred to as motivation for change) is widely measured with so-called "readiness rulers" (e.g., Miller & Johnson, 2008; Rollnick et al., 2008), mapping onto at least three psychological factors. Essential components of readiness for change and the rulers that seek to measure it are commitment, importance and self-efficacy. Indeed, readiness is thought to be a factor for engagement, particularly when moving through stages of pre-contemplation, contemplation, preparation, action and maintenance (and others), i.e., the transtheoretical model of health behaviour change (Prochaska & DiClemente, 1983). The more important the goal and the more committed and confident someone is in achieving their goals, the more equipped or ready they are to make good decisions and deal with the difficulties that might arise from instigating desired change. Consequently, readiness differs from motivation to change (despite many authors choosing to use the terms synonymously), signifying instead the state of preparedness, responsiveness and receptiveness to unfolding events or stimuli (American Psychological Association [APA], 2022a). By contrast, motivation is multi-dimensional and concerned with answering the "why"; that is, motivation arises from internal and external motivating factors, such as rewards and punishments, and concerns the impetus, i.e. reasons, for the direction or actions taken (APA, 2022b). As such, both factors are important when considering behavioural change interventions, though the inclusion of one can lead to oversight of the other. It is essential that research address the full breadth of these constructs and assess readiness for change and motivation for mindfulness. In addition, there is a need to extend prior exploratory research on a range of internal and external facilitators that may or may not be relevant to healthcare, namely: a) practical resources (e.g., apps and CDs), b) finding time and developing routine, c) social support, and d) prior attitudes/beliefs (Birtwell et al., 2019).

Possible barriers to engagement also require further exploration and are likely to include the absence of facilitators (e.g., available time), with lack of time being a notable problem in healthcare staff; this is partly due to chronic understaffing, treatment backlogs and excessive strain on services (e.g., BMA, 2021). Another prevalent and pernicious factor for disengagement could be workplace burnout (BMA, 2021), warranting special attention to this factor both as an independent and dependant variable. Does burnout negatively moderate the relationship between engagement with mindfulness and outcomes, or is lower engagement with mindfulness associated with higher burnout? Longitudinal analyses could help to unpack this relationship, while presenting the opportunity to pilot a new burnout tool that is more closely aligned with the WHO's revised definition (2019), as well as being briefer/more convenient than previous measures, and free to use. Lastly, (this list is not exhaustive) qualitative research has identified longer practices, negative thoughts and self-criticism as barriers (Banerjee, Cavanagh & Strauss, 2017a), while factors that stand to derail implementation and upscaling might include stigma in mental health, prohibitive cost of

interventions and lack of tailoring to specific workplaces (Joyce et al., 2016). Not all of these factors are open to empirical testing. However, it is crucial that more of them are investigated so that future engagement strategies can seek to remove barriers and titrate those elements most strongly associated with positive outcomes.

Exploration of Social Identification

What about social identification with mindfulness groups on psychological engagement and outcomes in healthcare staff? According to a wealth of qualitative evidence, positive group effects of mindfulness include: improved camaraderie, normalisation of experience and mitigation of potential stigma from lone-practices, a supportive and motivational environment, accountability to others, a sense of belonging and cohesion, a culture of shared values, experienced mindfulness teachers and opportunities to learn by asking questions, and the sense of setting out on a shared journey, as steered by the teacher (Chambers et al., 2012; Cormack, Jones & Maltby, 2018; Griffiths et al., 2009; Kabat-Zinn, 2003; Langdon et al., 2011; Malpass et al., 2012). Notably, participants often strive to remain part of a mindfulness community, attending refreshers and workshops beyond initial training, because it "inspires", "reinvigorates" and "keeps [them] on track" (Birtwell et al., 2019). Despite this, very little is known regarding attitudes towards mindfulness groups, nor the inter-group processes that may underly psychological engagement or outcomes.

Social identification is the term borrowed from Tajfel's Social Identity Theory to refer to "the positive emotional valuation of the relationship between self and in-group" (Postmes, 2012, p.599). As per Social Identity Theory (Tajfel & Turner, 1979), the potential for individuals to identify with the positively distinctive "mindful practitioner/ meditator" collective, other participants of "in-group" training sessions, or even the wider mindfulness community or movement, could itself be a factor when enhancing psychological engagement with mindfulness. That is, one's sense of self is closely tied to the groups one associates with (in contradistinction to outgroups), in which one finds meaning, direction, purpose, safety, support and positive psychological health. Negative changes to one's group identity, for example losing one's job, have real implications for the well-being of the individual, making it unlikely one would engage (let alone positively) with any group that disenfranchises a prior identity. Interestingly too, even positive changes to one's social identity can impact one's psychological health due to loss of "psychological footing" (Haslam et al., 2009, p.5). Hence, there could be negative as well as positive implications from identification with mindfulness groups, particularly if this blurs or threatens distinctions that already exist; this is especially so if healthcare staff behaviour depends on internalized norms according to their own professional group, and seniority levels within that group, as has been proposed (Haslam et al., 2009; Millward, 1995; Falomir-Pichastor, Toscani & Despointes, 2009).

Do pre-existing healthcare identities/groups that hold importance for baseline psychological wellbeing complement or clash with more recent "mindfulness" identities/groups? By analogy, Laverie (1998) found an association between people's decisions to continue engaging in aerobics classes and whether an aerobics identity had been reinforced by dynamic factors including atmosphere, social connections and social comparisons. For some people, being part of a social group made them more engaged. Moreover, work by Cruwys et al. (2016) suggests that multiple positive memberships predict wellbeing, that social support is given/received within groups but only that of salient ingroups is good for wellbeing, and that mental health improvements in participants who received a group intervention were due to increased group compatibility. Taken together, multiple group identities may be beneficial in a number of ways but only if perceptions are positive, important and complementary.

Taking these questions one step further, is social identification predictive of future wellbeing outcomes over and above that of mindfulness? Arguably, social identity is not only of benefit to individual psychology; it structures interactions, develops social capital, and aids helping behaviour, thus making social identification a predictor of well-being in clinical and other contexts (Haslam et al., 2009). Analogous support comes from Adarves-Yorno et al. (2020) who measured the effect of social identification and mindfulness on outcomes of well-being, resistance and the health behaviour of prisoners with substance use problems. They found that social identification accounted for variance beyond mindfulness alone on wellbeing outcomes (suggesting potential mediation). However, no such evidence exists for healthcare staff.

We know that in-person mindfulness groups have typically not taken place during the Covid-19 pandemic, although remote access to MBIs via video-conferencing technologies like Zoom has continued (Moulton-Perkins et al., 2020). The significance of such changes on psychological engagement for healthcare staff may well depend on individual attitudes to the group (possibly even its format), its importance to the individual and whether this impacts on prior group identity. Hence, we will undertake exploratory research by semi-structured interview and thematic analysis. We also need to see if there is an effect of social identification on outcomes, for which a quantitative analysis will be employed. Until answers emerge, we cannot know the differential effects of group (essential to recommendations on format), for example if attending a mindfulness class with other attendees is important for junior nurse engagement and outcomes, or if subscribing to a mindfulness app is sufficient for all healthcare roles/ levels to feel engaged and attain benefits, or if being part of a mindfulness movement surpasses the physical barriers imposed on the running of classes to stop the spread of COVID-19.

4.1 Research question

How much do healthcare staff currently practice mindfulness; is there a significant association between practice dose and baseline stress (and secondary outcomes: burnout, mental health [anxiety & depression], wellbeing, compassion and mindfulness); do trajectories of stress and secondary outcomes differ significantly by practice dose over time; are trajectories influenced by engagement factors (facilitators and barriers); and is there a relationship between social identification with mindfulness groups and engagement/outcomes?

What are the psychometric properties of the newly developed Sussex Burnout Scale?

5 Patient and public involvement (PPI)

5.1 Past PPI

To date, 20+ healthcare staff have been approached for PPI. Twelve of these agreed to review study materials, with two contributing to feedback on the protocol/all participant facing documents and a further ten contributing feedback on the participant information sheet and consent form. Individuals were based around the UK and included a doctor/trainee GP, a Senior Research Nurse/Manager, a Trainee Psychological Wellbeing Practitioner, a Psychological Wellbeing Practitioner Practice Lead, a Nurse Consultant, a Service Lead in healthcare research, a Trainee Clinical Psychologist, a Health Visitor, a Mental Health Nurse/ Forensic Lead, a Specialist Community Public Health Nurse, a Primary Care Wellbeing

Worker, and a Community Psychiatric Nurse. Subsequently, all PPI feedback was reviewed and actioned where possible.

5.2 *Future PPI*

The PPI group for this study (comprising members above plus additional members who we are in the process of recruiting) will be invited to contribute to the study as follows:

- Reviewing the online survey from an NHS staff perspective and providing feedback (e.g. commenting on time taken, layout)
- Meeting once during the recruitment period to advise on recruitment progress and strategies
- Meeting once following data analysis to feed back study findings and advise on dissemination strategies to NHS staff and NHS organisations

Meetings will depend on staff availability and will be substituted with email correspondence if impractical.

6 Equality, diversity and inclusion

6.1 *Inclusion of underserved groups*

This study pertains to NHS staff and will recruit from this population directly. At present, this population is comprised of 77% women and 23% men, although this varies by healthcare role with 80% of Agenda for Change staff occupied by women, which notably includes the largest workforce, nurses. The figures for medical, dental and managerial staff are more evenly split. Proportionally, men occupy more leadership roles, particularly as medical consultants, where 63% are men (NHS England, 2019). Furthermore, 78% of NHS staff are White, 11% Asian, 7% Black, with further diversity in the remainder. Thus, this study will serve under-served groups firstly through inclusion criteria of healthcare staff who are already a diverse population. However, we will test the fit of the data to diverse participant groups.

In addition, there will be no latent exclusion of underserved groups by use of an intervention that would be prohibitively expensive or for which there are long waiting lists, or which is only known or accessible to the privileged few. MBIs and mindfulness-based resources are readily available to NHS staff outside of NHS workplaces in a variety of formats. For example, Headspace is a popular and well-known mindfulness app that can be accessed by anyone for a subscription; this app was recently made free to all NHS staff. Self-help books include the bestseller *Mindfulness: A Practical Guide to Finding Peace in a Frantic World* (Williams & Penman, 2011), which can be purchased widely, with included meditations freely accessible on popular sites such as YouTube. Healthcare staff also include mindfulness teachers among their ranks, many of whom offer to teach mindfulness to staff in free or discounted groups.

There is clear evidence that mindfulness as an intervention is feasible and accessible to healthcare staff, as testified by recent systematic reviews and meta-analyses of randomised control trials of MBIs (e.g., Spinelli, C., Wisener, M., & Khoury, 2019). This study seeks to serve this population further by purposefully examining dose-response, facilitators and barriers to engagement, and the effect of social identification with mindfulness groups within

the NHS. This may improve access and reach of MBIs when it comes to implementation and upscaling in the future.

We aim to ensure we do not lose any of the diversity inherent in this population by building flexibility into data collection methods (e.g., electronic consent procedures and questionnaires, remote interviewing, email reminders) so as not to systematically disadvantage groups who may find it more difficult to engage in the research process. For example, it could be that nurses, who are mostly comprised of women, have less predictable work-patterns that do not allow for more rigid, face-to-face appointments. Participants who identity as 'trans' could also feel excluded by binary terms for gender, which is why we will be following ONS harmonisation guidelines on questions pertaining to protected characteristics and reproducing questions verbatim wherever possible. Our approach will be inclusive, flexible and supportive, in line with our own values and the values of University of Sussex and our NHS partners.

To ensure there is no digital exclusion, advertising materials will offer the option for participants to request participant information sheet, consent form and paper questionnaires by post. The R&D department at Sussex Partnership NHS Foundation Trust will be available to take these requests by phone and forward requests to the Chief Investigator by email.

7 Methods/ design

7.1 Type of study

This is a prospective, longitudinal, observational, mixed-methods study of mindfulness and stress in healthcare staff. An online longitudinal panel survey will collect quantitative data on mindfulness practice (dose) and dynamic engagement factors (facilitators and barriers) and outcomes (response) at 3-month intervals for 6 months. Qualitative online interviews and cross-sectional online measures will explore social identification with mindfulness in relation to psychological engagement and outcomes. In addition, a pilot test of a new burnout scale will be conducted and tested for validity and reliability.

7.2 Participants

We aim to recruit 2000 healthcare staff from NHS Trusts and Primary Care Services in England. Professionals and non-professionals are welcome, as are healthcare workers in non-patient-facing roles. Examples of job roles include but are not limited to nurse, nursing assistant, doctor, pharmacist, manager, social worker, psychologist, occupational therapist, porter, administrator, medical/nursing students, or other non-patient-facing role. The full range of NHS roles can be viewed here:

https://www.healthcareers.nhs.uk/explore-roles

7.3 Inclusion/exclusion criteria

Participants will need to meet the following inclusion criteria for this study:

- Currently practicing or previously practiced mindfulness, either formally or informally, at any level of experience

- Age 18 and over
- Healthcare staff, e.g., nurse, nursing assistant, doctor, pharmacist, manager, social worker, psychologist, occupational therapist, porter, administrator, medical/nursing students, or non-patient-facing role. (These are just examples. We accept all healthcare roles, including people working in a voluntary capacity)
- Currently employed by an NHS Trust or Primary Care Service in England (full-time, part-time or voluntary)
- Not currently on long-term sickness absence (i.e., 4+ weeks of sickness)
- Sufficiently able to read and understand questions written in English to be able to answer these questions
- Have access to email and a computer or suitable electronic device (this includes personal devices/computers). Alternatively, you will be willing to request paper copies of documentation by phone.

Questionnaires will be completed electronically via the online platform, Qualtrics.
Interviews, if selected, will be completed remotely via the video-conferencing app, Zoom.

7.4 Aims and objectives

We aim to clarify several areas of uncertainty in the greater mindfulness literature that should help to optimise mindfulness in healthcare: 1) to determine how much healthcare staff with some prior engagement with mindfulness currently engage with mindful practices, formally and informally, and whether dose is predictive of outcomes at baseline and *over time*; 2) to test factors of engagement, including facilitators and barriers, thought to be important for practice/ implementation; 3) to better understand staff attitudes to groups and the role of social identification with mindfulness in relation to psychological engagement and outcomes, and 4) to empirically validate a new measure of work-related burnout in healthcare staff.

Objective 1:

To test for a dose-response between self-reported formal and informal mindfulness practice and primary and secondary outcomes.

H1a: Higher self-reported formal practice and informal practice will be associated with lower stress (primary outcome) at baseline and greater improvements in stress over time. Improvements will also be seen in secondary outcomes (burnout, mental health [anxiety & depression], well-being, and compassion for self and others).

