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Randomized Controlled Trial for the Management of Pain and Anxiety Using Virtual Reality During the Care of Older Hospitalized Patients

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Abstract : Background: The medical environment can generate stressful and anxiety-provoking situations for patients, particularly during painful care procedures for the older population. These stressful environments have deleterious effects on the quality of care and can even put the patient at risk and set the care team up for failure. The search for a solution is, therefore, imperative. The development of new technologies, such as virtual reality (VR), seems to be an answer to this problem. Objectives: The objective of this study is to compare the effects of virtual reality on pain and anxiety when caring for older hospitalized people with the effects of usual care. More precisely, different individual factors (age, cognitive level, individual preferences, etc.) and different virtual reality universes (personalized or non-personalized) are studied to understand the role of these factors in reducing pain and anxiety during care procedures. The aim of this study is to improve the quality of life of patients and caregivers in their work environment. Method: This mono-centered, randomized, controlled study was conducted from September 2023 to September 2024 on 120 participants recruited from the geriatric departments of the Cimiez Hospital, Nice, France. Participants are randomized into three groups: a control group, a personalized VR group and a non-personalized VR group. Each participant is followed during a painful care session. Data are collected before, during and after the care, using measures of pain (Algoplus and numerical scale) and anxiety (Hospital anxiety scale and numerical scale). Physiological assessments with an oximeter are also performed to collect both heart and respiratory rate measurements. The implementation of the care will be assessed among healthcare providers to evaluate its effects on the difficulty and fatigue associated with the care. Additionally, a questionnaire (System Usability Scale) will be administered at the conclusion of the study to determine the willingness of healthcare providers to integrate VR into their daily care practices. Result: The preliminary results indicate significant effects on anxiety (p=.001) and pain (p=<.001) following the VR intervention during care, as compared to the control group. Conclusion: The preliminary results suggest that VRI appears to be a suitable and effective method for reducing anxiety and pain among older hospitalized individuals compared with standard care. Finally, the experiences of healthcare professionals involved will also be considered to assess the impact of these interventions on working conditions and patient support.

Keywords : anxiety, care, pain, older adults, virtual reality
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