

Investigating a multi-session virtual reality relaxation intervention for mental health staff: protocol for a feasibility and acceptability study

Mental health
staff

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Abstract

Purpose – Clinical staff working in mental health services experience high levels of work-related stress, burnout and poor well-being. Increased levels of stress, burnout, depression and anxiety and poorer mental well-being among health-care workers are associated with more sick days, absenteeism, lower work satisfaction, increased staff turnover and reduced quality of patient care. Virtual reality (VR) relaxation is a technique whereby experiences of pleasant and calming environments are accessed through a head-mounted display to promote relaxation. The purpose of this paper is to describe the design of a study that assesses the feasibility and

Trial Status

Recruitment has terminated. Data analysis is ongoing.

Trial registration: Clinical trials.gov NCT05601908. Registered 1 November 2022.

Declarations

Funding – Funding was provided from a Doctorate in Clinical Psychology research budget provided by King's College London. Head-mounted displays and VR software were provided by Magic Horizons, Germany. Magic Horizons had no involvement in the evaluation at any stage.

Ethics approval and consent to participate – Ethical approval was obtained from Research Ethics Management Application System (REMAS) at King's College London (reference LRM-22/23–15023). All participants provided informed written consent for study participation.

Consent for publication – Consent for publication was sought from all participants.

Availability of data and material – The data sets used during the current study may be available from the corresponding author on reasonable request.

Authors' contributions – The study was conceived by SR and LV. The study was designed by SR, LV, RM, NS and VP. RM drafted the manuscript. All authors read and approved the final manuscript.

Conflicts of Interest – No interests to declare.



acceptability of implementing a multi-session VR relaxation intervention amongst mental health professionals, to improve their relaxation levels and mental well-being.

Design/methodology/approach – The study follows a pre–post-test design. Mental health staff will be recruited for five weeks of VR relaxation. The authors will measure the feasibility and acceptability of the VR relaxation intervention as primary outcomes, alongside secondary outcomes evaluating the benefits of VR relaxation for mental well-being.

Findings – The study aims to recruit 20–25 health-care professionals working in both inpatient and specialist community mental health settings.

Originality/value – Research indicates the potential of VR relaxation as a low-intensity intervention to promote relaxation and reduce stress in the workplace. If VR relaxation is shown to be feasible and acceptable, when delivered across multiple sessions, there would be scope for large-scale work to investigate its effectiveness as an approach to enable health-care professionals to de-stress, relax and optimise their mental well-being. In turn, this may consequently reduce turnover and improve stress-related sick leave across health-care services.

Keywords Health-care professionals, Mental well-being, Stress, Burnout, Relaxation, Virtual reality, Digital interventions, Feasibility

Paper type Research paper

Introduction

In the UK, the proportion of staff feeling unwell due to work-related stress has risen from 28% in 2008 to 37% in 2016, and the number of National Health Service (NHS) staff leaving due to poor work–life balance has doubled from 2011 to 2015 (Johnson *et al.*, 2018). Psychological stress can lead to burnout, and has been associated with depression and anxiety disorders, and poorer quality of sleep (Koutsimani *et al.*, 2019; Papathanasiou *et al.*, 2017; Søvold *et al.*, 2021; Vela-Bueno *et al.*, 2008). A study of 61,168 nurses across 12 countries found that in 9 countries a quarter or more of the nursing workforce experienced burnout, and these rates may be rising (Aiken *et al.*, 2012).

Increased levels of work-related stress, burnout, depression and anxiety and poorer mental well-being among health-care workers are associated with more sick days, absenteeism, lower work satisfaction, increased staff turnover and reduced quality of patient care (De Hert, 2020). NHS data suggests that stress or anxiety-related illness made up 25% and 18% of absences/sick days in mental health and acute trust nurses, respectively, in 2017. Moreover, a longitudinal cohort study using data from 740 primary care clinicians reported a high prevalence of burnout (53%) and staff turnover, with 30% of clinicians and 41% of staff no longer working in primary care in the same system two or three years later, respectively (Willard-Grace *et al.*, 2019).

