Evaluating Healthcare Professionals' Satisfaction and Stress Mitigation Using Virtual Reality Intervention in Surgical Ward

Published: 07-05-2025
Last updated: 22-05-2025

The aim of this study is two-fold. First, we will test a newly developed VR environment that is able to adjust to real-time physiological parameters indicative for stress such as heart rate and heart rate variability and its effects on…

Ethical review	Not available
Status	Pending
Health condition type	Other condition
Study type	Interventional research previously applied in human subjects

Summary

ID

NL-OMON57527

Source
Onderzoeksportaal

Brief title
Evaluating Healthcare Professionals' Satisfaction and Stress Mitigation Using Virtual Reality Intervention in Surgical Ward

Condition

- Other condition

Synonym
stress, tension, workstress

Research involving
Human

Sponsors and support

Primary sponsor: Amsterdam UMC
Source(s) of monetary or material Support: Derde geldstroom (anders, zoals collectebussenfondsen, Europese Unie, vakministeries of bedrijven)

Intervention

- Other intervention

Explanation

N.a.

Outcome measures

Primary outcome

User satisfaction, acceptability, appropriateness and feasiblity of the intervention

Secondary outcome

Stress level before and after the intervention
User comfort
Best organizational fit

Study description

Background summary

Occupational stress, burnout and personnel shortage have always been prevalent among healthcare workers. Currently, it is estimated that 60% of healthcare professionals experience burnout symptoms, with 13-21% of hospital doctors, and approximately 11% -30% of nurses affected. This is also associated to higher job turnover intentions, especially among nurses.

One of the most stressful workplaces in healthcare appears to be within the domains of anesthesiology and surgery, for several professions such as physicians, OR nurses and nurses on hospital wards. Several factors contribute to this, including long workdays, the complexity of tasks, the occurrence of complications and adverse events, the unpredictability of the work, and the constant fear of litigation. In addition, healthcare professionals face administrative pressures, high workloads, and must maintain constant alertness. This is not without consequences, moderate-to-high levels of burnout and poor well-being are associated with patient safety incidents such as medical errors. Emotional and occupational stress can also affect physiological indicators, such as heart rate and heart rate variability,

making these objective measures of mental stress. Therefore, it is important to prevent stress among healthcare professionals and to reduce it.

Consequently, innovative and creative solutions are needed to offer psychological support to healthcare workers in these high-stress settings. One way to reduce stress is the use of Virtual Reality (VR). Various studies have studied several VR interventions and training programs, demonstrating their effectiveness in reducing stress and anxiety among healthcare professionals, as well as promoting resilience , relaxation and happiness.

Despite the potential benefits for healthcare workers, the hospital environment is often not tailored to support the use of these types of interventions. Requirements for successful implementation of these types of interventions are often related to supportive and organizational environments (e.g. workplace culture and stress management policies), personal commitment (e.g. willingness to use, user satisfaction), and technical issues.

Study objective

The aim of this study is two-fold. First, we will test a newly developed VR environment that is able to adjust to real-time physiological parameters indicative for stress such as heart rate and heart rate variability and its effects on those parameters during use. Next, user satisfaction is assessed among working staff involved in active patient care at the surgical wards with the ultimate goal of mitigating stress and promoting resilience, and find best organizational fit. Additionally, the perceived stress levels before- and after the VR intervention will be studied. Besides that we will study user comfort, and non-invasive biomarker measurements.

Study design

This is a multination feasibility study

Intervention

Participants will receive a VR headset, in which the participant can choose from a number of VR images and sceneries of the HealthyMind® (HM) VR simulation to relax. Non-invasive biomarkers (i.e. heart rate and heart rate varibiality) will be captured with a Polar armband. In response to changes in the biomarkers the scenery changes. For example someone is more stressed according to the measurements the weather changes from sunny (not stressed) to cloudy (more stressed). Furthermore, a breathing exercise can be offered.

The participant wears the VR headset for approximately 10 minutes during or after a shift on the surgical ward, ideally at a self-chosen moment following a stressful event. Stress-full events can vary. It will be determined by the participant themselves. Examples include high workload, critical patients or conflicts in the workplace.

Study burden and risks

Participation involves a single session and takes approximately 30 minutes in total.

Some participants may experience mild discomfort from wearing the VR headset which can result in symptoms such as nausea and dizziness, also called cyber sickness. However, the VR environment used in this study is specifically designed so the risk of this happening is low. According to the NFU's risk classification, the risk of the intervention is negligible. If the participant feels uncomfortable, the VR glasses can be removed immediately after which the symptoms usually disappear quickly.

Contacts

Scientific
Amsterdam UMC
S.Q. Vermeulen
De boelelaan 1117
Amsterdam 1081HV
Netherlands
0639012875
Public
Amsterdam UMC
S.Q. Vermeulen
De boelelaan 1117
Amsterdam 1081HV
Netherlands
0639012875

Trial sites

Listed location countries

Denmark, Germany, Netherlands

Eligibility criteria

Age
Adults (18-64 years)

Inclusion criteria

Volunteering healthcare professionals (> 18 years) working in direct patient care at one of the participating surgical wards. The main study group will be nurses regardless of educational level or specific role. Furthermore, surgical residents, physician assistants, and

specialists will be approached.

Exclusion criteria

Diagnosed with epilepsy
Experienced VR as a trigger for their migraines
Severe dizziness or nausea
Diagnosed with arrythmias, bradycardia or tachycardia
Not able to wear the VR headset due to physical or psychological conditions that may compromise their ability to safely use the device

Study design

Design

Study phase:	N/A
Study type:	Interventional research previously applied in human subjects
Intervention model:	Single
Allocation:	Non controlled trial
Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Other

Recruitment

NL

Recruitment status:	Pending
Start date (anticipated):	01-11-2025
Enrollment:	25
Duration:	1 months (per patient)
Type:	Anticipated

WORLD

Recruitment status:	Pending
Start date (anticipated):	01-11-2025
Enrollment:	75
Type:	Anticipated

Medical products/devices used

Product type: N.a.

IPD sharing statement

Plan to share IPD: Undecided

Plan description
N.a.

Ethics review

Not available
Date: 08-05-2025

Application type: First submission

Review commission: CCMO

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
Research portal	NL-010007