Development and Pilot of a Virtual Reality Exposure Therapy Intervention to Treat PTSD in Healthcare Workers Consequent to the COVID-19 Pandemic

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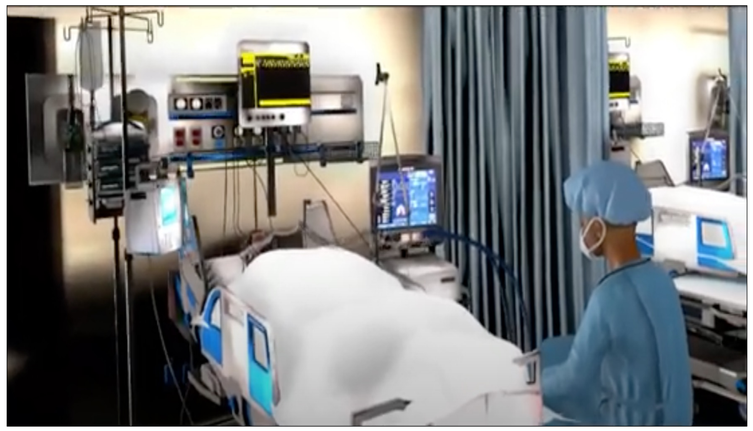
Background

- The COVID-19 pandemic took a tremendous toll on healthcare workers (HCWs) and exacerbated rates of PTSD and moral injury, underscoring the need to develop scalable evidence-based interventions tailored to HCWs.
- Studies have shown efficacy and patient preference for virtual reality exposure therapy (VRET) in other occupations at risk (e.g., military personnel).
- VRET promotes emotional engagement by generating computer-generated stimuli (e.g., visual, auditory) germane to the trauma memory.
- Rapid, inexpensive personalization of avatars has only recently become feasible.

Methods

- We developed a flexible, customizable, and personalizable VR platform to address PTSD and related comorbidities in HCWs, which is designed to simulate specific traumas and to be modified by the treating clinician to suit the experience of each individual.
- This simulation represents the hospital during COVID-19 where the HCWs' traumas occurred.
- HCW focus groups were conducted with HCWs across different disciplines (e.g., nurses, ICU physicians, etc.) to obtain feedback and refine the environments.
- A pilot study is underway (*N*=20):
  - Comprised of ten 90-minute VRET sessions scheduled twice a week to assess feasibility and acceptability of the intervention.



Progress

- Developed the virtual reality simulations, to be utilized with Oculus Rift headsets, of a prototypical intensive care hospital and related environments.
- Through multiple focus groups, using an iterative design process, we refined the simulation.
  - We fine-tuned the environment by involving programmers and HCWs to assess its realism by adjusting sounds (e.g., the precise sounds of respirators), simulated patients, doctors, nurses, and medical technology.
- Recruitment and enrollment for the study is underway; first patient enrolled as of October 2023.

Discussion

- The team is working on the following refinements:
  - **Add customized avatars** that resemble the patient.
  - Incorporate the ability to **switch perspectives** in the environment, which aims to target common comorbidities of PTSD (e.g., depression and moral injury).
  - Add a **data recording system** to continuously record each user's movements and activities in the virtual environment which can provide rich information for the therapist.
  - Develop a protocol to **run this study entirely via telehealth and remote VR** to increase accessibility and scalability.
- Results will inform a fully powered RCT to compare VRET to other evidence-based treatments for PTSD in HCWs and to examine whether personalized avatars improve patient. outcomes.