Higher levels of work-related stress, burnout and lower levels of well-being also have a negative impact on patient care delivery and efficiency. A systematic review observed a significant association between poor well-being and moderate to high levels of burnout with poor patient safety outcomes, including medical errors (Hall *et al.*, 2016). Moreover, burnout may reduce doctors' empathising and listening skills and reduce patient safety due to doctor's reduced decision-making and cognitive abilities and fatigue (Hall *et al.*, 2020).

Specifically in mental health staff, the prevalence of burnout has been estimated to range from 21% to 67% with job distress estimated to affect nearly two-thirds of psychiatric staff (Cetrano *et al.*, 2017; Lasalvia *et al.*, 2009; Morse *et al.*, 2012; Tsai *et al.*, 2020). Burnout amongst mental health staff may be predicted by the emotional demands of the role, clinical responsibility, excessive and complex workload, violent outbursts and inadequate staffing (Hagen *et al.*, 2017; Johnson *et al.*, 2018). Poorer well-being and high burnout amongst mental health staff has been associated with poorer quality of patient care, higher absenteeism, higher turnover rates and low morale (Johnson *et al.*, 2018).

One method that may offer promise in supporting the mental well-being of staff is virtual reality (VR) relaxation. VR relaxation is a technique whereby experiences of pleasant and

calming environments are accessed through a head-mounted display (HDM) to promote relaxation (Riches *et al.*, 2021). Research indicates its potential as a low-intensity intervention to promote relaxation and reduce stress in people with mental health difficulties (Riches *et al.*, 2023a). The provision of VR relaxation facilities in the workplace may provide a pragmatic approach to enabling employees to de-stress, relax and optimise their mental well-being and may consequently reduce turnover and improve stress-related sick leave across health-care services (Riches and Smith, 2022).

VR for stress management incorporating immersive natural scenarios to promote relaxation, and immersive role-playing in stressful scenarios to promote problem-solving, has been successfully delivered in health-care workers (Gaggioli *et al.*, 2014). It has been associated with reductions in trait anxiety and gains in emotional support skills compared to traditional stress management-based cognitive behavioural therapy (Gaggioli *et al.*, 2014). Relaxation exercises that incorporate imaginary visualisation of pleasant environments have been found to reduce arousal and tension in the general population (Anderson *et al.*, 2017; Serrano *et al.*, 2016). Moreover, VR incorporating relaxing environments have been successfully delivered to military medical professionals (Stetz *et al.*, 2011) and office workers (Thoondie and Oikonomou, 2018) and a single session of VR relaxation has shown to reduce stress in the short term in intensive care nurses (Nijland *et al.*, 2021). In a recent study, NHS staff working in trauma settings reported increased happiness, relaxation and reduced sadness, anxiety and anger followed 10 min of VR relaxation delivered during their working day (Adhyaru and Kemp, 2022).

Despite the initial evidential support for VR relaxation, further research is warranted. Few high-quality randomised controlled trials of VR relaxation exist, and a recent systematic review of VR relaxation to promote workplace well-being identified only two trials offering a multi-session course of VR relaxation sessions for health-care professionals, rather than a one-off session (Riches *et al.*, 2023c). This review indicated VR relaxation to be feasible and acceptable as a well-being tool in the workplace, with participants seeing VR as a cost-effective and time efficient tool to improve well-being and describing the experience as positive (Riches *et al.*, 2023c). More recently, a small-scale feasibility study investigated the feasibility, acceptability and preliminary psychological effects of a single VR relaxation session for mental health staff working in specialist inpatient settings. The intervention led to acute improvements in relaxation, connectedness to nature, mood, stress and anxiety and was met with positive feedback (Williams and Riches, 2023).

