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Stepping Up Psychosis: The Use of Virtual Reality in Pre-registration Mental Health Nursing Education

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Abstract

Background: There has been growing interest in the development of mental health-related simulation packages for pre-registration mental health nursing education. The authors will present the creation of a simulation package created for pre-registration mental health nurses during their final year.

Method: The simulated experience consisted of a five-minute Virtual Reality (VR) recording which shares the experience of living with symptoms of psychoses. The package, not only looked at the hearing of voices, but in addition enhances the user's experience by simulating visual perception and placing the student within a secluded environment. This was delivered to students in their final six months of the program.

Results: Students noted the increase in empathy for patients experiencing these symptoms and how it would enhance the care they gave.

Conclusion: The results of this innovation demonstrate how virtual reality (VR) could be used to standardize student nurses' education in the field of mental health.

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Introduction

Simulation in Mental Health Nursing Education

The Nursing and Midwifery Council (NMC), the United Kingdom's (UK) nursing regulator for practicing nurses, has recognized simulated learning as appropriate for skill acquisition similar to a clinical placement experience, signaling significant advancements in simulation in nurse education in recent years. Simulation has been demonstrated to be beneficial in the field of mental health nursing (Alexander et al., 2023). Whilst the NMC acknowledges that all registered nurses should be able to treat patients and identify declines in their physical and mental health, they also acknowledge that the level of skills and competencies nurses require in different fields such as, adult, pediatric, mental health, and learning disabilities will differ (NMC, 2018).

Nurses need to develop and confidently be able to carry out technical clinical skills such as inserting catheters, carrying out venipuncture and cannulations, reading diagnos-

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tic tests and interpreting outputs. However, mental health nurses must acquire improved communication and evaluation skills in order to work with patients who have altered thinking (NMC, 2018). Furthermore, while working with individuals who are extremely emotional and distressed, the capacity to establish therapeutic rapport and to show empathy and compassion is frequently crucial. Owing to these necessary competencies, preregistration adult nurse training frequently uses low-fidelity simulation designed to teach specific procedures (Nair, Muthu, & Abuijlan, 2024), which may be ineffective at simulating the dynamic scenarios mental health nurses may encounter in the real world.

There has been growing interest in the development of mental health-related simulation packages for pre-registration mental health nursing education (Alexander et al., 2023). The development and use of a simulation package designed to replicate the hearing of voices, which can be one symptom experienced by a person suffering from a psychotic disorder, has received much attention (Fossen & Stoeckel, 2016; Marshall, Bliss, Evans, & Dukhan, 2018). These simulated experiences are often short recordings of multilayered auditory experiences described by patients who have lived with psychosis. The use of these packages promotes awareness and empathy for those nurses caring for these patients to develop empathy and awareness into this distressing experience (Marshall et al., 2018), but they can also help challenge the prejudice and stigma healthcare providers can hold due to the symptoms being difficult to understand (Dearing & Steadman, 2008).

According to an analysis of published research on simulated hearing voices packages, the majority make use of headphones to listen to a recording (Bradshaw et al., 2021). These studies also demonstrated the difficulty patients have processing these experiences and making judgements by asking the user to attempt to engage with a task simultaneously (Dearing & Steadman, 2008). Additional research, like that done by Marshall et al. (2018), asked users to respond to questions throughout the simulated psychosis experience, finding it led to an increase in empathy and critical reflection. Auditory hallucinations are one symptom of psychosis but are not the only symptom that a person can experience (Montagnese et al., 2021). Visual hallucinations have been found to also be experienced by people experiencing psychosis, with Dudley et al. (2023) noting that an increase in number of hallucinations experienced, increased patient distress. Visual hallucinations have not received as much focus within the development of these simulated packages.

Pedagogy of VR as a Learning Tool

Several pedagogical frameworks for simulation in educational settings exist within the literature. It has been highlighted how simulation can aid the learning of students in a variety of ways, from constructing new knowledge, testing out their own responses to situations, allowing critical thinking and enhancing reflective process that touch on both cognitive and emotional processors (Felton & Wright 2017; Alexander et al., 2023). For pre-registration nurse education, the ability to practice in a safe environment free from patient harm and reflect upon the scenario undertaken is crucial.

The development and utilization of Virtual Reality (VR) in education has grown exponentially in recent years (Al-Ansi, Jaboob, Garad, & Al-Ansi, 2023). In their systematic review on the use of VR in education, Hamilton, McKechnie, Edgerton, and Wilson (2020) found there had been a significant growth in the number of studies in this area since 2017. The proliferation of simulation and VR as a means of delivering simulated learning demonstrates a trend of education providers seeking ways to enhance the student experience using new technologies. Three primary types of virtual reality exist: non-immersive, where the user interacts with the virtual world usually through a computer screen while maintaining presence in the real world; semi-immersive, which expands on non-immersive VR by enabling the user to engage with the virtual world via a computer screen or head-mounted display (HMD) while maintaining presence in the real world; and fully immersive seeks to provide the user with an entirely immersive experience, including all senses—such as vision, hearing and touch, so that the user cannot distinguish between the virtual and real worlds. (Musa, Rahman, & Buhalis, 2022). When considering the use of VR for the simulation of hearing voices and psychosis, most of the noted studies (Dearing & Steadman, 2008; Marshall et al., 2018) have been desktop-based packages. In further support of the current innovation, a paper by Hamilton et al. (2020) considered all educational subjects, finding 45% of VR was within the science subjects and only 14% within medicine with no specific mention of mental health nursing education. This indicates a potential gap between the interest in immersive VR in this field and the availability of resources to support learning.