H1b: Higher self-reported formal practice and informal practice will be associated with higher mindfulness (primary mechanism), which will mediate the relationship between engagement and improvements in primary and secondary outcomes.

E1a (Exploratory analysis of potential influence of healthcare role; no hypothesis)

E1b (Exploratory analysis of potential influence of demographic factors; no hypothesis)

Objective 2:

To test factors of engagement thought to be important for engagement with, and implementation of, mindfulness in relation to outcomes.

H2a: The relationship between current mindfulness practice (formal and informal) and stress will be moderated by internal facilitators (readiness for change and motivation for mindfulness).

H2b: The relationship between current mindfulness practice (formal and informal) and stress will be moderated by internal barriers (stigma in mental health and burnout).

E2 (Exploratory analysis of additional facilitators and barriers using categorical variables from bespoke mindfulness questions; no hypothesis)

Objective 3:

To qualitatively explore social identification with mindfulness and *psychological engagement*, in healthcare staff in different roles and at different levels of seniority; and to test whether social identification explains variance in stress and other outcomes over and above that of mindfulness.

H3: Social identification with mindfulness will explain some of the variation in stress and secondary outcomes over and above mindfulness and will mediate the relationship between practice dose and outcomes.

E3 (Exploratory thematic analysis of social identification with mindfulness; no hypothesis)

Objective 4:

To test the psychometric properties of the Sussex Burnout Scale, including factorial validity, concurrent validity, predictive validity, test-retest reliability, and internal consistency.

7.5 Recruitment and consent methods

Potential participants will be recruited using a variety of means including:

1) email (via distribution lists of our collaborative NHS partner)
2) internal site adverts, as facilitated by R&D departments
3) social media, primarily linking via the study's Twitter account
4) posters/leaflets
5) taken by local site staff for participants who prefer this method (by phone or in-person)

In most cases, interested individuals will follow a link to the online platform, Qualtrics, where the Participant Information Sheet and consent form will be presented electronically. An exception might be where participants choose to make contact to request paper copies of documentation, whereby the electronic process will be substituted to avoid digital exclusion. Potential participants will be advised to take their time in coming to a decision and contact details for the Chief Investigator and his supervisors will be provided to answer any questions. The consent form will make clear that ticking yes to all items and submitting to Qualtrics or posting the form constitutes consent to be involved in this study.

7.6 *Assessment process*

Assessment	Carried out by	What the assessment is for	How is the assessment carried out	At what stage is the assessment carried out	Copy of assessment is in Appendix Y/N
Consent form and baseline questionnaires (Bespoke mindfulness questions, PSS-10, FFMQ-15, MBI-HSS*, CBI (work burnout subscale), SBS, PHQ-4, SWEMWS, Brief SOCS-S, Brief SOCS-O, CQ-TIC, SRQ-E, OMS-HC-15, demographic questions) Estimated completion time for questionnaires is 45 minutes	Participant/ local site staff	Informed consent, demographic information, formal and informal mindfulness practice (dose), stress and secondary outcomes (response), engagement factors (facilitators and barriers), predictor variables	Online, Qualtrics (alternatively, by post)	Baseline	Y
Optional interview	Participant and Chief Investigator	Social identification and psychological engagement	Online, Zoom	0-3 months	Y
3-month questionnaires (Bespoke mindfulness questions, PSS-10, FFMQ-15, CBI (work burnout subscale), SBS, PHQ-4, SWEMWS, Brief SOCS-S, Brief SOCS-O, CQ-TIC, SRQ-E, OMS-HC-15)	Participant	Formal and informal mindfulness practice (dose), stress and secondary outcomes (response), engagement factors (facilitators and barriers)	Online, Qualtrics (alternatively, by post)	3-months	Y

Estimated completion time for questionnaires is 30 minutes					
6-month questionnaires (Bespoke mindfulness questions, PSS-10, FFMQ-15, CBI (work burnout subscale), SBS, PHQ-4, SWEMWS, Brief SOCS-S, Brief SOCS-O, CQ-TIC, SRQ-E, OMS-HC-15, SISI) Estimated completion time for questionnaires is 30 minutes	Participant	Formal and informal mindfulness practice (dose), stress and secondary outcomes (response), engagement factors (facilitators and barriers), social identification as a predictor	Online, Qualtrics (alternatively, by post)	6-months	Y

* First 100 participants only

7.7 Randomisation process & allocation concealment

This study is observational in nature and therefore does not include a randomisation process or allocation concealment.

7.8 Procedure

Participants who give informed consent will proceed by completing three waves of questionnaires, primarily via the online platform Qualtrics, but potentially using paper format if they do not have access to a computer. The first set of questionnaires will take place at baseline, with a second set at three months, and a third set at six months. Between 12 and 20 participants who consent to an optional one-hour interview on social identification with mindfulness will also be sent a Calendly link and asked to select an appropriate interview time. A Zoom meeting invitation/link for the agreed time will be sent via outlook calendar.

During the study, participants will be asked to recall their experience with formal and informal practice of mindfulness, including dose, factors of engagement, and social identification, and to complete measures on the primary outcome of stress and secondary outcomes including burnout, mental health (anxiety & depression), well-being, and compassion for self and others. Participants will also be asked some basic demographic questions, in line with National Institute for Health Research (NIHR, 2020) recommendations

to strengthen inclusion in research, as well as recommendations from the clinical academic publishing community to report on the fit of data to diverse participant groups. Mindfulness will be measured under the category of secondary outcomes, though in fact refers to the proposed mechanism of change. A selection of predictor variables will also be measured. Meanwhile, qualitative interviews will be semi-structured and focus on social identification with groups and psychological engagement with mindfulness.

Most of the research workflow will be automated, such that ID codes will be generated and linked to future questionnaires that participants can complete upon receiving timed follow-up emails with links to Qualtrics. Automated debrief messages will also be presented for download (or posted) on completion of each questionnaire. The Chief Investigator will however retain essential ID and contact information on a backup Excel file on a password-protected cloud-based server (Box). Manual reminder emails may also be sent where participants have not followed the automated functions or prompts. Reminder emails for interview attendance may also be sent.

For participants who choose the postal option, all forms will be sent by the Chief Investigator. Unique ID codes will be manually generated. Stamp addressed envelops will be sent separately for the consent form (identifiable data) and questionnaires (code only). Manual reminders will be set and sent in line with the three-monthly time-frame.

7.9 *Primary & secondary outcome measures*

Primary measure:

Perceived Stress Scale (PSS-10; Cohen et al., 1983).
This questionnaire originally contained 14 items and presents a popular choice of tool in clinical research of stress, having been validated in ≥19 independent studies, second only to the DASS' >20 studies (De Witte et al., 2021). A shorter 4-item version was also developed. However, the 10-item version was superior on psychometric properties. Internal consistency was greater than $\alpha = 0.7$ (all versions) in all 19 studies (Lee, 2012). Test-retest reliability was also equivalent in limited cases, with good concurrent and predictive validity also noted. Unlike the DASS, which maps onto a tripartite model with stress representing a physiological accompaniment to depression and anxiety (Clark & Watson, 1991), the PSS maps more closely maps onto a transactional model of stress and how individuals appraise their lives and their ability to cope with stressful events (Lazarus & Folkman, 1984). We believe the latter conception of stress should more accurately capture the reality of stress in healthcare. Responses are given along a 5-point Likert scale, with an estimated completion time of 4-5 minutes.

Secondary measures:

Five-Facet Mindfulness Questionnaire (FFMQ-15; Baer et al., 2008)
This 15-item questionnaire was modified from the original 39-item measure of mindfulness, measuring observation, description, awareness, non-judging and non-reactivity. The overall factor structure correlates with the longer form and other psychometric properties are comparable, with adequate internal consistency, sensitivity to treatment-induced change, and no difference in convergent validity (Gu et al., 2016). Responses are given along a 5-point Likert scale, with an estimated completion time of 4-5 minutes.

Maslach Burnout Inventory (MBI-HSS; Maslach, Jackson, & Leiter, 1996)
This questionnaire has 22 items and measures workplace burnout on dimensions of emotional exhaustion, depersonalisation and personal accomplishment. There is considerable and long-

running debate on the validity and structure for this measure, although it is generally considered the gold-standard (Hadžibajramović et al., 2020), having been extensively tested across a variety of workplaces including healthcare in numerous countries. Responses are given along a 7-point Likert scale, with an estimated completion time of ≤10 minutes. (Note: It is included in the present study for psychometric validation of the Sussex Burnout Scale only. Moreover, it is not free to use. Hence, just the first 100 participants will be given this measure; this number should be sufficient when testing for correlations between measures. Since most participants will not be required to complete it, this adds only an additional minute to the baseline questionnaires on average).

Copenhagen Burnout Inventory (CBI [work burnout subscale]; Kristensen et al., 2005)
This questionnaire consists of three subscales, which measure personal burnout (six items), work burnout (seven items), and client burnout (six items). We have elected to use the work burnout subscale only. When tested in healthcare staff, the scale had very good internal reliability, was good at distinguishing between professional groups, as well as correlating well with other measures and having good predictive validity for constructs associated with burnout, e.g., absence from work due to sickness. Responses are given along a 5-point Likert scale, with an estimated completion time of 2-3 minutes.

Sussex Burnout Scale (SBS; Strauss & Cavanagh, 2021)
This questionnaire has three items designed to map onto three dimensions comprised in the ICD-11 definition of burnout: "feelings of energy depletion or exhaustion; increased mental distance from one's job, or feelings of negativism or cynicism related to one's job; and reduced professional efficacy" (WHO, 2019). It has yet to be empirically validated and reliability-checked, and could offer a clinically and ecologically valid measure of burnout in briefer more accessible format than the MBI-HSS. Responses are given along a 5-point Likert scale, with an estimated completion time of ≤1 minute.

Patient health questionnaire for depression and anxiety (PHQ-4; Kroenke et al., 2009)
This questionnaire is comprised of four items from previous measures, two that measure depression (PHQ-2; Kroenke et al., 2003) and two that measure anxiety (GAD-2; Kroenke et al., 2007). The measure was deemed valid and internally consistent. Increasing PHQ-4 scores were matched by increasing dysfunction on other measures. Moreover, the combination of two-item measures for anxiety and depression correlated well, making their combination in one measure preferable when measuring for these most common and comorbid mental health diagnoses. Responses are given along a 4-point Likert scale, with an estimated completion time of ≤1 minute.

Short Warwick-Edinburgh Mental Wellbeing Scale (SWEMWS; NHS Health Scotland, University of Warwick & University of Edinburgh, 2008)
This questionnaire is a positively worded seven-item measure of wellbeing (modified from the original 14-item version) for use in a variety of contexts including healthcare. It has good validity and reliability, no ceiling effects (Stewart-Brown et al., 2011) and is responsive to changes in wellbeing (Maheswaran et al., 2012). Responses are given along a 5-point Likert scale, with an estimated completion time of 2-3 minutes.

Brief Sussex-Oxford Compassion Scales (for self [Brief SOCS-S] & others [Brief SOCS-O]; Gu et al., 2020)
These questionnaires each have 5 items taken from their original 20-item counterparts, measuring five dimensions of compassion: recognising suffering, understanding its universality, feeling for the sufferer, tolerating negative feelings, and being motivated to stop suffering. There was good factorial validity for both scales, and good psychometric properties including adequate internal consistency, no floor/ceiling effects, and correlations with related

measures (Gu et al., 2020). Shortened versions were also deemed acceptable. Responses are given along a 5-point Likert scale, with an estimated completion time of 1-2 minutes.

Predictor measures:

Bespoke Mindfulness Questions (Dose, facilitators and barriers)
This battery of 20 dose-related items is substantially adapted and expanded from Birtwell et al. (2019; supplementary materials) and covers formal and informal mindful practices, including frequency and duration, and questions relating to facilitators, barriers and motivation. Despite much fidelity to the original, item-wording has been substantially changed to suit the needs of the current study. Notably, we specify that items relate to the PREVIOUS THREE MONTHS ONLY. We also set about defining formal and informal practices for participants. Order of items has also been changed so that facilitators and barriers relate to informal as well as formal practices. Open response comments have been added/removed in several instances. Ordinal 5-point Likert scales for frequency of formal and informal practices are converted to 8-point (one day, two days, three days, four days, five days, six days, seven days per week, or less) so as to collect interval rather than ordinal data. Likewise, ordinal duration options have been replaced with a continuous scale. Numerous additional items have been added to reflect the fullest scope of formal and informal practice and support, with less relevant items also omitted. Estimated completion time can range from 2 - 5 minutes due to use of skip logic and display logic in Qualtrics (i.e., where most questionnaires will be completed).

Change Questionnaire (CQ- TIC; Miller & Johnson, 2008)
This questionnaire includes three items and reproduces the three domains of "readiness rulers" commonly used in clinical practice for subjective ratings of change readiness, which the authors refer to as motivation to change. The item "I am trying to…" reflects commitment to change. The item "It is important for me to…" reflects importance of change. The item "I could …" reflects self-efficacy and confidence, although this has been adapted in the present study to the less ambiguous "I am able to …". As acknowledged by the authors, ceiling effects can present with this measure and other "face-valid" measures, especially those that are subject to demand characteristics. However, this depends very much on the behaviour change itself. We anticipate more variation in readiness for engagement with mindfulness in healthcare staff than participants who might wish to quit alcohol, for example, since mindfulness is not likely to elicit the same degree of all-or-nothing responses. There is also less issue with demand characteristics due to this being an anonymous online study of a positive behaviour where the opposite is not stigmatising in any foreseeable way. Overall, reliability is just about acceptable. There is also evidence of good predictive validity (e.g., Gaume et al., 2013). Responses are given along an 11-point Likert scale, with an estimated completion time of ≤1 minute.

Motivation for Mindfulness (adapted from Self-Regulation Questionnaire-Exercise [SRQ-E]; Ryan & Connell, 1989)
This questionnaire contains 16 items across four domains of motivation or self-regulation; namely, external, introjected, identified and intrinsic. We substituted exercise for mindfulness and adapted the wording to better represent possible responses of individuals who practice mindfulness. In particular, we adapted responses that do not resonate in a mindfulness context (e.g., external anger does not follow as a consequence of not practicing mindfulness). In each case/substitution, we retained fidelity to the original domain. Notably, Ryan and Connell validated the initial questionnaires for school children, with subsequent questionnaires being developed and adapted to fit different adult behaviours (as we have done here with the substitution of exercise for mindfulness). Consequently, adaptations have been independently validated on a case-by-case basis, and there is evidence that the exercise template, on which

our mindfulness adaptation is based, has high internal consistency and acceptable convergency validity (Rahmanian et al., 2014). Responses are given along a 7-point Likert scale, with an estimated completion time of 4-5 minutes.