Specifically, VR relaxation interventions incorporating multiple sessions of VR (rather than a single session) has yet to be carried out with staff who work in inpatient and specialist severe mental health settings. The primary aim of this study will be to test feasibility and acceptability of a novel virtual reality relaxation intervention for mental health staff working in inpatient psychiatric wards and severe mental health community teams. The secondary aims will be to:

- investigate if the VR relaxation may improve mental well-being, perceived psychological stress, state worry, burnout and sleep quality; and
- investigate whether a single session of VR relaxation leads to acute changes in psychological well-being, relaxation, perceived stress and connection to nature.

Methods

Ethical approval was obtained from Research Ethics Management Application System at King's College London (reference LRM-22/23-15023). The feasibility study is registered online (Clinical trials.gov identifier NCT05601908) and will be reported in accordance with the CONSORT for reporting of pilot and feasibility trials (Eldridge *et al.*, 2016).

Participants

Clinical staff affiliated with South London and Maudsley NHS Foundation Trust (SLaM) working in inpatient and/or outpatient mental health settings will be recruited. Staff will be excluded if they have a history of epilepsy, as there is a possibility that an epileptic episode may be generated by the VR equipment. We anticipate recruiting 20–25 participants to the study which is deemed sufficient to assess the feasibility of a study (Leon *et al.*, 2011) and is a similar recruitment number to other VR based feasibility studies (Riches *et al.*, 2021).

Procedure

The study will be advertised to participants through email circulars, posters and through discussion with health-care professionals. Staff who display an interest in the study will be emailed a participant information sheet with study details. Following written informed consent, participants will undergo baseline assessments, including a socio-demographic questionnaire (age, gender, ethnicity, occupation) and measures of mental well-being, stress, worry, sleep and burnout. Participants will undergo a course of five 20-min sessions of VR relaxation. We endeavour to conduct sessions once weekly but will work flexibly around participant availability. Before and after each session, participants will be invited to complete state-measures of psychological well-being, a measure of sense of presence and to rate satisfaction with each session at session completion. Following completion of the five-week VR relaxation course, participants will repeat baseline measures of mental well-being, stress, worry, burnout and sleep. Participants who drop out of the intervention will be invited to complete these measures, providing they attend a minimum of one VR session. We endeavour to complete pre-assessment measures within one week prior to the first VR session and end of intervention measures within one-week of participants finishing the course of VR. Study measures will be presented using the online survey platform Qualtrics.

Participants who do not participate in a session for one month or more and those who decline three consecutive sessions without contacting the research team will be deemed to have dropped out.

Intervention

VR relaxation sessions will be conducted using the Oculus Quest wireless HMD with one handheld remote, which was designed by Magic Horizons, Germany. Participants will wear the HMD and headphones to hear audio. During each session participants will experience two virtual environments designed to promote relaxation, at least one of which will have a small interactive component to aid engagement. Environments focused on nature and are paired with soothing music or guided meditation. Participants will be seated throughout all sessions. Sessions will be scheduled in working hours around the participant's clinical and occupational duties. Sessions will take place in clinical sites affiliated with SLaM, e.g. hospital wards and outpatient clinics. Most sessions will take place within the ward or clinic where participants were employed, although a limited number of participants may require to travel to alternative SLaM sites due to limited resources and time constraints of the research team. The HMD will be cleaned between each use using Cleanbox UVC LED technology and disinfectant wipes.

A summary of each VR session is provided in [Table 1](#). A screenshot of each environment is provided in [Plate 1](#).

Outcomes

Primary outcomes. Feasibility will be assessed, following completion of the trial, using multiple primary endpoints:

