Usability and Safety of a Canadian Virtual Reality Technology for Symptom Reduction in Geriatric Palliative and End-of-Life Care in a Hospital Setting A. Moreno[1,2,3], C. Rigoulat[1,2], M. Dubois[1,2], C. Pichon[2,4], P. Pelletier[1,2], C. Turk[1,2], & C. Caamano[2]. *Gerontechnology* 25(s)

Purpose Existing studies indicate that virtual reality is a usable, feasible, and acceptable intervention in palliative care [1]. Virtual reality has been shown to effectively reduce pain, fatigue, drowsiness, dyspnea, and depression, while improving psychological well-being in individuals in palliative care [2], and to reduce anxiety in their family caregivers [3]. This study investigated the impact, usability, satisfaction, and perceived safety of the Canadian-developed virtual reality content "Come With Me™" among hospitalized individuals receiving palliative and end-of-life care. **Method** The virtual reality content was co-developed through a collaboration between the Montreal-based start-up Nipper Media and key stakeholders [4]. The virtual reality content "Come With Me™" consists of a series of videos filmed with a 360° camera in 5.7K resolution and featuring ambisonic sound. Using a Pico G3 headset, "Come With Me™" provided individuals in palliative and end-of-life care three different virtual trips in French, with or without music. The virtual reality content is projected from the iPad onto the Pico virtual reality headset for user viewing. Participants do not need to use any controllers or perform any actions during the experience. Measures included the State-Trait Anxiety Inventory (STAI-Y) and the Edmonton Symptom Assessment System–Revised (ESAS-r), assessed before and after the experience, while the System Usability Scale (SUS) and visual analogue scales were used to evaluate participants' perceptions of satisfaction and perceived safety with the virtual reality technology. Eight French-speaking individuals (mean age = 74.2 years, SD = 13, 50% female) admitted to the end-of-life unit at Montreal's Notre-Dame Hospital participated in this hospital-based study. Most participants were White (75%), single (50%), cisgender (100%), heterosexual (87.5%), had completed high school (50%), and were retired (62.5%). Participants had been diagnosed with a non-curable disease an average of 6.4 months prior (SD = 5.3). The virtual reality content "Come With Me™" was delivered in a single session averaging 9.1 minutes (SD = 0.36). They took part in the study an average of 3.8 days after admission (SD = 1.9) and died an average of 36.7 days later (SD = 17.3). Prior to the virtual reality experience, 62.5% of participants had received pain medication. **Results and Discussion** The results of a Wilcoxon Signed Rank Test revealed a significant decrease in anxiety as measured by the STAI-Y after the virtual reality experience, $z = -2.1$, $n = 8$, $p < .05$, with a large effect size ($r = .74$). The median score on the STAI-Y decreased from before the virtual reality experience (Md = 39.5) to the post-VR experience with «Come with Me™» (Md = 29). After experiencing the virtual reality content "Come With Me™," 75% of individuals in end-of-life care reported low levels of anxiety and 25% reported moderate levels, compared with 37.5% reporting low anxiety, 37.5% moderate anxiety, and 25% high anxiety before the virtual reality session. They also reported good usability, as measured by the SUS (M = 79.1; SD = 16.5), strong satisfaction (M = 7.6; SD = 2.3), and minimal perceived risk (M = 1.1; SD = 2.1), suggesting that the intervention was safe, acceptable, and well tolerated. A minimal clinically important difference was observed in the total ESAS-r score, with improvements noted in three physical symptoms (pain, drowsiness, and dyspnea), one emotional symptom (depression), and overall well-being. In conclusion, this pilot study shows that a single, highly immersive virtual reality session of less than 10 minutes, co-designed for palliative care, can significantly reduce anxiety in older adults receiving end-of-life care, while also yielding clinical improvements in physical and psychological symptoms, enhancing overall well-being, and demonstrating high usability, satisfaction, and perceived safety.

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