Opening Minds Stigma Scale for Health Care Providers (OSM-HC; Kassam et al., 2012)
This 15-item measure (modified from 20 items) is intended to measured stigma of healthcare staff towards mental illness. The shorter version has proven superior on psychometric properties to its predecessor, with acceptable internal consistency and sensitivity to changes in stigma (Modgill et al., 2014). Domains include attitude, disclosure and help-seeking, and social distance. Responses are given along a 5-point Likert scale, with an estimated completion time of 4-5 minutes.

Single-Item Social Identification measure (SISI; Postmes et al., 2013)
This single-item measure of social identification has good convergent and discriminant validity and good test-retest reliability compared with many similar (and considerably longer to complete) measures of social identification. The single item is "I identify with (my group)". Within parentheses we will insert any groups that emerge from thematic analysis respectively. Responses are given along a 7-point Likert scale and should take seconds to complete.

8 Data management & analysis

8.1 *Summary of the types of data*

Quantitative data will derive from three sets of questionnaires completed online by 2000 participants at baseline, 3-months and 6-months via Qualtrics. Anonymised data will be transferred to SPSS and R for analysis.

Qualitative data will derive from a maximum of 20 interviews completed online between 0 and 3 months via Zoom. A minimum of 12 interviews will be considered sufficient if the point of information saturation is reached. Participants who volunteer for this component of the study will complete one interview only. Voice recordings of these interviews will be transcribed anonymously to Microsoft Word and deleted on completion of the project.

8.2 *Research Variables Form (RVF)*

Type of data	Variable name	Outcomes/units	Source/Any Instructions
Inclusion	Currently practicing or previously practiced mindfulness, either formally or informally, at any level of proficiency	Tick for yes: I confirm that I meet the eligibility criteria detailed in the participant information sheet for the MIND*ARISE* study.	Consent form
Inclusion	Age 18 or over	Tick for yes: I confirm that I	Consent form

		meet the eligibility criteria detailed in the participant information sheet for the MIND*ARISE* study.	
Inclusion	Healthcare staff, e.g., nurse, nursing assistant, doctor, pharmacist, manager, social worker, psychologist, occupational therapist, porter, administrator, medical/nursing students, or non-patient-facing role. (These are just examples. We accept all healthcare roles, including people working in a voluntary capacity)	Tick for yes: I confirm that I meet the eligibility criteria detailed in the participant information sheet for the MIND*ARISE* study.	Consent form
Inclusion	Currently employed by an NHS Trust or Primary Care Service in England (full-time, part-time or voluntary)	Tick for yes: I confirm that I meet the eligibility criteria detailed in the participant information sheet for the MIND*ARISE* study.	Consent form
Inclusion	Not on long-term sickness absence (i.e., 4+ weeks of sickness)	Tick for yes: I confirm that I meet the eligibility criteria detailed in the participant information sheet for the MIND*ARISE* study.	Consent form
Inclusion	Sufficiently able to read and understand questions written in English to be able to answer these questions	Tick for yes: I confirm that I meet the eligibility criteria detailed in the participant information sheet for the MIND*ARISE* study.	Consent form
Inclusion	Have access to email and a computer or suitable electronic device (this includes personal devices/computers). Alternatively, willing to request paper copies of	Tick for yes: I confirm that I meet the eligibility criteria detailed in the	Consent form

	documentation by phone	participant information sheet for the MIND*ARISE* study.	
Identifier	Name	Open response	Consent form
Identifier	Trust/ CCG	Open response	Consent form
Identifier	NHS team/ department/ GP surgery	Open response	
Identifier	Date of birth	Open response	Consent form
Identifier	Email address	Open response	Consent form
Consent	Consent given freely?	All consent form items ticked for yes (excluding the optional items)	Consent form
1. Bespoke mindfulness questions	Have you engaged in a formal practice of mindfulness meditation over the last 3 months? (e.g., body scan, sitting practice, breathing space, mindful movement, or other mindfulness meditation)	Y/N	Baseline, 3-month and 6-month questionnaires
2. Bespoke mindfulness questions	On average, how many days each week did you engage in a formal practice of mindfulness meditation?	List	Baseline, 3-month and 6-month questionnaires
3. Bespoke mindfulness questions	On days when you engaged in a formal practice of mindfulness meditation, how many times did you practice per day on average?	List [open response, if paper]	Baseline, 3-month and 6-month questionnaires
4. Bespoke mindfulness questions	How many minutes on average did one practice session last?	List [open response, if paper]	Baseline, 3-month and 6-month questionnaires
5. Bespoke mindfulness questions	Have you practiced mindfulness informally over the last 3 months? (That is, intentionally bringing mindfulness to daily routines/activities, such as walking, eating, or washing dishes, rather than setting time aside for formal meditation practice)	Y/N	Baseline, 3-month and 6-month questionnaires
6. Bespoke mindfulness questions	On average, how many days each week did you practice mindfulness informally?	List	Baseline, 3-month and 6-month questionnaires
7. Bespoke mindfulness questions	On days when you practiced mindfulness informally, how many times did you practice per day on average?	List [open response, if paper]	Baseline, 3-month and 6-month questionnaires
8. Bespoke mindfulness questions	If you attended any mindfulness retreats or away day/s over the least 3 months, approximately how many hours was this in total?	List [open response, if paper]	Baseline, 3-month and 6-month questionnaires
9. Bespoke	How was your mindfulness practice	List	Baseline, 3-

mindfulness questions	best supported over the last 3 months? (If more than one option applies, please select the option that you perceive as most supportive)	[open response]	month and 6-month questionnaires
10. Bespoke mindfulness questions	Where has most of your mindfulness practice taken place over the last 3 months?	List [open response]	Baseline, 3-month and 6-month questionnaires
11. Bespoke mindfulness questions	Which set of mindfulness practices did you do most regularly over the last 3 months? (Select all that apply)	List [open response]	Baseline, 3-month and 6-month questionnaires
12. Bespoke mindfulness questions	How would you describe your experience of these practices over the last 3 months? (Select all that apply)	List [open response]	Baseline, 3-month and 6-month questionnaires
13. Bespoke mindfulness questions	What was your main reason for practicing mindfulness over the last 3 months?	List [open response]	Baseline, 3-month and 6-month questionnaires
14. Bespoke mindfulness questions	Have you been offered any kind of mindfulness training or practice in the workplace over the last 3 months? (If yes, could you please provide more detail about this mindfulness training or practice in the workplace?)	Y/N [open response]	Baseline, 3-month and 6-month questionnaires
15. Bespoke mindfulness questions	Have you completed an eight-week mindfulness course before as a participant? (MBCT, MBSR etc..)	Y/N	Baseline, 3-month and 6-month questionnaires
16. Bespoke mindfulness questions	Maybe you stopped practicing or aren't practicing as regularly as you used to, or as you would like. If so, what would you say was the main reason for disengaging over the last 3 months?	List [open response]	Baseline, 3-month and 6-month questionnaires
17. Bespoke mindfulness questions	What was lacking that could have supported your mindfulness practice at work over the last 3 months? (If more than one option applies, please select the option that you perceive as potentially most supportive).	List [open response]	Baseline, 3-month and 6-month questionnaires
18. Bespoke mindfulness questions	Approximately how many years ago did you first practice mindfulness?	List [open response, if paper]	Baseline, 3-month and 6-month questionnaires
19. Bespoke mindfulness questions	Are you a trained mindfulness teacher?	Y/N	Baseline, 3-month and 6-month questionnaires
20. Bespoke	Are you trained to teach the eight-	Y/N	Baseline, 3-

mindfulness questions	week course? (MBCT, MBSR etc..)		month and 6-month questionnaires
PSS-10	Overall stress score	Number	Baseline, 3-month and 6-month questionnaires/ reverse score items 4, 5, 7 & 8/ sum all items
FFMQ-15	Overall mindfulness score	Number	Baseline, 3-month and 6-month questionnaires/ reverse score items 3, 4, 7, 8, 9, 13, & 14/ sum all items
MBI-HSS	Overall burnout score	Number	First 100 baseline questionnaires/ reverse score items 4, 7, 9, 12, 17, 18, 19, 21/ sum all items
CBI	Work burnout subscale	Number	Baseline, 3-month and 6-month questionnaires/ reverse score item 7 of work burnout subscale/ sum all items and average
SBS	Overall burnout score	Number	Baseline, 3-month and 6-month questionnaires/ sum all items
PHQ-4	Depression and anxiety subscales	Number	Baseline, 3-month and 6-month questionnaires/ sum items for depression and anxiety
SWEMWS	Overall wellbeing score	Number	Baseline, 3-month and 6-month questionnaires/

			sum all items and transform
Brief SOCS-S	Overall compassion for self score	Number	Baseline, 3-month and 6-month questionnaires/ sum all items
Brief SOCS-O	Overall compassion for others score	Number	Baseline, 3-month and 6-month questionnaires/ sum all items
CQ-TIC	Overall readiness for change score	Number	Baseline, 3-month and 6-month questionnaires / sum all items
SRQ-E	Overall motivation score	Number	Baseline, 3-month and 6-month questionnaires / sum items for subscales/ weight and sum to form relative autonomy index (2 X Intrinsic + Identified - Introjected - 2 X External)
OMS-HC-15	Overall healthcare staff stigma of mental health score	Number	Baseline, 3-month and 6-month questionnaires / reverse score items 2, 6, 7, 8 & 14/ sum all items
Qualitative interview	Qualitative data	Semi-structured questions/prompts	Volunteers only/via Zoom (first 3 months)
SISI	Single-item social identification score	Number	6-month questionnaire/ single item score
1. Demographic information	What is your age in years?	List/prefer not to say [open response, if paper]	Baseline questionnaire
2. Demographic	What is your sex?	List/prefer not to say	Baseline questionnaire

information			
3. Demographic information	Is the gender you identify with the same as your sex registered at birth?	List/prefer not to say	Baseline questionnaire
4. Demographic information	What is your ethnic group?	List / prefer not to say	Baseline questionnaire
5. Demographic information	What is your religion?	List /prefer not to say	Baseline questionnaire
6. Demographic information	Do you have a disability?	Y/N/prefer not to say	Baseline questionnaire
7. Demographic information	What is your sexual orientation?	List/prefer not to say	Baseline questionnaire
8. Demographic information	What is your legal marital or registered civil partnership status?	List/prefer not to say	Baseline questionnaire
9. Demographic information	Are you pregnant?	List/prefer not to say	Baseline questionnaire
10. Demographic information	Approximately how many years have your worked in healthcare in total (excluding any gaps of 3 months or more)?	List [open response, if paper]	Baseline questionnaire
11. Demographic information	What category most closely represents your role as a member of healthcare staff?	List	Baseline questionnaire
12. Demographic information	Is your healthcare role clinical or non-clinical?	List	Baseline questionnaire
13. Demographic information	Do you work full-time or part-time?	List	Baseline questionnaire

8.3 Sample size & power calculations

Multilevel models are complex, due to nesting effects on data, multiple levels of estimation and dynamic interplay with covariates (Scherbaum & Ferreter, 2009). Hence, there is no consensus on how power calculations should be performed (Becker et al., 2012). Pragmatic ways forward by previous researchers have included running equivalent designs in G*power to approximate required power (Faul et al., 2007; Stevenson et al., 2019) and using statistical rules of thumb for sample size determination; these depend on context and should not be followed blindly (Memon et al., 2020). Alternatively, power can be simulated if similar studies exist from which to derive the relevant parameters (Nash et al., 2021); this was not the case for the present study, partly owing to its specificity and complexity of design. While pilot studies are sometimes used to estimate parameters, small samples introduce additional uncertainty, imprecision, and need for caution (Nash et al., 2021). Consequently, we

compared available pragmatic methods and took the most conservative estimate to ensure required power.

1) *G*power*: Stevenson et al. (2019) employed RM-ANOVA as a proxy for multilevel moderation in G*power. Notably, their study had both active and control conditions, whereas we have opted for a continuous predictor of mindful practice that could nonetheless be subdivided into two groups (e.g., higher/lower practice dose). With this caveat in mind, we tested a range of relevant categorical and continuous proxies (i.e., *t*-test - difference between two means, RM-ANOVA, and linear multiple regression - R^2 deviation from zero). Typically, we would expect small effects of mindfulness on stress (e.g., Taylor et al., 2021). Thus, for the between-effect, we employed two-tails, $\alpha = .05$, $d = 0.2$, 80% power, which resulted in a required overall sample size of $n = 788$. As for interactions, RM-ANOVA with a small effect size of $f = 0.1$, three repeated measurements, medium correlation = 0.5, and nonsphericity correction = 1, resulted in a sample size of $n = 164$. When switching to a continuous predictor and converting the small effect of $d = 0.2$ to $f^2 = 0.02$, a model with a maximum of 10 predictors (time variables + dose variables + facilitators + barriers + years practice covariate + moderator of healthcare role) reaped a similar result, $n = 822$. Attrition in MBIs can reach as high as 63% (Spinelli et al., 2019), though a lower estimate might better represent the top end of potential attrition after removing outlier studies. Hence, we decided to allow for high but not uncommonly high attrition (50%). Taking our utmost power estimate and thus accounting for attrition, required sample size according to G*power increased to $n = 1644$.

2) *Rules of thumb*: One of the more widely regarded rules of thumb for multilevel modelling is the 30/30 rule, such that level 1 * level 2 = 900 (Kreft, 1996). However, this ratio is flawed for longitudinal models, since level 1 time points are typically fewer than number of level 2 participants. Fortunately, increasing sample size at level 2 is more important than level 1 for both main effects and cross-level interactions, and smaller numbers at level 1 should not affect this estimate, so long as level 2 is sufficiently large (Scherbaum & Ferreter, 2009). Other rules of thumb such as the 50/20 ratio or the 100/10 ratio also exist; these are recommended in situations where cross-level interactions include random effects (Hox, 1998; Memon et al., 2020), taking sample size slightly higher to $n = 1000$. Alternatively, if we were looking at medium or large effects (which we are not), the benchmark for adequate power could be substantially lower. On balance, $n = 1000$ to detect small effects including random effects, plus an additional 1000 to allow for 50% attrition, makes for a sufficiently conservative estimate in the present context, $n = 2000$. Such a sample size is also more than adequate by received norms for confirmatory factor analysis of a burnout scale with just three items (Grace-Martin, 2022).

Thus, the most conservative approximations of required sample size by G*power and applicable rules of thumb range from $n = 1644$ to $n = 2000$. To ensure power to detect small effects in healthcare staff overall, $n = 2000$ was deemed the best approximation of sufficient sample size for this study.

8.4 Planned data analysis

Preliminary analysis

Data will first be exported into SPSS and R, where it will be cleaned and formatted for analysis. Relevant assumptions for parametric tests will next be checked by combination of graphs, plots and formal tests (e.g., normality, linearity, homoscedasticity). Demographic information will be summarised. Descriptive statistics will also be inspected for all variables at each time-point.