Table 1.
Summary of VR
relaxation sessions

Session no.	Description of session
One	Underwater dreams (5 min): Surrounded by bright coloured fish, glittering coral and variegated plants. The viewer is taken underwater to the depths of the ocean, sun rays are visible from the depths of the water Free your mind (7 min): Audio-guided meditation focused on freeing your mind, letting go of thoughts and breathing. Scenes include images of a picturesque brook, trees and the midday sun
Two	Delta waves (10 min): Sat on a cushion inside of a dome in a building, surrounded by minimalistic décor with blue hues. An anatomical wave form of movement with beads of orange light changes colour as the light in the room changes. Audio has acoustic sound and calming music and delta waves in a range of 1–2 Hz. (10 min) Magic garden (4 min): Scene of a picnic table in a green meadow. A pomegranate and red wine glass move into a surreal dream. Floating images dissolve and reform and leaves engage in a magical dance
Three	Relax on Mars (5 min): A scene in Mars gazing at the red planet from the comfort of a spaceship. Astronauts are visible in the background and the viewer can observe an endless expanse of red and yellow terrain before embarking on a voyage back to Earth Day at the river (5 min): Scene in the wild Karwendel Mountains with turquoise water rippling in the breeze. Succulent green plants are visible in the background
Four	Breathe and relax (7 min): An audio-guided breathing and relaxation exercise focused on breathing and letting go of your thoughts in an animated, green landscape including a meadow with grass, flowering trees, butterflies and colourful flowers while the sun is shining down on you Dolphin's dance (5 min): Scene immersed in a school of dolphins swimming in a calm sea with gentle ripples and waves. Images of the sun shining and dolphins swimming and diving in and out of water. Audio has an uplifting rhythm in a string instrumental music
Five	Gratitude (6 min): Guided meditation provided in a soft voice. The scene encompasses a peaceful spot by the sea with visuals of sea waves and nearby greenery High mountains (5 min): Scene in the landscape of the Swiss Alps. The participant takes part in a virtual mountain hike and is able to observe the Swiss Alps in the summer season, coated in greenery and surrounded by a peaceful blue sky and striking sun. Atmospheric sounds of the guitar play in the background

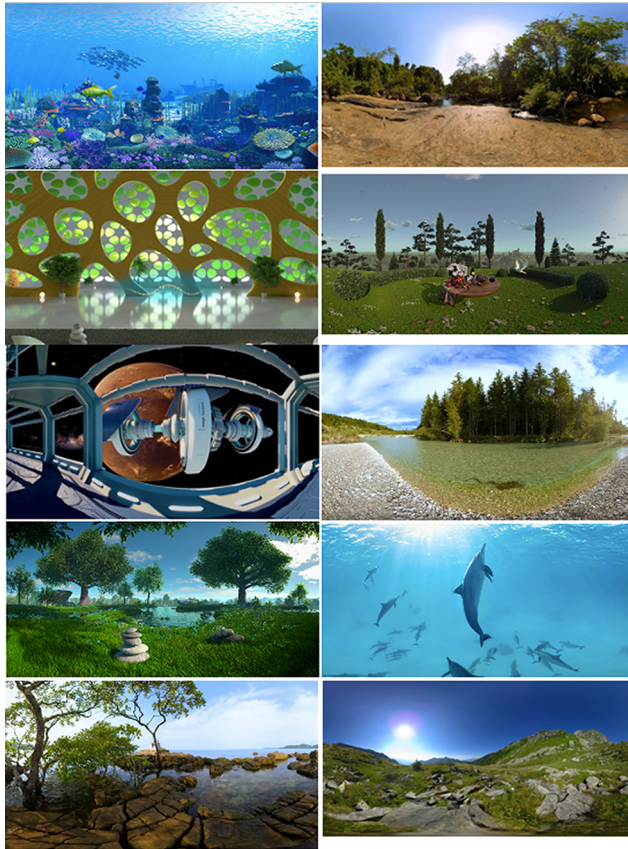
Source: Created by authors

- recruitment numbers;
- completion rates;
- attendance at VR relaxation sessions (regular attendance was defined as attending at least 50% of scheduled VR sessions);
- adherence to the 20-min VR session;
- percentage of participants who complete baseline and follow-up measures;
- adverse events (defined as any untoward medical occurrence in a subject to whom a therapy has been administered including occurrences which are not necessarily caused by or related to that therapy).

These primary endpoints have been used in other feasibility trials looking at VR relaxation (Riches *et al.*, 2021, 2023c; Williams and Riches, 2023).