The utilization of VR within pre-registration nursing education can not only aid the learning process, but also enable educators to provide enriched experiences for growing student numbers. The use of simulated immersive VR packages, not only helps to cater for larger numbers of students all at the same time, but also simulation can make the learning standardized and provide more equal opportunities for participation (Ha, 2018).

The Innovation Development

Working with the university's Technology-Enhanced Learning unit, actors were employed to provide a variety of voices. Other voices were added to the main actor's recording, which was made to sound like the patient having self-defeating, persecution-based ideas. It has

been noted that those experiencing auditory hallucinations often have a sense of being overloaded by stimuli which can result in blurring between internal and external sounds (Fusar-Poli et al., 2022). To capture this within the scenario sounds from outside sources, including TV broadcasts, ticking clocks, buzzing lights, and knocks on doors were also added. After the auditory process was developed, it was discussed and modified in consultation with other nursing colleagues who had assisted individuals with psychosis. To enhance the experience from being one employing audio stimuli alone, it was agreed that the user would also experience visual disturbances. This was achieved by including the flickering of lights, blurring of sharp lines in the room and the altered perception of space was threaded throughout the experience (Adámek, Langová, & Horáček, 2022).

To increase the fidelity and enhance the immersive nature of the learning simulation, the team set up the VR experience within a sparsely decorated room very similar to the one the user would see on the HMD, that is, a bare room with a single door at one end containing a mattress on the floor. The developer designed the VR visual aesthetics to match the room available to enrich the student's overall experience. This was of importance as the student mental health nurses had all experienced a patient in seclusion, so would be familiar with a person experiencing such symptoms being nursed in these settings. In addition, the authors hoped that the VR experience would not only enhance the understanding of psychosis as previous studies have shown, but whilst not the primary aim, could also support the awareness off the negative impact seclusion can have on patient wellbeing (Zheng et al., 2020).

Sample

The students were in their final year of an undergraduate bachelor's degree with six months left of the program. Students attended a prebrief about the scenario and informed that they would be asked to carry out the VR experience for five minutes in isolation sitting on the mattress in the replicated seclusion room. The students took it in turns enter the experience. All students were informed they could leave should they wish during the simulation, but all students completed the experience.

Results

Ethical approval was sought and approved by the university ethics committee (Ethics Number: 23 NAH 028) allowing for an evaluation of the experience. To continue developing the learning from a nursing perspective and see how the experience would shape their mental health nursing careers, the students were asked to provide feedback on the experience in accordance with the NMC reflective learning tool. In the UK, nurses must revalidate every three years and must provide reflective accounts of learning to fulfil this. They are asked about the event that has taken place, what they have taken from it and how it informs or develops their practice. The teaching team used this form to evaluate if and what learning has taken place from the VR scenario.

As we had hoped for the intervention, students noted that they had greater empathy for the patients experiencing these symptoms and believed that it would help their practice by taking their time and showing more care towards the patients' distress.

> *"Although I am aware of the significance of empathy in practice, I believe this really helped me see the viewpoint of the patient. This Is because it painted a really clear picture of how mental health services and affect them in a number of ways* (…)*"* (S1)

> *"It will allow me to empathize with those experiencing psychosis* (…)" (S2)

In addition, seclusion as the setting for the experience was also noted in the reflective accounts in relation to their future nursing practice.

> *"*(…) *the experience has made me consider how a patient may feel when approached by members of staff whilst in seclusion."* (S3)

> *"*(…) *going forward I will have more of an understanding how traumatic it is for someone in seclusion so would ensure with the team we keep them in seclusion for the least amount of time necessary and also try to make the patient feel as safe as they can whilst they are in seclusion."* (S4)

Future Practice

Whilst the innovation has proven to be a positive learning experience, the team acknowledge that the work was purely descriptive and more robust research and testing would be needed moving forward. In addition, whilst the team developing the VR had extensive knowledge of supporting those with psychosis, it was recognized that the use of a service user to guide and shape the package could further enhance the fidelity. For this reason, before the next cohort, we plan to engage with service users and gain feedback and iterate the intervention accordingly.

Conclusion

This research presents a novel simulation experience designed to enhance learners' comprehension of visual and aural hallucinations in psychosis. The fidelity and learning objectives were improved by adding visual cues and situating the simulation in a confinement environment. The

results of this study demonstrate how virtual reality (VR) could be used to standardize student nurses' education in the field of mental health.

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