Analysis 1 (H1a, H1b, *E1a, E1b*)

Formal and informal practice will be analysed separately, using total dose (practice frequency * practice duration) for formal mindfulness practice, and practice frequency for informal mindfulness practice. Frequency and duration may also be analysed separately for formal practice, e.g., if combination of these two variables results in problematic levels of skew.

Multiple regression will determine if there is a significant association between formal and informal mindfulness practice dosage and stress at baseline. The covariate of 'years practice' will be included.

Multilevel modelling using random intercepts/slopes and maximum likelihood estimation will determine if higher self-reported formal and informal mindfulness are associated with greater improvements in stress over time. Participant responses (level 1) will be nested within individuals (level 2). The covariance structure will be 'Unstructured', as per the default in R. Moreover, the following steps are provided for illustration:

- Predictor variables will be centred (group mean or grand mean, as appropriate) to aid model convergence and interpretation of results.
- Intra-class correlation coefficients (ICC) will be examined to determine if there is sufficient variation to explore with multilevel modelling. Alternative analyses will be selected if multilevel modelling is contraindicated (e.g., multiple regression).
- After first examining an empty model, and an unconditional growth model (to assess the effect of time only), predictor variables will be added in iterative models.
- Time-varying predictors will be split and entered separately to model within and between person differences and so avoid conflating variance
- "Years practice" will be entered as a covariate to control for long-term meditators with potentially high mindfulness and low stress at baseline
- Parameter estimates from these models will be reported, along with measures of dispersion (SD, SE), *p*-values and confidence intervals.
- The ANOVA function will be used to test for significant improvements in nested models (i.e., chi-square), complementing fit indices that will be used to test for improvements in non-nested models (e.g., deviance statistics and BIC).
- Pseudo R2 statistics will be used to determine the proportion of variance explained.
- Ranova will also be used to test significance of variance components.

The above analyses will be repeated for the proposed mechanism of action (mindfulness) and secondary outcomes respectively.

To further explore the primary outcome, a separate exploratory analysis will be conducted with multilevel models including healthcare role as a moderator (categorical: doctors, nurses, other clinical, other non-clinical). Exploratory analyses of the primary outcome will also be re-run with nine protected characteristics, entered separately as covariates. These variables will not feature in the final multilevel model but may help to indicate if future research should consider powering studies for these protected characteristics, as per recent guidelines.

Structural equation models (SEM) will be used to help determine if mindfulness significantly mediates relationships between formal and informal practice and stress. Paths should lead from formal and informal practice to mindfulness to stress (indirect effects) and from formal and informal practice to stress (direct effect). In the unexpected event that models do not converge and/or any of the specified analyses are prevented from running, alternative analyses will be considered. Potential solutions might include using an optimiser, modelling random intercepts and removing random effects, removing the correlation, applying Bayesian methods, or moving down to a simpler model, e.g., multiple regression.

Analysis 2 (H2a, H2b, *E2*)

Multilevel models detailed in Analysis 1 will be extended to include facilitators (readiness for change; motivation for mindfulness) and barriers (burnout; stigma in mental health) to see what variance they explain and whether their inclusion improves fit of the model. Interactions will be examined to test for moderation. Pearson's correlation will be computed between predictors and mindfulness, except in cases where Spearman's correlation is indicated.

Furthermore, exploratory analyses will be conducted on a range of facilitator and barrier variables adapted from the Birtwell et al. (2019) battery of questions. These will be dummy-coded and entered as categorical predictors, to see if they further explain variation and improve fit. Again, these will not feature in the final model. Rather, their purpose, like that of the exploratory component in analysis 1, is to explore potential avenues for future research. Notably, with each iteration there is the increasing risk of convergence problems. Consequently, models may need to be adapted and/or predictors dropped to enable convergence.

Analysis 3 (H3, *E3*)

To some extent replicating and extending Adarves-Yorno et al. (2020), hierarchical linear regression will test whether social identification at the 6-month time point explains variance in stress and other outcomes over and above that of mindfulness. Correlations between variables will again be checked. Owing to the dependency of the social identification hypothesis on qualitative thematic analysis and any emergent themes, quantitative tests of outcomes for this part of the analysis will be cross-sectional at the final time-point (once all data has been transcribed/ analysed). The PROCESS package will also be used to determine if social identification mediates the relationship between practice dose and outcomes.

Thematic analysis will be employed when exploring social identification and psychological engagement with mindfulness groups. Specifically, we will follow the steps outlined by Braun and Clarke for reflexive thematic analysis (2022); that is, familiarisation with the dataset, coding, generating themes, further development of these themes, refinement and definition of themes, and writing up our findings. We will not be prescribing a bottom-up or top-down approach as we are interested in what emerges from the content of the data and how this could relate to pre-existing theory, particularly the transtheoretical model of health behaviour change (Prochaska & DiClemente, 1983). As stated by Braun and Clarke, the process should be dynamic, and orientations are not fixed. Moreover, we will be seeking to answer a very specific research question and thus will be interested to see what emerges regarding engagement with mindfulness groups and whether this is influenced by pre-existing healthcare role identity.

Analysis 4

We will perform confirmatory factor analysis on the Sussex Burnout Scale, test for correlations between this scale and the Maslach Burnout Inventory and the Copenhagen Burnout Inventory, and test its associations with measures of distinct but related constructs (stress, anxiety and depression). Overall, we seek to determine factorial validity, concurrent validity, predictive validity, test-retest reliability, and internal consistency.

8.5 Dummy results tables

	Baseline	3 months	6 months
Number of participants (*n*)	x	x	x
1. Practicing formally (% yes)	x	x	x
2. Days formal practice p/w (M, SD)	x	x	x
3. Daily frequency of formal practices (M, SD)	x	x	x
4. Formal practice session duration (M, SD)	x	x	x
5. Practicing informally (% yes)	x	x	x
6. Days informal practice p/w (M, SD)	x	x	x
7. Daily frequency of informal practices (M, SD)	x	x	x
8. Retreat/away day total duration (M, SD)	x	x	x
9. Primary means of support (% per category)	x	x	x
10. Practicing where (% per category)	x	x	x
11. Most regular mindful practices (% per category)	x	x	x
12. Overall experience of practice (% per category)	x	x	x
13. Motivation for practicing (% per category)	x	x	x
14. Offered mindfulness training at work (% yes)	x	x	x
15. Completed 8-week mindfulness course or not (% yes)	x	x	x
16. Primary barriers (% per category)	x	x	x
17. Support at work (% per category)	x	x	x
18. Years since first mindful practice (M, SD)	x	x	x
19. Trained mindfulness teacher or not (% yes)	x	x	x
20. Trained in an 8-week course (% yes)	x	x	x
PSS-10 (M, SD, 95% CI)	x	x	x
FFMQ-15 (M, SD, 95% CI)	x	x	x
MBI-HSS* (M, SD, 95% CI)	x		
CBI (M, SD, 95% CI)	x	x	x
SBS (M, SD, 95% CI)	x	x	x
PHQ-4 (M, SD, 95% CI)	x	x	x
SWEMWS (M, SD, 95% CI)	x	x	x
Brief SOCS-S (M, SD, 95% CI)	x	x	x
Brief SOCS-O (M, SD, 95% CI)	x	x	x
CQ-TIC (M, SD, 95% CI)	x	x	x
SRQ-E (M, SD, 95% CI)	x	x	x
OMS-HC-15 (M, SD, 95% CI)	x	x	x
SISI (M, SD, 95% CI)			x
1. Age (M, SD)	x		
2. Sex (% per category)	x		

3. Gender identity (% per category)	x
4. Ethnic group (% per category)	x
5. Religion (% per category)	x
6. Disability status (% per category)	x
7. Sexual orientation (% per category)	x
8. Marital/ civil partnership status (% per category)	x
9. Pregnancy status (% pregnant)	x
10. Time in healthcare (M, SD)	x
11. Job role (% doctors, nurses & other)	x
12. Clinical (% clinical)	x
13. Full-time or part-time (% per category)	x

* First 100 participants only

8.6 *Data collection, entering, coding and checking process*

All questionnaire data will be collected on the online platform, Qualtrics, and transferred on completion of the study for analysis in SPSS and R for statistical analysis.

Interview data will be collected via Zoom throughout the study and recorded to a password-protected Dictaphone for anonymised transcription into Microsoft Word documents that will be kept securely on OneDrive for thematic analysis, with original voice recordings temporarily stored on Box and deleted on completion of this project.

The data manager will be the Chief Investigator (supervised by Professor Kate Cavanagh and Professor Clara Strauss). GCP training was last completed by the Chief Investigator on 15.02.2022 (Introduction to Good Clinical Practice [NIHR]).

All members of the research team will be suitably qualified for their designated roles. Proof of qualification will be supplied to supervisors and relevant regulatory bodies where requested.

8.7 *Missing data policy*

Participants will be permitted to skip electronic questionnaire items of their own volition. However, an automatic prompt will appear before proceeding to the next page, to warn of missing data in case of possible oversight. The participant will then be able to choose to action or ignore this message. As for demographic data, participants will be given the option to 'prefer not to say'. Missing data on paper copies of documents will be accepted as received.

Since analyses will be conducted using both SPSS and R, methods of dealing with missing data will vary.

In SPSS, missing data indicated by '.' will be recoded as '999' (missing) or '666' (withdrawn) and transformed into new variables to avoid accidental deletion. Cases can then be selected for analysis.

In R, all missing data should appear as 'NA', which is neither character nor numeric. Hence, specific codes will be used to return non-NA values as 'NA', and to remove data pairwise or listwise. For example:

is.na()
na.rm = TRUE
na.action = na.omit or na.exclude

Whether further action is necessary will depend on the amount of missing data, which variables are affected, and whether this is deemed to be missing at random. Imputation methods and/or sensitivity analyses may be employed to model different scenarios, rather than removing missing values altogether. However, imputation methods will not be considered if the amount of missing data is considered low, i.e. < 5%. Nor will they be considered if missing data is too high, e.g. > 75%. If such methods, are used however, then these will be substituted for the primary analysis and results will be reported from tests of these datasets.

Other actions to control for missing data include selection of random effects to pool available data over time-points, and maximum likelihood estimation to model probabilities (Sterne et al., 2009). Notably, maximum likelihood estimates regression coefficients and associated error, and can therefore deal with missing outcomes data without the need for additional actions.

8.8 Potential bias

Numerous forms of bias can present with observational data from questionnaires and interviews. Our bias minimisation strategies will include:

- Building flexibility into the study schedule to avoid systematic drop-out and, by extension, data that is not missing at random. We intend to send electronic reminders, accept late submissions and conduct interviews via Zoom.
- Reducing social desirability bias via remote data collection methods and anonymisation of the data.
- Avoiding and in some instances removing statements from study documentation that could give rise to demand characteristics. Examples might include removal of leading or loaded statements about mindfulness and dose from the consent form, participant information sheet, questionnaires, or interview schedule.
- Reducing acquiescence bias by maximising use of Likert scales instead of binary response items.
- Minimising fatigue effects by selecting the shortest version of questionnaires deemed valid and reliable for a given construct, and by keeping interview questions to a minimum to minimise time-burden.
- Focussing on experience that can be easily recalled such as average frequency and duration of mindfulness practices, rather than sum totals or change over time, which could give rise to recall bias.
- Configuring Qualtrics to check if participants meant to skip questions or not, thereby reducing the problem of accidentally missing data.
- Ensuring participant data is not wasted. If multilevel models do not converge and an optimiser does not work, we may need to model random intercepts and remove random effects, or possibly remove the correlation, apply Bayesian methods, or move down to a simpler model.

- Results from any analyses will be written-up for publication and dissemination to the wider research community, with openness to any limitations that might improve future research.

8.9 *Data custodian and data ownership*

Name of data custodian:
Daniel Cullen
School of Psychology, Pevensey 1 Building, University of Sussex,
Falmer, East Sussex
BN1 9QH,
United Kingdom
dc48@sussex.ac.uk

Name of data owner:
University of Sussex

8.10 *Data quality and standards*

Our research team hereby confirms the following commitment to data quality and standards outlined by Sussex Partnership NHS Foundation Trust:

The research team adhere to the good practice and standards principles which are set out in the Sussex Partnership Policy for Data Protection, Security and Confidentiality 2013 and the Sussex Partnership Foundation Trust Research Policy 2015. Processing of identifiable data will comply with The General Data Protection Regulation and Data Protection Act (2018).

All research will be carried out under the above standards and will be reviewed by the NHS Health Research Authority. The R&D departments of participating NHS Trusts will provide confirmation of capacity and capability where the HRA declare this is expected.

All members of the research team and any other individuals from collaborating Trusts or Universities involved in collecting, inputting, processing, using and sharing data will have had Information Governance Training.

Data management will be a standard item on the agenda for both research team and steering group meetings.

8.11 *Data security*

All participant information sheets/consent data will be stored in a password-protected file loaded onto a password-protected cloud-based system (Box) and accessed by password-protected computers held by the research team. Identifiable details including name, NHS employer/team, email address, and date of birth will only appear on these forms.

Questionnaire data will only be identifiable by these unique identifier codes and will be stored on a different password-protected cloud-based server (OneDrive), for access by any member of the designated research team on their password protected computers. Anonymous data from Qualtrics data will also be exported for analysis in SPSS and R and uploaded to a repository (University of Sussex).

Interviews will take place on Zoom and will NOT be recorded via video. A password-protected Dictaphone will record spoken interviews to assist will verbatim transcribing. The Chief Investigator will be responsible for transcribing the data. To ensure confidentiality, participants will be informed at the beginning of interviews that a Dictaphone is in use to assist with transcribing and that voice data will be deleted permanently on completion of the study. Voice recordings will also be stored on Box, as potentially identifiable data. Participants will be asked not to reveal any identifying information for themselves or others. Accidental breaches of this rule will result in the interview being prioritised for immediate transcription (minus the identifying information) and premature deletion of the voice recording. Anonymised transcriptions will be stored on OneDrive and uploaded to a repository (University of Sussex).

8.12 Data sharing

Potential participants will be informed that any identifying and de-identified data they submit may be reviewed by regulatory bodies including their employing NHS Trust/ CCG, the Research and Development Governance team at Sussex Partnership NHS Foundation Trust, and the University of Sussex, if necessary. Potential participants will also be informed that de-identified data will be made publicly available, e.g., for future analysis by other researchers. We will apply a one-year embargo, during which time researchers will need to submit a proposal to use the anonymised data.

Participants who do volunteer to particate will share their identifying data with the Chief Investigator by submitting completed consent forms. At the end of the consent form, participants will be advised to print off a PDF of the participant information sheet and consent for themselves (Those engaging via paper format will receive a photocopy of these forms instead). They will then be emailed links to complete questionnaires anonymously via Qualtrics (or posted documentation if they lack access to a computer). Interview data will be collected by the Chief Investigator via Zoom for transcription. A telephone interview will be considered if participants cannot access Zoom.