Acceptability will be assessed at the end of each VR session using a single item ten-point Likert scale from 1 (not satisfied) to 10 (most satisfied).

Additionally, sense of presence in the virtual environments (the impression of 'being there' in the environment) will be assessed using the Slater-Usuh-Steed Sense of Presence



Notes: Description of each environment from left to right. 1) Underwater dreams: an underwater scene with fish and plants; 2) free your mind: a river with trees and rocks; 3) delta waves: a room with a large wall with green and yellow circles; 4) magic garden: a table with food on it in a grassy area; 5) relax on Mars: a space station with a planet in the background; 6) day at the river: a river with trees and rocks; 7) breathe and relax: a group of rocks stacked on top of each other in a grassy area with trees; 8) Dolphin's dance: a group of dolphins swimming in the water; 9) gratitude: a tree on a rocky shore; 10) high mountains: a green grassy hill with rocks and a blue sky; screenshots were provided by Magic Horizons GmbH. NB: Participants experienced each environment in colour

Source: Screenshots were provided by Magic Horizons GmbH

Plate 1.
A screenshot of each environment

Questionnaire (SUS) to complement feasibility data (Slater *et al.*, 1994). This scale includes 6 indices with scores ranging from 1 to 7 whereby higher scores indicate higher sense of presence. A total score out of 42 is provided. It has been used in other VR studies in the general population (Riches *et al.*, 2019).

Secondary outcomes. A range of well-being measures will be collected at baseline and end of intervention (Week 5). Mental well-being will be assessed using the Short Warwick-Edinburgh Mental Wellbeing Scale (SWEMWBS; Ng Fat *et al.*, 2017). The SWEMWBS is a brief seven-item scale, scores range from 7 to 35, and it has been validated in the general population (Cronbach's alpha 0.84) (Ng Fat *et al.*, 2017). The Perceived Stress Scale (PSS-10) contains ten items to measure the degree to which aspects of one's life are appraised as uncontrollable, unpredictable, overloading (Cohen, 1994). It has been validated in the general population and has adequate reliability [Cronbach's alpha ranges from 0.75 to 0.91 across a variety of countries (Nielsen *et al.*, 2016)]. The Penn State Worry Questionnaire (PSWQ) (Meyer *et al.*, 1990) measures the occurrence, intrusiveness and pervasiveness of an individual's experience with worry over 16 items. It has been shown to exhibit high internal consistency and good test-retest reliability (Cronbach's alpha 0.93) (Meyer *et al.*, 1990). The Oldenburg Burnout Inventory (OLBI) will assess exhaustion and disengagement from work over 16 items (Demerouti *et al.*, 2010; Halbesleben and Demerouti, 2005). It displays acceptable test-retest reliability, internal consistency, factorial, convergent and discriminant validity (Cronbach's alpha 0.74–0.87 across subscales) (Halbesleben and Demerouti, 2005). An OLBI score ≥ 35 indicates high levels of burnout (Summers *et al.*, 2020). The Pittsburgh Sleep Quality Index (PSQI) contains 19-items to assess subjective sleep quality, sleep latency, sleep duration, sleep efficiency and sleep disturbances. This scale has good construct validity and can sensitively distinguish good and poor sleepers (diagnostic sensitivity 89.6%, specificity 86.5%, kappa 0.75, Cronbach's alpha 0.83) (Buysse *et al.*, 1989).

In addition to these well-being measures, participants will be asked to identify a personalised training goal at baseline, which will be evaluated using the Goal Attainment Scaling (GAS) system (Turner-Stokes and Williams, 2010). GAS comprises a single interval measure, can be administered rapidly and has high sensitivity in operationalising and detecting personalised accomplishments (e.g. I would like to be able to sleep better) (Turner-Stokes and Williams, 2010). An aim with this training goal is to enable participants to put into practice in the real world what they had learned about their relaxation in VR (Riches *et al.*, 2023a, 2023b).

