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Getting Personal with Dementia:
Physician Assistant Student Virtual Reality Immersion

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Introduction

Approximately 5.7 million people in the United States are living with dementia, with numbers expected to rise to 13.8 million by 2050 [1,2] As prevalence grows, it is crucial to train future providers to meet the complex and diverse needs of patients and caregivers. Virtual reality (VR) is a growing tool in medical education, but few studies explore this tool for dementia education. One study found VR had a positive impact on medical and pharmacy students' knowledge and attitudes toward people with dementia. [3.] Another study found VR increased the understanding and empathy in medical and physician assistant (PA) students for adults with age-related conditions. [4]

Purpose

The purpose of this study was to explore the impacts of a VR PA student immersion on the knowledge, attitudes, and strategies for future practice surrounding older adults with dementia and their caregivers.

Method

Forty nine PA students at the University of New England (UNE) were immersed in a VR experience using software from Embodied Labs with a unique application that puts the learner in the "shoes" of the patient. The VR experience teaches about worsening dementia from the perspective of an aging female, "Beatriz", who is surrounded by caregivers. Embedded pre and post "Beatriz" surveys focused on past experience with dementia, knowledge of the disease, impact on patients and caregivers, and strategies for patient interaction. Prompted post- experience reflection questions focused on the experience's impact on care of future patients, support for caregivers, and interprofessional referrals. Faculty were blinded to participant identity in survey responses and reflection responses were de-identified prior to trend analysis.

Method (cont.)

Figure 1 Embedded pre-post survey question

Figure 2 Post VR reflection questions

Results

- Survey and reflection response rate was 100%.

Figure 3: Balance of past dementia care experience
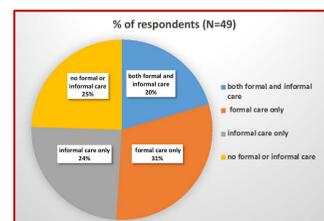
Results (cont.)

Embedded Survey Results

- Survey results revealed an increase in the number of respondents who agreed or strongly agreed on all five survey questions after the Beatriz VR experience.

Table 1: responses for Agree and Strongly Agree on embedded survey

Question	PRE - % agree or strongly agree	POST- % agree or strongly agree	Difference
I understand how dementia impacts a person's **quality** of life.	65.3	93.9	28.6
I know the **symptoms** associated with dementia.	71.4	96.0	24.6
I am knowledgeable about how to **work** with people exhibiting symptoms of dementia.	34.7	61.2	26.5
I understand the **impact** on care partners and families who live with a person who has dementia.	73.5	91.8	18.3
I am interested in providing **medical** care for older people.	53.1	65.3	12.2

Likert scale 1= strongly disagree, 2 = disagree, 3= neutral, 4 = agree, 5= strongly agree

- Survey results reveal a significant increase in self-identified knowledge surrounding impact on quality of life for both dementia patients and caregivers, symptoms of dementia, and strategies for care after the Beatriz VR experience.
- There was a nearly significant increase in the desire to provide care for older adults after the Beatriz VR experience.

Table 2: Mean scores for embedded survey questions

Question	PRE mean	POST mean	Significance (0.05)
Quality	3.694	4.286	0.00
Symptoms	3.755	4.286	0.00
Work	3.061	3.714	0.00
Impact	3.796	4.286	0.000
Medical	3.592	3.796	0.058

Paired Sample T-Test for PA Data N = 49

Reflection Results

- Reflection results surrounded students' current knowledge and future practice.
- Students identified the need for altered strategies of communication and care for patients suffering form dementia.
- Many recognized the emotional, physical, and financial stresses placed on caregivers.
- Referral resources and patient and caregiver support teams were identified by many.

Results (cont.)

Excerpts from reflections:

- *"This experience taught me about the barriers: spoken language, interpretation of language and the paranoia of dementia. Going forward, I will be more mindful of how these play into patients with dementia and how I react to their particular responses."*
- *"One take away I learned is that as stressful as it seems to be the one with the dementia, it seems to be just as stressful for the ones taking care of the patient with dementia. I feel as though this diagnosis is a very two sided story."*
- *"This experience will impact the way I care for patients with dementia, because I now have a clear view of what it might be like to both have dementia and be a caretaker, or a supporting family member trying to take care of their loved one with dementia."*
- *"My biggest takeaway pearl specifically from having a VR experience was that common situations can appear dangerous to a patient with dementia the one scenario where Beatriz's daughter was coming inside and appeared to be an intruder was frightening. I better understand why dementia patients can become violent at times."*

Conclusion

- In conclusion, the immersion VR altered senses and perception of external stimuli enhancing students' learning about the complex nature of dementia. It led to increased understanding of the multimodal and multidisciplinary care necessary for patient treatment and caregiver support. More importantly, it gave students the confidence to project into their future roles as empathetic providers and identify strategies they will need in caring for dementia patients and caregivers. This significant impact on knowledge, attitudes and strategies for future practice was seen despite the fact that the majority of the respondents had previous formal experience as direct care workers with dementia patients. It supports the value of VR immersion as a training tool, not only for students, but also for current health care providers.

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