All data will be shared with the designated research team by secure download of consent data from Qualtrics to Box, and questionnaire data to OneDrive. Recorded interview data will be retained on Box and transcribed interview data will be stored on OneDrive (see 8.11).

Further information about this study will be shared with participants by debrief message/ letter. Findings will also be shared via research presentations, conferences and publications.

9 Project management

Project Team Member	Role/ Responsibilities	Contact Details
Daniel Cullen	Chief Investigator; leading on study design, recruitment, data collection, analysis and dissemination	dc48@sussex.ac.uk
Professor Kate Cavanagh	Supervisor and research team member; supervising the Chief Investigator, providing clinical and academic expertise	kate.cavanagh@sussex.ac.uk

Professor Clara Strauss	Supervisor and research team member; supervising the Chief Investigator, providing clinical and academic expertise	clara.strauss@nhs.net

10 Ethical considerations

Electronic participant information sheets and informed consent forms will give participants adequate time and space to make informed decisions on involvement in the present research, free of time pressures or perceived pressure from research staff. Chief Investigator contact details will also be provided for participants who wish to make contact and discuss the research in any way prior to deciding. The primary method of contact will be by University of Sussex email. However, if more detailed discussions are required, an opportunity to speak with the Chief Investigator by Zoom will be offered and facilitated by the Chief Investigator.

Healthcare staff who meet inclusion criteria for this study will either already be practicing or have ceased practicing mindfulness of their own volition, such that any risk observed was not precipitated by this study. However, there are some potential risks associated with mindfulness, such as the centring of awareness to painful experiences. This will be highlighted in the participant information sheet for potential participants who were not already aware. Phone numbers for organisations to contact in the event of support needs or distress will also be provided, as well as reminders to contact one's general practitioner.

Potential participants will be offered the option to be entered into a prize draw to win one £50 amazon gift voucher in the consent form. Modest prizes are aimed at improving recruitment without adding any additional pressure to be involved. To be entered, participants will be required to complete all three questionnaires, and this will be explicit in the participant information sheet.

Potential participants will be informed that they can stop participating at any time and request that their data be withdrawn without providing a reason. They will also be informed that data submitted to Qualtrics will not be withdrawn but data will be removed from study datasets and excluded from the research, subject to requests being received prior to analysis. Analysis dates will be explicitly stated in the participant information sheet and consent form.

All enquiries about research and information pertaining to eligible participants included in the research, will remain confidential within the research team. Relevant bodies responsible for research governance may also request access to ensure protection of participants and integrity of the research.

Personal data will be kept securely on password-protected computers/servers for just one year after the study end date; this is the projected PhD end date of the Chief Investigator who may require this information for data requests from regulatory bodies. Deidentified study data will be retained for a period of 10 years.

Interviews will be conducted via Zoom and recorded using a password- protected Dictaphone. Transcriptions of the interviews will be kept securely on password-protected computers/servers, with original voice recordings deleted on completion of the project. Zoom meetings themselves will NOT be video recorded.

Data from questionnaires completed on Qualtrics will be pseudo-anonymised by use of ID codes and kept separate from identifying consent forms, making them anonymous for all intents and purposes. The research team will not seek to identity participants from responses, except in exceptional circumstances, for example if significant risk to individuals is identified, or where consent for a given response is called into question.

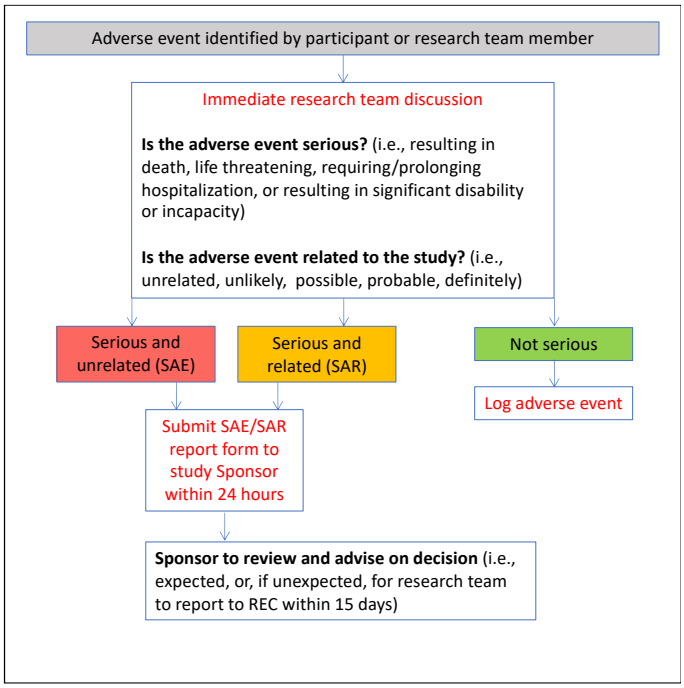
All published data and supplementary materials will be anonymous.

All participants will be debriefed by Qualtrics message or letter after each round of questionnaires.

11 Discussion of practical and operational issues

A recent systematic review of randomised controlled trials comparing MBIs with controls found limited evidence of adverse events that were mostly unrelated to the intervention (Wong et al., 2018). Most studies did not monitor adverse events. Consequently, risk of adverse events is low but not unheard of, while reporting practices need to improve.

Our proportionate response to any adverse events observed will be to report them and disseminate knowledge of observed risks. The following process will be followed if an adverse event is reported:



12 Schedule of events: Project timetable

Permission to commence this study will be sought from the Health Research Authority, with a view to starting recruitment and data collection in September 2022. PPI involvement with healthcare staff will be sought for the entirety of the project and beyond (e.g., involvement in research dissemination).

September 2022
Six months will be allotted to informed consent procedures, enrolment, baseline questionnaires in Qualtrics. Meanwhile, three months will be allotted to optional Zoom interviews.

December 2022
Transcribing and thematic analysis of interviews will be allotted three months. Six months will be allotted to 3-month questionnaires in Qualtrics.

January 2023
Six months will be allotted to 6-month questionnaires in Qualtrics.

September 2023
Quantitative analyses will run for four months.

January 2024
Dissemination of findings will begin from January 2024. A second-year PhD talk will also be given on this project in October 2023 to discuss study progress but not its findings.

13 Projected outputs and dissemination

Findings from this study will contribute to a PhD thesis, with publication in peer-reviewed journals and poster presentations at conferences also anticipated. Intellectual property rights will be held by the University of Sussex.

14 Plans for translation

This study will fill important gaps in the literature, previously outlined in the background section of this protocol, and thus help to build a more sophisticated evidence-base for MBIs in healthcare staff. Better knowledge of dose response will help to establish if stress (and secondary outcomes) differ by dose and thus whether more mindfulness is actually better, while improved knowledge of engagement factors will help to determine what steers engagement and thus which aspects can be titrated. Moreover, exploration of social identification with mindfulness should help to establish if there is any significance of group for staff engagement with MBIs.

Publication in peer reviewed journals will help to reach healthcare staff and managers who might be considering mindful practices to address important needs, including but not limited to stress reduction. Such publications will likely influence policy, leading to more considered and targeted recommendations at the national level going forward. Additional influence will be exerted in poster presentations/conferences.

There may be a positive effect for patients who are dependent on healthy, functioning healthcare staff for their care.

Synthesis of this research with other research, perhaps in future meta-analyses, should further help to increase power to detect small but important effects and thus further contribute to this emerging evidence base.

The project will also feed directly into subsequent projects by the present research team, further supporting our drive to optimise mindfulness in healthcare. Estimated dissemination time will run from January-September 2024.

15 Gantt Chart

	Mar 22	Apr 22	May 22	Jun 22	Jul 22	Aug 22	Sep 22 **Start (1st)**	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23
PPI												
Recruitment												
Baseline measures												
Interviews												
Transcribing												
Thematic analysis												
3-month measures												
6-month measures												
Quantitative analysis												
Dissemination (ongoing)												

Continued…	Mar 23	Apr 23	May 23	Jun 23	Jul 23	Aug 23	Sep 23 **End (28th)**	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24
PPI												
Recruitment												
Baseline measures												
Interviews												
Transcribing												
Thematic analysis												
3-month measures												
6-month measures												
Quantitative analysis												
Dissemination (ongoing)												

16 Appendices

16.1 Participant information sheet

UNIVERSITY OF SUSSEX

PARTICIPANT INFORMATION SHEET

A longitudinal mixed-methods study of
MINDfulness *A*nd *R*esponse *I*n *S*taff *E*ngagers (NHS)

MINDARISE

IRAS ID: 313225

This participant information sheet tells you everything you need to know about the MIND*ARISE* study. Please read the contents carefully and feel free to refer questions to us (the research team at the University of Sussex) using the contact details provided at the end of this document.

WHAT IS THE STUDY ABOUT?

Many people agree that healthcare staff deserve support with their health and well-being. Healthcare staff are one of the most stressed workforces in the country, and this was the case even before COVID-19. While there is no single solution to such a complex problem, it has been suggested that mindfulness may help.

Mindfulness is "awareness that arises by paying attention, on purpose, in the present moment, and non-judgementally" (Kabat-Zinn, 2013). In this study, we welcome participants who practice mindfulness, or previously practiced mindfulness, either formally or informally:

- *Formal practice*: this refers to mindful meditation practices that are taught and/or learnt, such as body scan, sitting practice, breathing space (planned or responsive), mindful movement or other mindfulness meditation.
- *Informal practice*: involves intentionally bringing mindfulness to daily routines/activities, such as walking, eating, or washing dishes, rather than setting time aside for formal meditation practice.

This study seeks to recruit healthcare staff with any experience of mindfulness (i.e., at any level and through any format). Examples might include using a digital app like Headspace, attending a short mindfulness course or group, or lone practices when out and about. Don't worry if you barely practice, or think of yourself as an amateur, or haven't practiced for a very long time. This is about capturing reality for healthcare staff, to see if mindfulness might present a pragmatic solution.

We aim to explore how much healthcare staff with experience of mindfulness currently practice and how this relates to their stress, burnout, mental health and well-being over time, but also their compassion for self and others. In addition, we will be looking at what helps their practice. What gets in the way of practicing? And how does the way staff identify with mindfulness influence practice?

Whatever your experience of mindfulness, it is invaluable to our research and could ultimately aid recommendations that influence policy on mental health and well-being support for healthcare staff.

WHY HAVE YOU BEEN APPROACHED ABOUT THIS STUDY?

Participants will need to meet the following criteria:

- Currently practicing or previously practiced mindfulness, either formally or informally, at any level of experience
- Age 18 and over
- Healthcare staff, e.g., nurse, nursing assistant, doctor, pharmacist, manager, social worker, psychologist, occupational therapist, porter, administrator, medical/nursing students, or non-patient-facing role. (These are just examples. We accept all healthcare roles, including people working in a voluntary capacity)
- Currently employed by an NHS Trust or Primary Care Service in England (full-time, part-time or voluntary)

- Not currently on long-term sickness absence (i.e., 4+ weeks of sickness)
- Sufficiently able to read and understand questions written in English to be able to answer these questions
- Have access to email and a computer or suitable electronic device (this includes personal devices/computers). Alternatively, you will be willing to request paper copies of documentation by phone.

MUST YOU TAKE PART?

Your participation is entirely voluntary. You are free to contribute as much or as little as you wish to the study, and/or withdraw from the study at any stage should you so wish, without providing a reason.

MUST YOU INFORM YOUR MANAGER?

It is up to you whether you wish to inform your manager about your participation in this study. If you choose to complete the questionnaires at work, you may need to do this with the agreement of your manager.

WHAT HAPPENS IF YOU DO DECIDE TO TAKE PART?

The study runs over six months and is relatively easy to complete. There is no attendance requirement. If happy and willing, you complete a set of questionnaires at the outset, then again at three months, then again at six months.

The study is being hosted on the online platform, Qualtrics. The first questionnaire should take no more than 45 minutes. Follow-up questionnaires are shorter (about 30 minutes), totalling 1 - 2 hours for the entire study. Links to these surveys will be sent to your nominated email address. Because some of the questionnaire links will be facilitated by the research team and some automated within Qualtrics, you should expect to receive relevant emails from mindarise@sussex.ac.uk and Qualtrics.

Between 12 and 20 participants will also be interviewed on a first-consenting first-interviewed basis to help us explore identity factors that might influence engagement with mindfulness. Interviews will last no more than one hour and will be carried out remotely via Zoom. Zoom interviews will NOT be recorded via video. A password-protected Dictaphone will record spoken interviews. If you'd rather participate in the questionnaire part of the research only, that's completely fine, you can decide not to opt into this optional interview.

WHAT IF YOU DON'T HAVE A COMPUTER?

You may request paper copies of documentation to be posted to you by contacting the R&D department on this phone number or email address:

Phone: 0300 304 0088
askaboutresearch@sussexpartnership.nhs.uk

If you choose the postal option, all forms will be sent by the Chief Investigator. Stamp-addressed envelops will be sent for the consent form and questionnaires to be returned separately. You may also receive reminders in line with the three-monthly time-frame.

ARE THERE BENEFITS IF YOU TAKE PART?

By joining this study, you will be contributing to active research in an understudied area. This could lead to future recommendations that influence policy and further help to support your NHS colleagues. You will also be offered the chance to enter a prize draw and win one of five £50 Amazon gift vouchers (conditional on completing all three questionnaires).

While mindfulness is associated with widely-reported benefits to mental health and well-being, for example when helping with stress, anxiety, depression, such benefits will not be attributable to this study

ANY POSSIBLE RISKS OF TAKING PART?

We do not anticipate any additional risks to taking part.

While there are potential risks associated with mindfulness that you might not already know about, these will not be attributable to the current study. Mindfulness isn't easy and those who do practice may at times feel frustrated or bored. It is feasible that centring your attention on painful experiences could be distressing or emotionally taxing.

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
- Your NHS Trust/ Clinical Commissioning Group (CCG)
- Your team/ department/ GP surgery
- Your date of birth
- Your email address

People will use this information to do the research or to check your records to make sure that the research is being done properly (e.g., regulatory authorities at the University of Sussex (the Sponsor), Sussex Partnership NHS Foundation Trust (the study host), your employing organisation, and the Health Research Authority. 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 also ask for details of your sex, gender, age, ethnicity, marital status, sexual orientation, pregnancy status, disability, and religious beliefs to compare results across groups. You can 'prefer not to say' at any point. We will keep all information about you safe and secure. Once we have finished the study, we will keep some of the data so we can check the results. We will write our reports in a way that no-one can work out that you took part in the study.

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 keep information about you that we already have.
- We need to manage your records in specific ways for the research to be reliable. This means that we won't be able to let you see or change the data we hold about you.
- If you agree to take part in this study, you will have the option to take part in future research using your data saved from this study. Data will be stored in the Sponsor's data repository for 10 years.