Stress, relaxation, tiredness, mood and connection to nature will be measured using single items on a Visual Analogue Scale (VAS) on a ten-point scale before and after each session. VAS scales have been issued in previous VR relaxation studies with health-care professionals and offer rapid administration (Williams and Riches, 2023).

Before each session participants will complete:

- The Patient Health Questionnaire-2 (PHQ-2) (Kroenke *et al.*, 2003) to screen for depression.
- The Generalized Anxiety Disorder two-item scale (GAD-2) (Kroenke *et al.*, 2007).
- VAS 10-point scale measurement of sleep quality.

A score of ≥ 3 on the PHQ-2 and GAD-2 is indicative of major depression and generalised anxiety disorder, respectively. The PHQ-2 (2003) contains two items to rapidly screen for depression (sensitivity 83%, specificity 92% for major depression) (Kroenke *et al.*, 2003). The GAD-2 (2007) contains two items to rapidly screen for general anxiety (sensitivity 76%, specificity 81% for GAD) (Plummer *et al.*, 2016).

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Data management

Each participant will be allocated an anonymised identification number. All identifiable data will be collected on Qualtrics and transferred to a password protected IBM Statistical Package for the Social Sciences (SPSS) database (SPSS version 27, Chicago, IL, USA). The research ethics committee will be consulted before any changes in protocol.

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Data analysis

Feasibility outcomes will be summarised using percentages and raw figures. Satisfaction scores will be collated to form a mean satisfaction rating. T-tests will be used to compare differences at baseline between programme completers and non-completers. Programme completers are defined as participants who completed a minimum of four VR sessions and completed all baseline and end of intervention measures.

To evaluate effectiveness of the intervention in line with the secondary and tertiary aim, the mean and standard deviation (SD) of SWEMWBS, PSS-10, PSWQ, OLBQ and PSQI scores will be summarised before and after the intervention. All participant data will be included in the pre-intervention summary regardless of participant completion. Paired samples *t*-tests will be used to compare pre- and post-intervention scores (SWEMWBS, PSS-10, PSWQ, OLBQ and PSQI) for those who complete the intervention and changes in acute measures. Hedges' *g* and confidence intervals will be calculated to determine within group effect sizes for mean change. Confounders will not be controlled for in data analysis due to the exploratory nature of analysis and lack of study power. Goals will be quantified by the number of people who meet their goal and the number who do not.

Reliable change index will be calculated for each of the pre-post-intervention measures (SWEMWBS, PSS-10, PSWQ, OLBQ and PSQI) (Jacobson and Truax, 1991). Reliable change is a psychometric criterion that evaluates whether a change in an individual score is considered to be reliable, rather than based on measurement variability (Jacobson and Truax, 1991). Repeated measures analysis of variance will compare mean differences of PHQ-2, GAD-2 and VAS sleep score across the five-week sessions. Mean SUS and SD will be calculated for total sessions and each individual session.

Data analysis will be conducted by using SPSS version 28 (Chicago, IL, USA). A significance value of $p \leq 0.05$ and two-sided tests will be used for all analyses. Analysis of secondary outcomes will be exploratory due to small sample size and lack of control group, limiting the ability to evaluate the efficacy of the proposed intervention.

Follow-up

Participants who complete the VR relaxation intervention, and those who drop out, will be invited to attend a semi-structured 30–60-min qualitative interview after completion of the intervention to understand how participants experienced the intervention. We hope to conduct each qualitative interview within 3 weeks of each participant finishing the intervention/within 3 weeks of drop-out. Qualitative interviews will take place face to face or through video call using Microsoft Teams and will be audio-recorded. Material gained from the follow-up will be analysed using thematic analysis (Braun and Clarke, 2006) to explore the experience and impact of VR relaxation, areas for improvement and overall accessibility.

Reimbursements

Participants will be reimbursed for time in the form of shopping vouchers which will be provided at completion of standardised measures at baseline, end of intervention and follow-up interview. Travel will be reimbursed if participants were required to travel outside of their workplace to attend VR sessions.

