ISRCTN51742331 https://doi.org/10.1186/ISRCTN51742331

A controlled trial of a virtual reality experience to support wellbeing in healthcare students

Submission date
23/04/2025

Recruitment status
No longer recruiting

Registration date
06/05/2025

Overall study status
Completed

Last Edited
28/04/2025

Condition category
Mental and Behavioural Disorders

[ ] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[ ] Results
[ ] Individual participant data
[ ] Record updated in last year

Plain English summary of protocol
Background and study aims
This study compares a virtual reality experience aimed at relieving stress in students with the same experience on the students' phones.

Who can participate?
Adult students enrolled at St George's University of London.

What does the study involve?
Participants were randomised into the two groups and received either phone or VR experience every day for five days. Measures of wellbeing, stress and depression were recorded before and after the five days, and students filled out scales about their stress levels before and after each experience. They were asked at the end of the study about their views of what was positive and what was negative about it.

What are the possible benefits and risks of participating?
The benefits of participating were to experience the app, and students were remunerated. The risks were of "cybersickness", which is like motion sickness.

Where is the study run from?
St George's University of London, UK

When is the study starting and how long is it expected to run for?
July 2022 to January 2024

Who is funding the study?
National Institute of Health and Care Research (NIHR)

Who is the main contact?
Dr Aileen O'Brien, aobrien@sgul.ac.uk

Contact information

Type(s)
Public, Scientific, Principal investigator

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Additional identifiers

Study information

Scientific Title
A controlled trial of a virtual reality experience to support wellbeing in healthcare students

Study objectives
A VR intervention delivered over 5 consecutive days can reduce subjective levels of stress, anxiety and depression and improve wellbeing in healthcare students in a university setting with baseline, post-intervention and 2-week follow-up measures compared to the same intervention delivered on a smartphone.

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 03/07/2023, St George's University of London Ethics Committee (Joint Research and Enterprise Services Ground Floor, Jenner Wing St. George’s, University of London, Cranmer Terrace, Tooting, London, SW17 ORE, United Kingdom; +44 (0)2087255000; sgulREC@sgul.ac.uk), ref: 2023.0136

Primary study design
Interventional

Study design
Unblinded parallel-group randomized controlled trial

Study type(s)
Other

Health condition(s) or problem(s) studied
Anxiety/stress

Interventions
Overview
The study employed an unblinded, parallel randomised controlled trial (RCT) design with university students. A clinically informed multi-sensory hypnotherapy-based experience using an immersive VR app designed to reduce symptoms of anxiety and stress was compared with the same experience watched on a smartphone and listened to through headphones (video condition). This was delivered over five days with a two-week follow-up. Wellbeing, perceived stress, and depression measures were completed to enable comparison of the two conditions. Qualitative data were obtained through open-text responses in a brief semi-structured questionnaire, capturing the subjective experiences of students.

Participants and setting
The study took place at St George's, University of London (SGUL), the only specialist healthcare university in the UK, with 5500 full-time students on a range of healthcare courses: medicine, physiotherapy, diagnostic and therapeutic radiography, physician associate and paramedic science. In 2023, 60% of the students were female, 11% Black, 33% Asian, 9% other/mixed and 46% White. All students enrolled at SGUL, regardless of course and level of entry, were offered the opportunity to take part in the study and were recruited over one month (October-November 2023). They were informed via the Student Union (SU) social media and invited to register on the study website. Students with a history of seizures or a pacemaker were excluded due to known risks of immersive VR with these presentations. There were no other exclusion criteria; a deliberate decision was made not to exclude students with mental health concerns. 131 participants were recruited and randomly allocated to VR (n=67) or video (n=64). Participants received sixty pounds as remuneration.

Randomisation
The randomisation schedule was generated using freely available software (Sealed Envelope Ltd. 2022) by a member of the research team. Randomly permuted blocks with block sizes of 2, 4 or 6 were utilised. After students were recruited into the study and had completed the initial baseline questionnaires, they were informed of their randomised allocation. No further blinding of students or researchers was possible.