- It will not be possible to retract data already submitted electronically to Qualtrics, but you can request to withdraw questionnaire data from datasets and ensure it does not form a part of our research any time before **September 28th 2023.**
- You can request to withdraw interview data any time before **December 1st 2022**.

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/
- by sending an email to mindarise@sussex.ac.uk.
- The UoS Zoom platform's privacy notice can be found here: Zoom Privacy Policy.

WHAT WILL HAPPEN WITH THE RESULTS FROM THIS STUDY?

Results from this study will contribute to reports/articles for publication and form part of the Chief Investigator's PhD thesis. Published data and supplementary materials will be anonymous in the public domain and will be archived and retained for open access. Results will also be presented and discussed at talks and conferences. You may choose to receive feedback on these results via email or post by ticking the relevant box on your consent form.

HOW IS THIS RESEARCH FUNDED?

This research is funded by the Economic and Social Research Council (ESRC) via the South-East Network for Social Sciences (SeNSS Collaborative Studentship). The Chief Investigator is completing a PhD at the University of Sussex, supervised by Professor Kate Cavanagh and Professor Clara Strauss.

WHO HAS APPROVED THIS STUDY?

Approvals have been granted by the Pre-Sponsorship Review Panel (PSRP), the University of Sussex Sponsorship Sub-Committee (SSC), and the Health Research Authority (HRA).

WHAT ABOUT INSURANCE?

You should know that the University of Sussex has insurance in place to cover its legal liabilities in respect of this study.

WHO DO YOU CONTACT WITH QUERIES ABOUT THIS STUDY?

For any queries regarding the research, please email the Chief Investigator directly:

Daniel Cullen
Doctoral Researcher and Chief Investigator for MIND*ARISE*
mindarise@sussex.ac.uk

A response will be provided within two working days. You are also free to contact:

Professor Kate Cavanagh
kate.cavanagh@sussex.ac.uk

Professor Clara Strauss
clara.strauss@nhs.net

Should you have any complaints that you cannot, or prefer not, to address to the above contacts, please contact Dr Antony Walsh, Research Governance Officer: researchgovernance@sussex.ac.uk

If you experience any issues with your well-being, we recommend you contact your GP for advice, and/or your local psychological therapy service. For further information or support, you might also consider contacting the mental health charity, Mind:

Mind Infoline: 0300 123 3393
Email: info@mind.org.uk

Or alternatively:

Confidential staff support line (operated by the Samaritans): 0800 069 6222
Text: FRONTLINE to 85258

Thank you for taking the time to read this information sheet.

Please click the blue arrow below to go to the consent form.

16.2 Consent form (adaptable to paper format)

CONSENT FORM

A longitudinal mixed-methods study of
MINDfulness *A*nd *R*esponse *I*n *S*taff *E*ngagers (NHS)

MIND*ARISE*

IRAS ID: 313225

Please insert your details below:

Full Name: [open response]

Your NHS Trust/ CCG: [open response]

Your NHS team/ department/ GP surgery: [open response]

Date of Birth: [open response]

Email address (or postal address if you will not be completing questionnaires electronically): [open response]

Please read the following terms and conditions for participation in this study. If you agree and consent to participate, please tick YES next to each item.

	YES	NO
• I confirm I have read and understood the participant information sheet for the MIND*ARISE* study and have been given the opportunity to ask any questions I may have.	☐	☐
• I confirm that I meet the eligibility criteria detailed in the participant information sheet for the MIND*ARISE* study.	☐	☐
• I confirm I have taken all the time I need to decide about participating in this study.	☐	☐
• I understand that participation is voluntary, that I may choose not to share information and stop participating at any time, without providing a reason, but that information I do give will be retained unless I request for it to be withdrawn.	☐	☐
• I understand that questionnaire data submitted anonymously via Qualtrics cannot be withdrawn, but my data can be removed from the research team's dataset. Questionnaire data may be withdrawn up to but not exceeding the first day of analysis (28th September 2023). For interview data, this date is earlier (1st December 2022).	☐	☐
• I understand that my data will only be used for specified purposes and will be managed according to Data Protection legislation. The University's Privacy Notice has further information on how the University uses personal data in its research.	☐	☐
• I understand that my data will be de-identified with codes and kept separate from my consent form and identifiable data on password-protected cloud-based systems (Box and OneDrive) approved by the University of Sussex.	☐	☐
• I understand that my responses are confidential, and that no disclosure will lead to identification of any individual in project reports, by anyone.	☐	☐
• I give permission for my identifying and de-identified data to be reviewed by relevant regulatory authorities at the University of Sussex (the Sponsor), Sussex Partnership NHS Foundation Trust (the study host) and my employing organisation, where necessary.	☐	☐

- I give permission for findings to be presented at talks and conferences and submitted for publication, including anonymous quotations from research interviews, if relevant. ☐ ☐
- I agree to take part in this study. ☐ ☐

OPTIONAL ITEMS:

- (OPTIONAL) I agree to a one-hour research interview via Zoom and I am aware that interviews will be audio-recorded and temporarily stored for transcription. ☐ ☐
- (OPTIONAL) I give permission for de-identified data to be shared with other research teams and made publicly available for future analysis. ☐ ☐
- (OPTIONAL) I wish to be entered into the prize draw to win a £50 Amazon gift voucher and understand that winners will be randomly selected from the pool of participants who completed all three questionnaires. ☐ ☐
- (OPTIONAL) I wish to receive feedback on the results of this study (to be sent to the email address or postal address provided). ☐ ☐

For any queries about this consent form, please email the Chief Investigator directly and take all the time you need before coming to a decision:

Daniel Cullen
Doctoral Researcher and Chief Investigator for MINDARISE
University of Sussex (the Sponsor)
mindarise@sussex.ac.uk

When you are ready to continue, please click the blue arrow below to submit this consent form.

Thank you for filling in this consent form. An email has been triggered and sent to your nominated email address inviting you to complete the first round of

questionnaires. There, you will also be presented with a printout of this consent form, which we kindly ask you to download for your own records. If you have not received this email within two hours, please contact us for assistance:

mindarise@sussex.ac.uk

16.3 *Recruitment poster/leaflet/email advert for NHS workplaces*

Do you currently practice mindfulness *or* have you ever practiced mindfulness?

MINDARISE

The University of Sussex is carrying out a new study, MIND*ARISE*, to see if mindfulness can help with some of the stress that NHS staff are currently experiencing.

We welcome NHS staff members who have ever practiced mindfulness, even if that means you don't practice currently.

Maybe you've attended a mindfulness class or course. Maybe you use a mindfulness app like Headspace. Maybe you read a book on mindfulness and intentionally bring mindfulness into your daily routines.

We need to find out what NHS staff are already doing with mindfulness, whether mindfulness actually helps staff on a range of outcomes, and what can be optimised to help overcome the hurdles that staff are currently facing.

To keep it simple, we are asking participants to complete a few online questionnaires at three separate time-points over six months, with the additional option of a remote Zoom interview for those who are keen.

Participants who do answer all three questionnaires will be given the chance to win one of five £50 amazon gift vouchers. You will not need to take any time off work and times are flexible!

If you would like more information on this study, please follow this link to read the participant information sheet and consent form on the online platform, Qualtrics, or scan the QR code at the bottom:

* Insert Qualtrics link *

If you do not have access to a computer, you may request paper copies of documentation to be posted to you by contacting the R&D department:

askaboutresearch@sussexpartnership.nhs.uk
Phone: 0300 304 0088

All participation is voluntary, and you can always back out if it's not for you. In any case, we greatly appreciate you taking the time to read this advert.

Thank you!

Daniel Cullen
Doctoral Researcher and Chief Investigator for MIND*ARISE*

mindarise@sussex.ac.uk

Supervised by Professor Clara Strauss and Professor Kate Cavanagh

Scan me for details!

16.4 *Example social media posts*

Do you have *any* experience of mindfulness meditation? Are you a member of healthcare staff in England? Complete the "MindArise" study and enter our prize draw to win one of five £50 Amazon gift vouchers. For more information, please click **here**.

The "MindArise" study is now open to healthcare staff in England with *any* experience of mindfulness meditation. Help us to explore the potential of mindfulness for enhancing staff wellbeing in the workplace. For more information, please click **here**.

16.5 Welcome to the study email (adaptable to paper format)

WELCOME TO THE STUDY:

A longitudinal mixed-methods study of MINDfulness *A*nd *R*esponse *I*n *S*taff *E*ngagers (NHS)

(Important: Here is your unique study ID. Please keep this somewhere safe as you will need to enter this when completing the questionnaires: _____)

You may now proceed to the questionnaires using the link provided here:

[Baseline Questionnaire link]

If you encounter any problems, please contact us at mindarise@sussex.ac.uk or ask for support from the R&D department at Sussex Partnership NHS Foundation Trust: 0300 304 0088

Thank you and kind regards,

Daniel Cullen
Doctoral Researcher and Chief Investigator for MIND*ARISE*

16.6 *Header for baseline questionnaires (adaptable to paper format)*

WELCOME TO THE STUDY:

A longitudinal mixed-methods study of MINDfulness And Response In Staff Engagers (NHS)

MINDARISE

Thank you so much for taking the time to complete these questionnaires!
If you encounter any problems, please contact us
at mindarise@sussex.ac.uk or ask for support from the R&D department
at Sussex Partnership NHS Foundation Trust: 0300 304 0088

16.7 *Baseline debrief message (adaptable to paper format)*

Dear participant,

Thank you for completing the first round of questionnaires for our study:

A longitudinal mixed-methods study of
MINDfulness *A*nd *R*esponse *I*n *S*taff *E*ngagers (NHS)

MIND*ARISE*

An email containing the link to the second round of questionnaires will be sent to your registered email address via Qualtrics in three months' time. You do not need to do anything else for this study prior to this email.

If you experience any issues with your well-being in the meantime, please do contact your GP for advice. For further information or support, you might also consider contacting the mental health charity, Mind:

Mind Infoline: 0300 123 3393
Email: info@mind.org.uk

Or alternatively:

Confidential staff support line (operated by the Samaritans):
0800 069 6222
Text: FRONTLINE to 85258

If you have any questions relating to the study, you are also welcome to contact the study team at any time:

mindarise@sussex.ac.uk
A response will be provided within two working days.

Thank you once again!

Kind regards,

Daniel Cullen
Doctoral Researcher and Chief Investigator for MIND*ARISE*

To download a copy of this information for your records, please click here:
MindArise debrief (1)

16.8 *3-month questionnaires invitation email/reminder (adaptable to paper format)*

Dear participant,

We hope you are doing well since you joined our study:

MIND*ARISE*

It's been 3 months since you completed the baseline questionnaires.

Below is the link to your second set of questionnaires. Please would you be so kind as to follow this link to complete these questionnaires as soon as possible. Estimated completion time is just 30 minutes.

*insert link to questionnaires *

(You will also need your unique ID code:

* unique ID code*)

If for any reason you encounter any problems, please drop me an email and I will be happy to locate this for you.

mindarise@sussex.ac.uk
A response will be provided within two working days.

Thank you once again! You're over the half-way line.

Kind regards,

Daniel Cullen
Doctoral Researcher and Chief Investigator for MIND*ARISE*

16.9 Header for 3-month questionnaires (adaptable to paper format)

WELCOME BACK TO THE STUDY:

A longitudinal mixed-methods study of MINDfulness And Response In Staff Engagers (NHS)

MINDARISE

We are very grateful to you for taking the time to complete a second round of questionnaires! If you encounter any problems, please contact us at mindarise@sussex.ac.uk or ask for support from the R&D department at Sussex Partnership NHS Foundation Trust: 0300 304 0088

16.10 3-month debrief message (adaptable to paper format)

Dear participant,

Thanks so much for continuing to help us with this study:

MIND*ARISE*

You've now completed the second round of questionnaires. As previously, in three months' time you will receive an email containing the link to the third and final round of questionnaires via Qualtrics. You do not need to do anything else for this study prior to this email.

Again, if you experience any issues with your well-being in the meantime, please do contact your GP for advice. For further information or support, you might also consider contacting the mental health charity, Mind:

Mind Infoline: 0300 123 3393
Email: info@mind.org.uk

Or alternatively:

Confidential staff support line (operated by the Samaritans):
0800 069 6222
Text: FRONTLINE to 85258

If you have any questions relating to the study, you are also welcome to contact the study team at any time:

mindarise@sussex.ac.uk
A response will be provided within two working days.

The team is very grateful for your continued participation!

Kind regards,

Daniel Cullen
Doctoral Researcher and Chief Investigator for MIND*ARISE*

To download a copy of this information for your records, please click here:
MindArise debrief (2)

16.11 *6-month questionnaires invitation email/ reminder (adaptable to paper format)*

Dear participant,

Thank you for sticking with this study for the full duration:

MIND*ARISE*

It's been 3 months since you completed the second set of questionnaires.

Below is the link to your third and final set of questionnaires. Please would you be so kind as to follow this link to complete these questionnaires as soon as possible. Estimated completion time is just 30 minutes.

* insert link to questionnaires*

(You will also need your unique ID code:

* unique ID code*)

Please do contact us if you encounter any problems and we will be more than happy to help:

mindarise@sussex.ac.uk
A response will be provided within two working days.

We're so grateful to you for your collaboration.

Kind regards,

Daniel Cullen
Doctoral Researcher and Chief Investigator for MIND*ARISE*

16.12 Header for 6-month questionnaires (adaptable to paper format)

WELCOME BACK TO THE FINAL ROUND OF QUESTIONNAIRES FOR THIS STUDY:

A longitudinal mixed-methods study of MINDfulness And Response In Staff Engagers (NHS)

MINDARISE

We are immensely grateful to you for taking the time to complete a third round of questionnaires! If you encounter any problems, please contact us at mindarise@sussex.ac.uk or ask for support from the R&D department at Sussex Partnership NHS Foundation Trust: 0300 304 0088

16.13 6-month debrief message (adaptable to paper format)

UNIVERSITY OF SUSSEX

DEBRIEF FORM

A longitudinal mixed-methods study of MINDfulness *A*nd *R*esponse *I*n *S*taff *E*ngagers (NHS)

MINDARISE

Dear participant,

Thank you so much for agreeing to take part in our study. Your contribution has been invaluable to our research.

As stated originally in the participant information sheet, the purpose of this study was to assess how much healthcare staff currently practice mindfulness and how this relates to their stress, mental health and well-being over time. We also wanted to see if mindfulness reduced burnout, and whether it improves compassion for oneself and others.

Previous research suggests that mindfulness is helpful for stress reduction and an array of other health benefits. We appreciated the urgent need to help staff with their stress NOW. We were particularly interested in finding out if more mindfulness is actually better for outcomes, since previous research is mixed in this regard. We also wanted to find out what factors stand to increase engagement with mindfulness, and what barriers might stand in the way.

