To Infinity and Beyond: Applying Virtual Reality in Palliative Care

Para o Infinito e Mais Além: Aplicando a Realidade Virtual nos Cuidados Paliativos

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Introduction

Going to the top of a mountain, swimming with dolphins, skydiving, travelling in a gondola, discovering distant places or those that we went and never forget can be some of the dreams and desires of human beings that often remain unfulfilled. The existence of a chronic, autonomy-limiting, or advanced disease and a short life expectancy make these desires, known as the "bucket list",[1] even more difficult to fulfil. Nothing beats the reality of our experiences, but virtual reality (VR) may allow many dreams to come very close to complete realization.

In healthcare, VR has been applied in various contexts, including pain control, psychiatry, rehabilitation and neurology.[2] Existing scientific evidence shows that VR has been beneficial in treating anxiety, depression, and creating a sense of well-being.[3] However, little research has been done in palliative care (PC).

Taking advantage of the beginning of a (as far as we know) pioneering project in Portugal, with VR use in the Inpatient PC Unit where we work, we intend, through a critical reflection, to launch a theme in the PC area, in the hope to contribute to the development of future fields of investigation.

Interventions in PC are based on the fundamental principle of approaching suffering in all its aspects (physical, psychological, family and spiritual). The experiences provided by VR may not only offer quality of life and reduce pharmacological needs but also enable shared experiences and memories. These experiences do not presuppose very complex conditions and may, therefore, be a potential future therapy.

Fundamentals

Virtual reality refers to the use of technology to create a simulated environment. Its use in healthcare has been increasing and the mechanism proposed for its therapeutic effect is distraction.[2] Distraction is an effective emotion-focused coping strategy because it diverts attention from unpleasant stimuli towards pleasant or interesting stimuli, thus decreasing stress and anxiety.[4] The functionality enabled by headphone systems, motion detectors and virtual reality interaction systems are key to creating the distraction factor. Underlying this principle is the interaction between different senses simultaneously, such as image visualization, vibration, sound, and sometimes smell and tactile interaction. In addition to these aspects, the isolation from the medicalized environment helps to create a focus on pleasurable stimuli that may contribute to the reduc-

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tion of negative emotions.[4-7] Since the biological mechanism by which VR improves anxiety and depression has not been fully clarified, there is an open field of investigation in Neurology.

What we Already Know

Although clearly under-exploited, virtual reality is starting to take its first steps in PC. A pilot study of VR use in patients with life-limiting illnesses who were residents of a free-standing hospital facility with cancer, heart failure and pulmonary diseases, showed an overall trend of improvement on the Edmonton Symptom Assessment Scale (ESAS) of several symptoms after the VR intervention, namely pain, tiredness, drowsiness, depression, and anxiety.[2] Another study in an inpatient PC Unit also found important benefits for family members.[8]

It is especially in cancer patients that the experience begins to emerge. Niki *et al* demonstrated that a one-time VR intervention in terminal cancer patients can lead to significant reductions in pain, tiredness, drowsiness, shortness of breath, depression, and anxiety.[9] In a cohort study of breast cancer patients during chemotherapy, the VR group reported a significantly lower mean post intervention anxiety score compared with the control group, and effectiveness of VR in decreasing both depression and fatigue[4]. This is also seen with children and young adults and their parent caregivers in a pilot randomized controlled study to examine the effectiveness of an immersive VR therapeutic intervention. Parent caregivers reported high acceptability of VR for their hospitalized child and patients reported high satisfaction of the VR intervention within minimal adverse effects.[10]

However, its applicability is also transversal to other pathologies. It is already known that the use of psychosocial and spiritual therapies of short duration (<4 sessions or <21 days), including reminiscence or life review interventions, demonstrated positive effects on patient quality of life, emotional and existential distress in the PC context.[11] Reminiscence therapy is also one of the most used psychosocial interventions for people living with dementia. It consists of a recall of past memories and experiences aided by memory triggers such as photographs, music or meaningful objects. Reminiscence programs delivered by care staff and using technology have been demonstrated to improve well-being and quality of life in individuals with dementia in community and inpatient settings.[12]

Being on the "crest of the wave", VR has also been used to break some of the conditions of the current pandemic context. The ongoing COVID-19 pandemic has generated a global outpouring of fear and anxiety about the thought of dying alone, aggravated by the fact that upon being diagnosed with COVID-19, patients often undergo rapid deterioration, giving them little or no chance to find closure with their loved ones before demise. Currently, video conferencing is the main choice of communication, but recent advances in VR technologies have opened up experiential modalities that can push the boundaries of communication.[13]

Professional Training Opportunities

With advances in medicine, over the last century the main causes of death have become chronic diseases, with the end of life occurring after a more or less long period of dependence. We are witnessing a new reality, with a growing number of patients with advanced cancer and other serious non-oncological progressive diseases.[14,15] The training of professionals in end-of-life issues thus appears as a critical factor for the development of health services in general, and particularly of PC, with the consequent improvement in the quality of health care provided to a relevant number of patients and also in the efficiency of health services.

The use of VR technology for interprofessional education in palliative care demonstrates an improvement in attitudes toward interprofessional education and interprofessional teamwork in PC.[16]

We therefore believe that the inclusion of specific training in this area in the curricula of professionals dedicated to PC (doctors, nurses, psychologists, social workers, spiritual assistants, physiotherapists) can contribute to an improvement in the quality of teamwork, and therefore of patient care.

Conclusion

VR is here to stay. New horizons are opened, and innovation is put at the service of patients' needs. In PC we will be able to explore different uses of this technology, always based on the assumption of promoting the patient's quality of life, their dignity and that of their family.

Responsabilidades Éticas

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