

Virtual Reality in Intensive Care

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Introduction

Post intensive care syndrome (PICS) is an umbrella term describing physical and psychological abnormalities following critical illness and is a challenge for many ICU survivors with over 30% being affected by post-traumatic stress disorder¹. PICS is worsened by over-and under-stimulation, painful procedures and delirium². Virtual reality (VR) environments have been shown to have an anxiolytic effect on healthy volunteers, and help re-orientate patients with delirium³.

This project aimed to evaluate the potential of VR technology to improve experiences of ICU survivors. Specifically, examining whether VR could be a useful tool for patients in ICU to prevent PICS and delirium.

Methodology

1. Several prototype VR environments were developed using mobile technology and virtual reality headsets.
2. A focus group was held with ICU survivors, who trialled the environments and gave feedback.
3. ICU staff also trialled the environments and gave feedback.
4. Feedback took the form of semi-structured Likert scales and free text responses.
5. Analysis of quantitative and qualitative data

Results

The patients felt universally positive, and they believed VR would have potentially helped with recovery, specifically to comfort and orientate them. Survivors mentioned how they felt that seeing nature or familiar environment whilst immobilised in a windowless room could have helped them to feel more grounded and relaxed. One patient even discussed the possibility of it replacing some painkillers.

A large pool of medical staff were questioned and were impressed at the impact despite the simplicity of the prototype and believe that the low cost would make implicating the VR in wards easier as each individual could have their own headset, avoiding contamination issues.

“ It would have been nice to go off into your own wee world instead of asking for another pill ”

Figure 1: Quote from patient focus group

Conclusions

Some interviewees expressed concerns that the transportive power of the VR may add to patients' confusion. This highlighted the need for assessment of the patient's mental capacity prior to headset usage. Therefore, further research would only be ethical when using suitable patients who are stable not delirious is needed.

In conclusion, our project is high impact and low cost. Comfortable headsets are available from amazon for £5 and free-to-use apps can be used for creating the VR environments. Responses were overwhelmingly positive from the ICU survivors and staff regarding the benefits our project could provide to patient care. However, this is a new and innovative idea that requires further research on the effects on current patients.

Further applications of this technology include: physical element for exercise and rehabilitation, season orientation, interactive environments, videos and photos from families, education regarding the patient's current condition and games such as crosswords and wordsearches

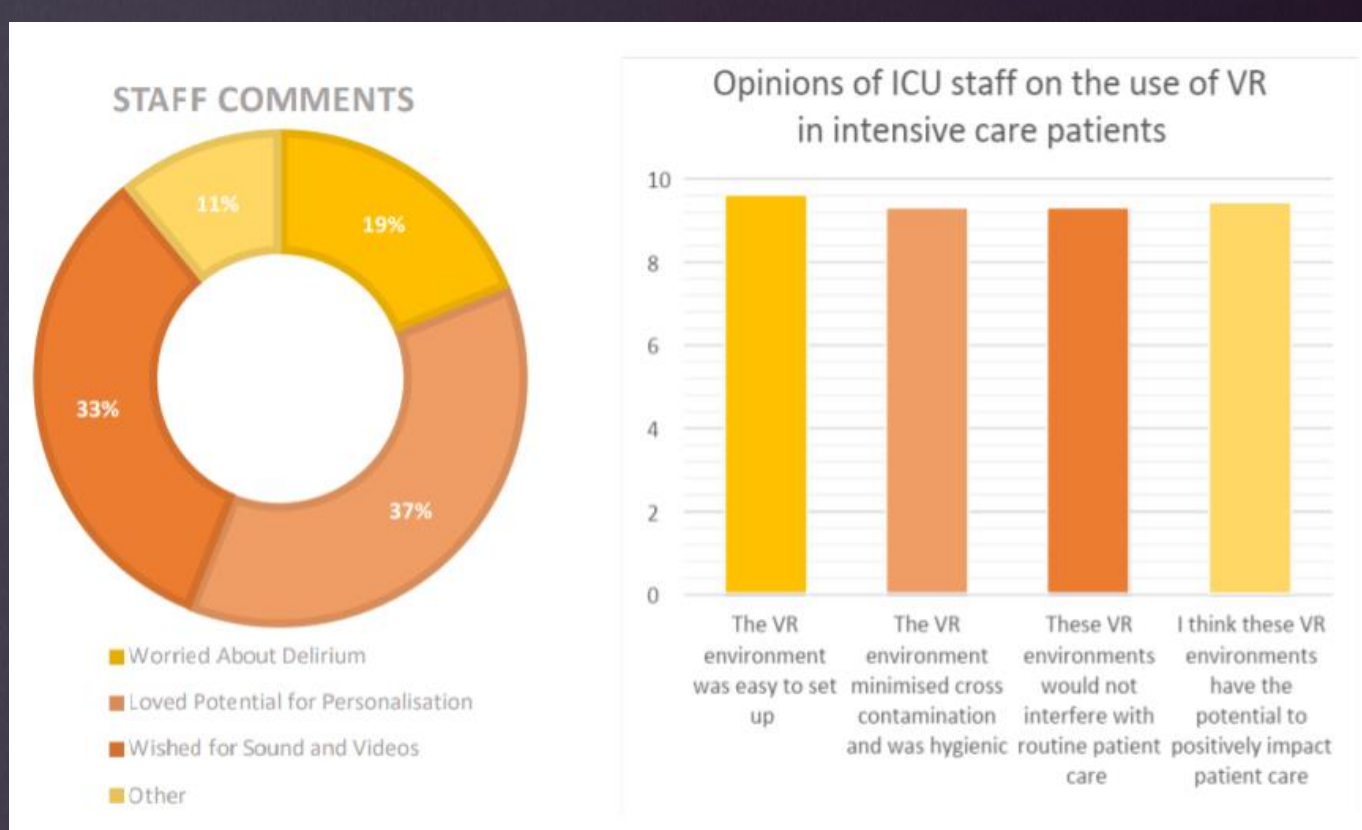


Figure 2: Staff opinions on the use of virtual reality in the ICU

References

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