We tested a new tool that we hope will be helpful for measuring burnout. We also conducted exploratory work to see if identification with staff groups and mindfulness groups was complementary or conflicting when it comes to psychological engagement. We hope that the results from these analyses will be fruitful for future researchers.

Analysis of interview data has already begun, with analysis of questionnaire data due to begin in September. After this, we will be presenting our findings at talks and conferences, as well as submitting articles for publication. Your data will remain completely anonymous of course. On behalf of the research team, we would like to extend our sincere thanks and wish you all the very best with your work and well-being in the future. We hope you have enjoyed your involvement with this research

and have not encountered any negative experiences. If you have experienced any issues with your well-being, this is a reminder that we generally recommend you contact your GP for advice. For further information or support, you might also consider contacting the mental health charity, Mind:

Mind Infoline: 0300 123 3393
Email: info@mind.org.uk

Or alternatively:

Confidential staff support line (operated by the Samaritans):

0800 069 6222
Text: FRONTLINE to 85258

For any other questions relating to the research, please feel free to contact me and I will be happy to help.

Yours sincerely,

Daniel Cullen
Doctoral Researcher and Chief Investigator for MIND*ARISE*
mindarise@sussex.ac.uk

A response will be provided within two working days.
You are also free to contact:

Professor Kate Cavanagh
kate.cavanagh@sussex.ac.uk

Professor Clara Strauss
clara.strauss@nhs.net

To download a copy of this information for your records, please click here:
MindArise debrief (3)

16.14 Online interview invitation email (adaptable to paper format)

Dear participant,

Thank you so much for completing the second round of questionnaires and for volunteering to be interviewed at the beginning of this study:

MIND*ARISE*

Please would you be so kind as to follow this link to Calendly, where you may choose a convenient interview time:

* insert Calendly link*

A new link will be sent to you containing our Zoom meeting details on receipt of your confirmation of preferred date/time.

Please do not enter any identifiable information on Calendly, except for your email address. You should also enter this number instead of your name:

* assigned interview number *

As stated in the participant information sheet, the meeting will not be filmed on Zoom. Rather, a Dictaphone will be used to record your voice only, so that we can transcribe the content of our interview. The voice recording is then deleted.

We would be grateful if you could select your preference as soon as possible, to enable us in meeting everyone's preferences.

Kind regards,

Daniel Cullen
Doctoral Researcher and Chief Investigator for MIND*ARISE*

16.15 *Additional reminder email for questionnaires (adaptable to paper format)*

Dear Participant,

Thank you for consenting to participate in this study:

MIND*ARISE*

We recently sent you the latest set of questionnaires, although we have yet to receive these electronically.

Here is the link to the latest set of questionnaires:

* insert link to questionnaires *

Your information is extremely valuable to us, whether you are still practicing mindfulness or not. Please would you be so kind as to follow this link and complete the questionnaire.

(You will also need your unique ID code:

* unique ID code*)

Thank you once again. We hope you found this reminder helpful.

Kind regards,

Daniel Cullen
Doctoral Researcher and Chief Investigator for MIND*ARISE*

16.16 Reminder email for online interview (adaptable to paper format)

Dear Participant,

Thank you for consenting to participate in this study:

MIND*ARISE*

You previously indicated that you would be happy to be approached to engage in a 1-hour interview. We were wondering if now might be a good time to re-arrange this interview.

Your information is extremely valuable to us, whether you are still practicing mindfulness or not.

Please could you follow this Calendly link to let me a know if you would still like to interview and, if so, what date/time is preferable:

* insert Calendly link *

Please do not enter any identifiable information on Calendly, except for your email address. You should also enter this number instead of your name:

* assigned interview number *

If you encounter any problems, you may also contact us by email and I will be happy to complete the Calendly process on your behalf:

mindarise@sussex.ac.uk
A response will be provided within two working days.

Thank you once again. We hope you found this reminder helpful.

Kind regards,

Daniel Cullen
Doctoral Researcher and Chief Investigator for MIND*ARISE*

16.17 Prize draw winner email (adaptable to paper format)

Dear participant,

Thank you once again for getting involved with our research and completing all three online questionnaires for MindArise.

Previously, on your informed consent form, you selected the option to be entered into our prize draw to win a £50 amazon gift voucher.

I am delighted to inform you that you have won! To claim your prize, please contact us at your earliest convenience:

mindarise@sussex.ac.uk
A response will be provided within two working days.

Kind regards,

The MindArise Team

16.18 *Bespoke Mindfulness Questions (Adapted from Birtwell et al., 2019)*

The following questions relate to any mindfulness practice you have undertaken in the PREVIOUS THREE MONTHS ONLY.

Mindfulness is "awareness that arises by paying attention, on purpose, in the present moment, and non-judgementally" (Kabat-Zinn, 2013). In this study, we welcome participants who practice mindfulness, or previously practiced mindfulness, either formally or informally:

- *Formal practice*: this refers to mindful meditation practices that are taught and/or learnt, such as body scan, sitting practice, breathing space (planned or responsive), mindful movement or other mindfulness meditation.
- *Informal practice*: involves intentionally bringing mindfulness to daily routines/activities, such as walking, eating, or washing dishes, rather than setting time aside for formal meditation practice.

First, let's consider formal mindfulness practice:

1. Have you engaged in a formal practice of mindfulness meditation over the last 3 months? (e.g., body scan, sitting practice, breathing space, mindful movement, or other mindfulness meditation)

- ○ Yes
- ○ No

2. On average, how many days each week did you engage in a formal practice of mindfulness meditation?

- ○ One day per week
- ○ Two days per week
- ○ Three days per week
- ○ Four days per week
- ○ Five days per week
- ○ Six days per week
- ○ Every day
- ○ Less than one day per week (please specify)

[optional free response]

3. On days when you engaged in a formal practice of mindfulness meditation, how many times did you practice per day on average?

[Dropdown list: 1-20/ not applicable]

4. How many minutes on average did one practice session last?

[Drop down list: 1 – 200/ not applicable]

Now let's consider informal mindfulness practice:

5. Have you practiced mindfulness informally over the last 3 months? (That is, intentionally bringing mindfulness to daily routines/activities, such as walking, eating, or washing dishes, rather than setting time aside for formal meditation practice)

- ○ Yes
- ○ No

6. On average, how many days each week did you practice mindfulness informally?

- ○ One day per week
- ○ Two days per week
- ○ Three days per week
- ○ Four days per week
- ○ Five days per week
- ○ Six days per week
- ○ Every day
- ○ Less than one day per week (please specify)

[optional free response]

7. On days when you practiced mindfulness informally, how many times did you practice per day on average?

[Dropdown list: 1-20/ not applicable]

Now let's consider all of your mindfulness practice, including both formal and informal practices:

8. If you attended any mindfulness retreats or away day/s over the least 3 months, approximately how many hours was this in total?

[Drop-down list: 1-500 hours/ not applicable]

9. How was your mindfulness practice best supported over the last 3 months? (If more than one option applies, please select the option that you perceive as most supportive)

- ○ Not applicable
- ○ Self-guided (i.e., without guidance from anyone or anything)
- ○ Audio guide (e.g., digital app, website, short videos, CD)
- ○ Book, instruction manual or other reading materials
- ○ Practice with another person but not a group (e.g., with a work colleague, partner, family member, friend, or in practice with a therapist)
- ○ Practice in an in-person group *with* guidance (i.e., verbal instruction from a teacher in a room)
- ○ Practice in an in-person group *without* guidance (i.e., silent meditation by oneself with others present)
- ○ Practice in an online group *with* guidance (i.e., verbal instruction from a teacher in a virtual space)
- ○ Practice in an online group *without* guidance (i.e., silent meditation by oneself with others present virtually)
- ○ Other (please specify)

[optional free response]

10. Where has most of your mindfulness practice taken place over the last 3 months?

- ○ Not applicable
- ○ At my home/ another person's home
- ○ At work
- ○ Commuting between places
- ○ In public spaces
- ○ In a classroom or centre for mindfulness
- ○ In a place of worship
- ○ Other (please specify)

[optional free response]

11. Which set of mindfulness practices did you do most regularly over the last 3 months? (Select all that apply)

- ○ Not applicable
- ○ Body scan
- ○ Sitting practice (mindfulness of breath and body only)
- ○ Sitting practice (mindfulness of breath, body, sounds, thoughts etc)
- ○ Mindful movement (other than walking)
- ○ Mindful walking
- ○ Planned 3-step breathing space
- ○ Responsive 3-step breathing space
- ○ Intentionally bringing mindfulness to daily routines and activities
- ○ Interpersonal mindfulness (in conversation or relationships)
- ○ Other (please specify)

[Optional free response]

12. How would you describe your experience of these practices over the last 3 months? (Select all that apply)

- ○ Not applicable
- ○ Easy
- ○ Difficult
- ○ Enjoyable
- ○ Boring
- ○ Practice reluctantly
- ○ Interesting
- ○ Irritating
- ○ Relaxing
- ○ It is what it is
- ○ Blissful

- ○ Practice willingly
- ○ OK
- ○ Other (please specify)

[Optional free response]

13. What was your main reason for practicing mindfulness over the last 3 months?

- ○ Not applicable
- ○ To improve my relationships with other people
- ○ To improve the quality of my work
- ○ To manage my physical pain
- ○ Because I'm stressed
- ○ Because I've been feeling anxious or depressed
- ○ Because I'm burnt out
- ○ As a hobby or leisure activity
- ○ Because it makes me feel good
- ○ Because of advice, information or evidence
- ○ To gain support from other people
- ○ To increase my social network
- ○ Other (please specify)

[Optional free response]

14. Have you been offered any kind of mindfulness training or practice in the workplace over the last 3 months? (If yes, could you please provide more detail about this mindfulness training or practice in the workplace?)

- ○ Yes

[Optional free response]

○ No

15. Have you completed an eight-week mindfulness course before as a participant? (MBCT, MBSR etc..)

○ Yes

○ No

16. Maybe you stopped practicing or aren't practicing as regularly as you used to, or as you would like. If so, what would you say was the main reason for disengaging over the last 3 months?

○ Not applicable

○ Lack of time/ too busy

○ I didn't find it helpful

○ I felt worse during or after practice

○ Loss of support of the group setting

○ Hadn't formed a habit

○ I decided it wasn't for me

○ Loss of teacher support

○ Got out of the habit

○ Problems with my mental health or wellbeing

○ Other (please specify)

[Optional free response]

17. What was lacking that could have supported your mindfulness practice at work over the last 3 months? (If more than one option applies, please select the option that you perceive as potentially most supportive)

○ Nothing, I was fully supported at work

○ More group support

- ○ More teacher support
- ○ More mindfulness resources
- ○ Protected time in my schedule
- ○ More information on the benefits of mindfulness
- ○ More control over my situation
- ○ Other (please specify)

[Optional free response]

18. Approximately how many years ago did you first practice mindfulness?

[Drop-down list: 0 – 80]

19. Are you a trained mindfulness teacher?

- ○ Yes
- ○ No

20. Are you trained to teach the eight-week course (MBCT, MBSR etc..)

- ○ Yes
- ○ No

16.19 Perceived Stress Scale (Cohen et al., 1983)

The questions in this scale ask about your feelings and thoughts during the last month. In each case, you will be asked to indicate how often you felt or thought a certain way.

0 = Never 1 = Almost Never 2 = Sometimes 3 = Fairly Often 4 = Very Often

1. In the last month, how often have you been upset because of something that happened unexpectedly?	**0**	**1**	**2**	**3**	**4**
2. In the last month, how often have you felt that you were unable to control the important things in your life?	**0**	**1**	**2**	**3**	**4**
3. In the last month, how often have you felt nervous and "stressed"?	**0**	**1**	**2**	**3**	**4**
4. In the last month, how often have you felt confident about your ability to handle your personal problems?	**0**	**1**	**2**	**3**	**4**
5. In the last month, how often have you felt that things were going your way?	**0**	**1**	**2**	**3**	**4**
6. In the last month, how often have you found that you could not cope with all the things that you had to do?	**0**	**1**	**2**	**3**	**4**
7. In the last month, how often have you been able to control irritations in your life?	**0**	**1**	**2**	**3**	**4**
8. In the last month, how often have you felt that you were on top of things?	**0**	**1**	**2**	**3**	**4**
9. In the last month, how often have you been angered because of things that were outside of your control?	**0**	**1**	**2**	**3**	**4**
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	**0**	**1**	**2**	**3**	**4**

16.20 *Five Facet Mindfulness Questionnaire (Baer et al., 2008)*

Please use the 1 (never or very rarely true) to 5 (very often or always true) scale provided to indicate how true the below statements are of you. Select the number in the box to the right of each statement which represents your own opinion of what is generally true for you. For example, if you think that a statement is often true of you, select '4' and if you think a statement is sometimes true of you, select '3'.

	Never or very rarely true	Rarely true	Some -times true	Often true	Very often or always true
1. When I take a shower or a bath, I stay alert to the sensations of water on my body.	1	2	3	4	5
2. I'm good at finding words to describe my feelings.	1	2	3	4	5
3. I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.	1	2	3	4	5
4. I believe some of my thoughts are abnormal or bad and I shouldn't think that way.	1	2	3	4	5
5. When I have distressing thoughts or images, I "step back" and am aware of the thought or image without getting taken over by it.	1	2	3	4	5
6. I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.	1	2	3	4	5
7. I have trouble thinking of the right words to express how I feel about things.	1	2	3	4	5
8. I do jobs or tasks automatically without being aware of what I'm doing.	1	2	3	4	5
9. I think some of my emotions are bad or inappropriate and I shouldn't feel them.	1	2	3	4	5
10. When I have distressing thoughts or images I am able just to notice them without reacting.	1	2	3	4	5
11. I pay attention to sensations, such as the wind in my hair or sun on my face.	1	2	3	4	5
12. Even when I'm feeling terribly upset I can find a way to put it into words.	1	2	3	4	5
13. I find myself doing things without paying attention.	1	2	3	4	5
14. I tell myself I shouldn't be feeling the way I'm feeling.	1	2	3	4	5
15. When I have distressing thoughts or images I just notice them and let them go.	1	2	3	4	5

16.21 Maslach Burnout Inventory – HSS (Maslach, Jackson & Leiter, 1996)

Please read each statement carefully and decide if you ever feel this way about *your* job. If you have *never* had this feeling, select the number "0" (zero) in the space before the statement. If you have had this feeling, indicate *how often* you feel it by selecting the number (from 1 to 6) that best describes how frequently you feel that way.