Criteria to indicate that a future effectiveness trial is feasible

Feasibility and acceptability endpoints will offer an indication as to whether a large-scale effectiveness trial is justified (Eldridge *et al.*, 2016). Criteria that indicate progression to a large-scale effectiveness trial include the following:

- (1) meeting stated recruitment of 20–25 participants; and
- (2) comparable completion rates to:
 - VR relaxation interventions carried out in in the general population (completion rates have averaged 80% in the general population, although few multiple session VR relaxation interventions have been completed (Riches *et al.*, 2021).
 - Well-being interventions for health-care professionals (completion rates have averaged 56%–100% across a range of well-being interventions for health-care professionals including psychology and lifestyle interventions, employment skills, mindfulness, gratitude journaling and yoga (Cohen *et al.*, 2023; Stanulewicz *et al.*, 2020; Townsley *et al.*, 2023).
- (3) lack of adverse events, e.g. nausea;
- (4) mean satisfaction scores >7 indicating that the intervention was acceptable; and
- (5) adequate sense of presence, as indicated by scores of ≥ 21 on the SUS, demonstrating that participants feels adequately immersed in the virtual environment.

A flow diagram of the study design is provided in [Figure 1](#), and the schedule of enrolment, interventions and assessments is provided in [Figure 2](#).

Discussion

This feasibility study aims to evaluate the feasibility and acceptability of a novel virtual reality relaxation intervention for mental health staff working in inpatient psychiatric wards and severe mental health community teams. To the best of our knowledge, this is the first study to deliver a course of VR relaxation sessions (rather than a single session) to health-care staff employed in inpatient and specialist severe mental health settings in the NHS. Upon completion of the study, we will have a detailed overview of whether the VR relaxation intervention, delivery approach and assessments are feasible and acceptable to deliver as part of a multi-centre large-scale effectiveness trial. Specifically, whether health-care professionals take part, continue to attend VR relaxation sessions and assessments and whether mental well-being measures can be obtained. Moreover, the follow-up qualitative interviews will provide a greater understanding of participants experiences and attitudes towards the VR relaxation intervention.

With this said, the design of the feasibility trial has various limitations. Firstly, the feasibility trial follows a pre–post-test study design; thus, it cannot be considered a small-scale pilot study if an RCT design were to be used for a definitive trial. The current study does not provide indication as to whether recruitment to an RCT design is feasible, which should be considered when scaling up the research design. Secondly, recruitment is from one NHS trust, which limits generalisability (although health-care professionals were recruited from a range of inpatient and community teams). Thirdly, in terms of the sample, we have chosen to not screen staff stress, worry, depression and burnout levels prior recruitment, meaning that secondary hypotheses may be diluted by staff with low stress, and feasibility and acceptability outcomes may not be directly relevant to a stressed staff group. This said, the intervention is aimed at preventing stress and reducing it, and practical constraints, including time and resources, prevented use of more stringent eligibility criteria which would have likely led to expansion of recruitment sites required to fulfil recruitment targets.