Procedure
Two conference rooms in the Students' Union were used for VR sessions. Students allocated to the VR experience were brought into one room in groups of five. Slots were available for students to attend from 10 am-12 pm and again from 2 pm-4 pm. A facilitator demonstrated the use of the Meta Quest 2 VR headset, then each of the students took part in the VR experience. A quiet, comfortable and safe space was maintained throughout the experience. For students allocated to the video experience, tables were set up at spaced intervals in a second room, with a facilitator present to maintain silence. Students were able to use their own headphones or the headphones that were provided. QR codes were available at each table for students to access the video experience on their smartphones, and QR codes were provided to all students to complete Visual Analogue Scales, measuring immediate effect, before and after the experience.

Intervention and control conditions
The intervention arm consisted of a daily experience of one of a series of 5 clinically informed VR hypnotherapy experiences designed by Phase Space to reduce exam stress. Each of the experiences, which were designed with students in mind, lasted approximately seven minutes.

Each participant was given verbal guidance and suggestions within the immersive multi-sensory experiences, combining soothing visuals, sounds and music. The audio is augmented with generative VR graphics beginning in a domed hall. The user was gently guided through a transition into darkness before rings of brightly shining particles started to form and begin to travel towards the viewer, passing around them on all sides before fading. The synchronicity and timing of these particle rings, combined with gentle pulses, aid suggestion to slow the breath. The user is given additional guidance to reduce tension in the body and calm the mind with a clinically informed selection of positive suggestions before they are gradually brought back to the domed hall. The viewer is then grounded in the present moment and asked to remove their headset when they are ready, as the experience finishes. The control arm consisted of the same daily experiences that were delivered by smartphone and listened to with headphones without an immersive component.

Intervention Type
Behavioural

Primary outcome(s)
1. Momentary negative and positive affective states, and participants' level of immersion were measured using a 10-point numerical analogue scale (VAS) at baseline and a 2-week follow-up
2. Cybersickness was measured using the Simulator Sickness Questionnaire (SSQ) before and after the intervention on the final trial session
3. The following short-term outcomes in perceived stress, wellbeing, and depressive symptoms measures using standardised questionnaires at baseline and a 2-week follow-up:
3.1. Global perceived level of stress was measured with the 10-item version of the Perceived Stress Scale (PSS)
3.2. Positive states of being, thinking, behaving and feeling in the last 2 weeks were measured using the Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS)
3.3. Depression symptoms were measured using the Patient Health Questionnaire-2 (PHQ2)
4. Intervention satisfaction: At the end of the trial, participants were asked which group they would have preferred to be in. Satisfaction with the intervention for participants completing VR or Video interventions was measured using the VAS, measuring levels of agreement (with anchors 1='do not agree', 10='totally agree') that the experience made them feel calmer, had a positive effect and is one they would recommend to other students. Participants were also asked to describe the impact the experience had on them personally, if it is something they could see themselves using and to provide any other comments/feedback in an open-ended manner. At 2-week follow-up, participants rated levels of agreement (on VAS scales) that the intervention helped to manage stressful situations and is a resource they would see themselves using in the future.

Key secondary outcome(s)
Use of mental health and support services measured using a study questionnaire at baseline, post-intervention and 2-week follow-up

Completion date
21/01/2024

Eligibility

Key inclusion criteria
1. Over the age of 18
2. Enrolled student at St George's University of London

Participant type(s)
Healthy volunteer

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 Years

Upper age limit
65 Years

Sex
All

Total final enrolment
131

Key exclusion criteria
1. History of seizures
2. History of pacemakers

Date of first enrolment
06/11/2023

Date of final enrolment
20/11/2023

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
St George's University of London
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Sponsor information

Organisation
St George's, University of London

ROR
https://ror.org/040f08y74

Funder(s)

Funder type
Government

Funder Name
National Institute for Health and Care Research

Alternative Name(s)
National Institute for Health Research, NIHR Research, NIHRresearch, NIHR - National Institute for Health Research, NIHR (The National Institute for Health and Care Research), NIHR

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location
United Kingdom

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated during and analysed during the current study will be available upon request from Dr Aileen O'Brien,aobrien@sgul.ac.uk. The data are the anonymysed results of the measures described above. They will be available after the time of publication of the paper. All participants consented. Data were anonymised. Ethical approval was granted.

IPD sharing plan summary
Available on request