How often:	0	1	2	3	4	5	6
	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day

How often 0-6	**Statements:**
1. _____	I feel emotionally drained from my work.
2. _____	I feel used up at the end of the workday.
3. _____	I feel fatigued when I get up in the morning and have to face another day on the job.
4._____	I can easily understand how my recipients feel about things.
5. _____	I feel I treat some recipients as if they were impersonal objects.
6. _____	Working with people all day is really a strain for me.
7. _____	I deal very effectively with the problems of my recipients.
8. _____	I feel burned out from my work.
9. _____	I feel I'm positively influencing other people's lives through my work.
10. _____	I've become more callous toward people since I took this job.
11._____	I worry that this job is hardening me emotionally.
12._____	I feel very energetic.
13._____	I feel frustrated by my job.
14._____	I feel I'm working too hard on my job.
15._____	I don't really care what happens to some recipients.
16._____	Working with people directly puts too much stress on me.
17._____	I can easily create a relaxed atmosphere with my recipients.
18._____	I feel exhilarated after working closely with my recipients.
19._____	I have accomplished many worthwhile things in this job.
20._____	I feel like I'm at the end of my rope.
21._____	In my work, I deal with emotional problems very calmly.
22._____	I feel recipients blame me for some of their problems.

16.22 *Copenhagen Burnout Inventory (CBI [work burnout subscale]; Kristensen et al., 2005)*

Please select how often/to what degree you agree or disagree with the following statements:

	Always or to a very high degree (100)	Often or to a high degree (75)	Sometimes or somewhat (50)	Seldom or to a low degree (25)	Never/ almost never or to a very low degree (0)
1. Is your work emotionally exhausting?					
2. Do you feel burnt out because of your work?					
3. Does your work frustrate you?					
4. Do you feel worn out at the end of the working day?					
5. Are you exhausted in the morning at the thought of another day at work?					
6. Do you feel that every working hour is tiring for you?					
7. Do you have enough energy for family and friends during leisure time?					

16.23 Sussex Burnout Scale (Strauss & Cavanagh, 2021)

Please indicate how frequently the statements below apply to you in relation to your job:

	(1) Rarely/ Never	(2) Less than once a month	(3) 1-3 times a month	(4) 1-3 times a week	(5) Every day/ almost every day
I have little or no energy at work or feel exhausted by my job					
I feel mentally distanced from my job or feel negative or cynical about my job					
I am less effective at my job than I could be					

16.24 *Patient Health Questionnaire for Depression and Anxiety (Kroenke et al., 2009)*

Over the last two weeks, how often have you been bothered by the following problems?

	Not at all	**Several days**	**More than half the days**	**Nearly every day**
Feeling nervous, anxious or on edge	0	1	2	3
Not being able to stop or control worrying	0	1	2	3
Feeling down, depressed or hopeless	0	1	2	3
Little interest or pleasure in doing things	0	1	2	3
TOTALS				

16.25 *Short Warwick-Edinburgh Mental Wellbeing Scale (SWEMWS; NHS Health Scotland, University of Warwick & University of Edinburgh, 2008)*

Below are some statements about feelings and thoughts.
Please select the answer that best describes your experience of each over the last 2 weeks.

STATEMENTS	None of the time	Rarely	Some of the time	Often	All of the time
I've been feeling optimistic about the future	1	2	3	4	5
I've been feeling useful	1	2	3	4	5
I've been feeling relaxed	1	2	3	4	5
I've been dealing with problems well	1	2	3	4	5
I've been thinking clearly	1	2	3	4	5
I've been feeling close to other people	1	2	3	4	5
I've been able to make up my own mind about things	1	2	3	4	5

16.26 *Sussex-Oxford Compassion Scales (Brief SOCS-S & Brief SOCS-O; Gu et al., 2020) * Questionnaires to appear non-consecutively*

Below are statements describing how you might relate to **yourself**. Please indicate how true the following statements are of you using the 5-point response scale (1 = Not at all true, 2 = Rarely true, 3 = Sometimes true, 4 = Often true, 5 = Always true). For example, if you think that a statement is often true of you, indicate '4'.

Note: In the below items, generic terms (e.g., 'upset', 'distress', 'suffering', struggling') are used to cover a range of unpleasant emotions, such as sadness, fear, anger, frustration, guilt, shame, etc.

Please provide an answer for each statement.

	Not at all true	Rarely true	Sometimes true	Often true	Always true
1. I understand that everyone experiences suffering at some point in their lives.	1	2	3	4	5
2. When I'm going through a difficult time, I feel kindly towards myself.	1	2	3	4	5
3. When I'm going through a difficult time, I try to look after myself.	1	2	3	4	5
4. I'm quick to notice early signs of distress in myself.	1	2	3	4	5
5. I connect with my own suffering without judging myself.	1	2	3	4	5

Below are statements describing how you might relate to **other people**. Please indicate how true the following statements are of you using the 5-point response scale (1 = Not at all true, 2 = Rarely true, 3 = Sometimes true, 4 = Often true, 5 = Always true). For example, if you think that a statement is often true of you, indicate '4'.

Note: In the below items, generic terms (e.g., 'upset', 'distress', 'suffering', struggling') are used to cover a range of unpleasant emotions, such as sadness, fear, anger, frustration, guilt, shame, etc.

Please provide an answer for each statement.

	Not at all true	Rarely true	Sometimes true	Often true	Always true
1. I understand that everyone experiences suffering at some point in their lives.	1	2	3	4	5
2. When someone is going through a difficult time, I feel kindly towards them.	1	2	3	4	5
3. When someone else is upset, I try to stay open to their feelings rather than avoid them.	1	2	3	4	5
4. I notice when others are feeling distressed.	1	2	3	4	5
5. When someone is going through a difficult time, I try to look after them.	1	2	3	4	5

16.27 Change Questionnaire (CQ - TIC; Miller & Johnson, 2008)

Please answer each of the following questions about your current views on practicing mindfulness.

1. I am trying to *practice mindfulness regularly*. (T) 0 1 2 3 4 5 6 7 8 9 10 Definitely Not Probably Not Maybe Probably Definitely
2. It is important for me to *practice mindfulness regularly*. (I) 0 1 2 3 4 5 6 7 8 9 10 Definitely Not Probably Not Maybe Probably Definitely
3. I am able to practice mindfulness regularly. (C) 0 1 2 3 4 5 6 7 8 9 10 Definitely Not Probably Not Maybe Probably Definitely

16.28 *Motivation for Mindfulness (adapted from Self-Regulation Questionnaire-Exercise [SRQ-E]; Ryan & Connell, 1989)*

There are a variety of reasons why people practice mindfulness regularly. Please indicate how true each of these reasons is for why you practice, or previously practiced, mindfulness.

1. Because I would feel bad about myself if I did not.
2. Because others would feel let down if I did not.
3. Because I enjoy practicing mindfulness.
4. Because I would feel like a failure if I did not.
5. Because I feel like it's the best way to help myself.
6. Because people would think I'm a lesser person if I did not.
7. Because I feel like I have no choice.
8. Because it is a challenge to accomplish my goal.
9. Because I believe practicing mindfulness helps me feel better.
10. Because it's fun.
11. Because I worry that I would affect relationships with others if I did not.
12. Because it feels important to me personally to accomplish this goal.
13. Because I feel guilty if I do not practice mindfulness regularly.
14. Because I want others to acknowledge what I am doing.
15. Because it is interesting to see my own improvement.
16. Because feeling emotionally healthier is an important value for me.

16.29 *Opening Minds Scale for Health Care Providers (OMS-HC-15; Kassam et al., 2012)*

These questions ask you to agree or disagree with a series of statements about mental illness. There is no correct answer. Please mark the box that best fits your opinion.
5-point Likert scale (fully disagree – fully agree)

1. I am more comfortable helping a person who has a physical illness than I am helping a person who has a mental illness.

2. If a colleague with whom I work told me they had a mental illness, I would be just as willing to work with him/her.

3. If I were under treatment for a mental illness I would not disclose this to any of my colleagues.

4. I would see myself as weak if I had a mental illness and could not fix it myself.

5. I would be reluctant to seek help if I had a mental illness.

6. Employers should hire a person with a managed mental illness if he/she is the best person for the job.

7. I would still go to a physician if I knew that the physician had been treated for a mental illness.

8. If I had a mental illness, I would tell my friends.

9. Despite my professional beliefs, I have negative reactions towards people who have mental illness.

10. There is little I can do to help people with mental illness.

11. More than half of people with mental illness don't try hard enough to get better.

12. I would not want a person with a mental illness, even if it were appropriately managed, to work with children.

13. Healthcare providers do not need to be advocates for people with mental illness.

14. I would not mind if a person with a mental illness lived next door to me.

15. I struggle to feel compassion for a person with mental illness.

16.30 Qualitative interview schedule

Interview Schedule

- Introduction/ welcome.

- *Reminder: Please be aware that your responses are being recorded to aid transcription. These recordings will be deleted on completion of the project.*

- *Reminder: Please do not mention yourself, any other person, or workplaces by name. This is to protect everyone's anonymity.*

Background/ NHS Groups:

- Please can you tell me a little bit about your work background within the NHS?
    - Your job role or profession
    - Settings you've worked in
    - Teams you've worked in, if applicable
    - Your current level of expertise

- What inspired you to pursue the path you just described to me?

- You just mentioned several group memberships for yourself within the NHS (repeat back). Which of these group memberships do you view most positively and why?
    - Any others?

- Which of these group memberships is personally most important to you and why?
    - Any others?

Mindfulness and Psychological Engagement (Cycle of Change):

- How did you first hear about mindfulness? (i.e., what it is, what it's good for, etc..) (*pre-contemplation*)

- What first inspired you to give mindfulness a go? (*contemplation*)
    - Were you trying to change something?
    - Did someone else recommend it?
    - Was there more than one of you having a go?

- How did you prepare to start practicing? (*preparation*)
    - Did you join a group, download an app, talk to friends? etc.

- How would you describe your experience of mindfulness so far? (*action*)
    - In terms of motivation to assign time at work or home?
    - How about your intention to practice at work or home?

  - Or your commitment to being more mindful in daily life?
  - Your belief in the potential benefits of mindfulness?
  - Do you see any kind of therapeutic relationship there?

- How would you feel about being part of a mindfulness group going forward? (*maintenance*)

- Why stop? (*termination*)
  - Why did you/why might you?

Mindfulness, Social Comparisons and Social Identification

- What is your impression of other people who practice mindfulness?
  - Alternatively, what kind of individuals do you think practice mindfulness?
  - Where do you see them in society?

- What is your impression of mindfulness teachers? (e.g., In-class, teacher who wrote the book, or the voice on the audio guide etc.)
  - Alternatively, what kind of individuals do you think teach mindfulness?
  - Where do you see them in society?

- What would you say about mindfulness to someone who was considering it?

- Do you personally identify with mindfulness groups, movements or group members in any way? (e.g., the group you practice with, Headspace members, friends who practice mindfulness or the larger mindfulness community)
  - How does this association make you feel?
  - How important is being part of this mindfulness group or the wider mindfulness community for you?
  - Has this changed since switching from in-person to virtual groups? (if relevant)

- How does membership of a mindfulness group or community compare with those memberships you described for the NHS?
  - In your case, you previously said… (repeat back)
  - Do you think they are compatible?
  - Tell me what ways you think they work well together
  - Tell me what ways they do not work so well together

- What other group memberships outside of work or mindfulness are positive and/or important to you?
  - If so, do these fit well with your NHS and mindfulness group memberships?

Thank you!

16.31 Single-Item Social Identification measure (SISI; Postmes et al., 2013)

Please use the following scales and indicate how much you agree or disagree with each statement.

"I identify with (*insert group from thematic analysis*)". 1 2 3 4 5 6 7 Fully Disagree — Fully Agree

"I identify with (*insert group from thematic analysis*)". 1 2 3 4 5 6 7 Fully Disagree — Fully Agree

"I identify with (*insert group from thematic analysis*)". 1 2 3 4 5 6 7 Fully Disagree — Fully Agree

16.32 *Demographic information*

1. What is your age in years?

[Drop-down list: 18-100]

- ○ Prefer not to say

2. What is your sex?

- ○ Female
- ○ Male
- ○ Prefer not to say

3. Is the gender you identify with the same as your sex registered at birth?

- ○ Yes
- ○ No
- ○ Prefer not to say

4. What is your ethnic group?

- ○ White
- ○ Mixed/ Multiple Ethnic Groups
- ○ Asian/ Asian British
- ○ Black/ African/ Caribbean/ Black British
- ○ Other ethnic group
- ○ Prefer not to say

5. What is your religion?

- ○ No religion
- ○ Christian (including Church of England, Catholic, Protestant, and all other Christian denominations)
- ○ Buddhist
- ○ Hindu
- ○ Jewish
- ○ Muslim
- ○ Sikh
- ○ Other religion
- ○ Prefer not to say

6. Do you have any physical or mental health conditions or illnesses lasting or expected to last 12 months or more that reduce your ability to carry-out day-to-day activities?

- ○ Yes
- ○ No
- ○ Prefer not to say

7. What is your sexual orientation?

- ○ Bisexual
- ○ Gay or lesbian
- ○ Heterosexual or straight
- ○ Other
- ○ Prefer not to say

8. What is your legal marital or registered civil partnership status?

- ○ Married, in a civil partnership or living with a partner
- ○ Not married, in a civil partnership or living with a partner
- ○ Separated or divorced
- ○ Widowed
- ○ Prefer not to say

9. Are you pregnant?

- ○ Yes
- ○ No
- ○ Don't know
- ○ Prefer not to say
- ○ Not applicable

10. Approximately how many years have your worked in healthcare in total (excluding any gaps of three months or more)?

[Drop-down list: 0-80]

11. What category most closely represents your role as a member of healthcare staff?

(Please select the category that most closely represents your job role. If there are no similar options presented, please select 'wider healthcare team'. If you occupy two positions, e.g., manager and nurse, please select the position you most strongly identify with).

[List:
Allied Health Professional
Ambulance Service
Dental
Doctors
Estates & Facilities
Health Informatics
Healthcare Science
Healthcare Support Worker
Management

Medical Associate professions
Midwifery
Nursing
Pharmacy
Psychological Professions
Public Health
Wider Healthcare Team]

To check which applies to you, click **here**

(Health Careers, 2022)

12. Is your healthcare role clinical or non-clinical? We define 'clinical' as working clinically with patients/service users at least one day a week in a patient-facing role?

- ○ Clinical
- ○ Non-clinical
- ○ A mix of clinical and non-clinical

13. Do you work full-time or part-time?

- ○ Full-time
- ○ Part-time

17 Amendments

(V2.0, 30.11.2022) Sample size increased from 1500 to 2000 participants.

18 Competing interests

To our knowledge, there are no competing interests.

19 Authors' contributions

This protocol was written by Daniel Cullen, in collaboration with Professor Kate Cavanagh and Professor Clara Strauss.

20 Acknowledgements

Daniel Cullen has been awarded an ESRC SeNSS collaborative studentship to conduct this research.

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