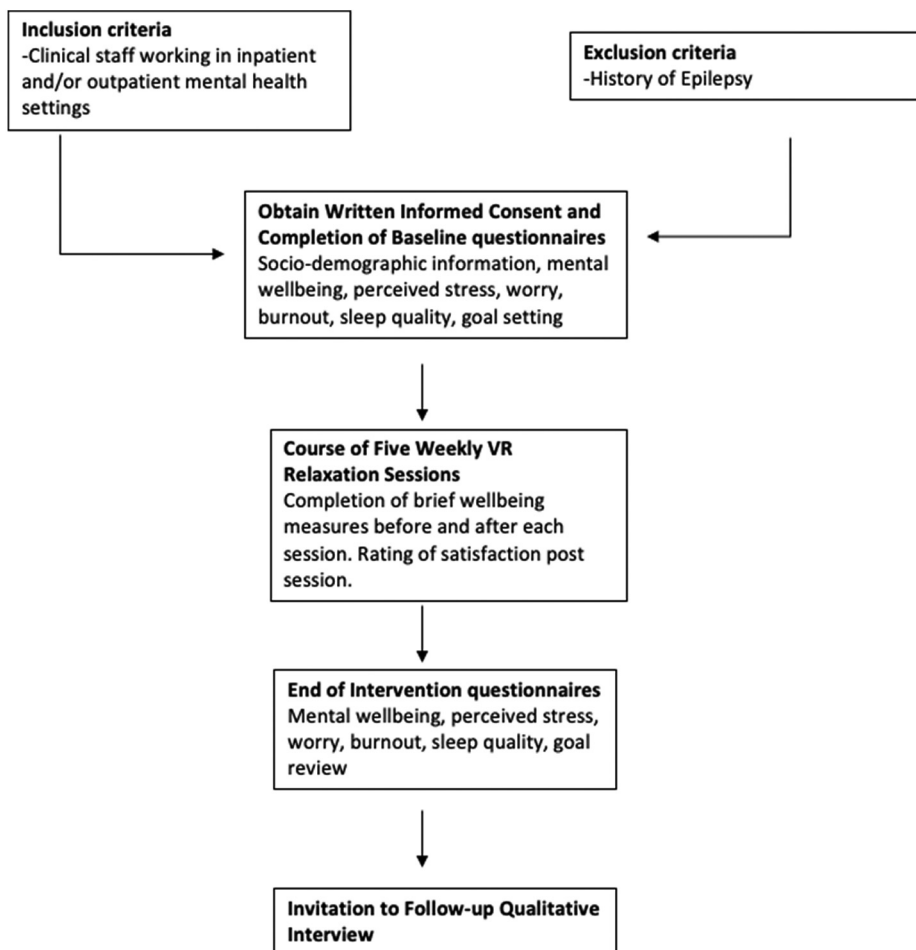


Figure 1.
Study flow diagram

Source: Created by authors

Clinical staff working in mental health services experience high levels of work-related stress, burnout and poor well-being (Morse *et al.*, 2012). VR relaxation is a novel technique that used digital means to promote relaxation through exposing users to virtual nature-based environments. VR relaxation equipment is readily available and relatively affordable and can be issued without training, cementing its accessibility as a relaxation technique.

It is postulated that even short exposures to virtual nature-based environments lowers blood pressure, reduces cerebral blood flow in the cerebral cortex and increases parasympathetic activity, which in turn is associated with improvements in well-being (Annerstedt *et al.*, 2013; Bowler *et al.*, 2010; de Kort *et al.*, 2006). Providing access to relaxation facilities in occupational settings for health-care professionals would align with the current NHS long-term plan, which has set out a goal to support health-care professionals to manage their own health and well-being (Alderwick and Dixon, 2019). If the VR relaxation intervention

	Baseline	VR Session One		VR Session Two		VR Session Three		VR Session Four		VR Session Five		5 weeks
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	
Socio-demographics	X											
Goal Setting (GAS)	X											
Mental Wellbeing (SWEMWBS)	X											X
Worry (PSWQ)	X											X
Sleep (PSQI)	X											X
Burnout (OLBI)	X											X
Perceived Stress (PSS-10)	X											X
VAS scales for stress, relaxation, tiredness, mood, connection to nature		X	X	X	X	X	X	X	X	X	X	
Depression (PHQ-2)		X		X		X		X		X		
Anxiety (GAD-2)		X		X		X		X		X		
VAS scale for sleep quality		X		X		X		X		X		
Goal Review (GAS)												X
Follow-up Interview												X

Source: Created by authors

Figure 2.
Schedule of enrolment and assessments

if found to be feasible and acceptable and is met with positive feedback during qualitative interviews, there would be scope for large-scale work and the potential implementation of this intervention in occupational settings for health-care professionals. Moreover, there may be scope for its application to other high stress jobs outside of health care and application to other populations who experience stress and burnout, such as student groups.

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