

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

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<b>Registration date</b> 06/05/2025	<b>Overall study status</b> Completed	<input type="checkbox"/> Protocol
<b>Last Edited</b> 28/04/2025	<b>Condition category</b> Mental and Behavioural Disorders	<input type="checkbox"/> Statistical analysis plan
		<input type="checkbox"/> Results
		<input type="checkbox"/> Individual participant data
		<input type="checkbox"/> 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

**Contact name**

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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](mailto:sgulREC@sgul.ac.uk)), ref: 2023.0136

**Study design**

Unblinded parallel-group randomized controlled trial

**Primary study design**

Interventional

**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](mailto:aobrien@sgul.ac.uk). The data are the anonymised 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