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Ramon Magalhães Mendonça Vilela , Enrique Goytizolo ,  
Florentino Fernandes Mendes

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BJAN-D-22-00197\_ Letter to the Editor

Immersive virtual reality on a pregnant patient during an elective orthopedic surgery

Ramon Magalhães Mendonça Vilela<sup>a,\*</sup>, Enrique Goytizolo<sup>b</sup>, Florentino Fernandes Mendes<sup>a</sup>

<sup>a</sup> Universidade Federal de Ciências da Saúde de Porto Alegre, Porto Alegre, RS, Brazil

<sup>b</sup> Hospital for Special Surgery, New York, United States of America

\*Corresponding author.

E-mail: ramonmmvilela@gmail.com (R.M.M. Vilela).

ORCID ID:

Ramon Magalhães Mendonça Vilela - 0000-0003-4060-1006

Enrique Goytizolo - 0000-0003-0771-7445

Florentino Fernandes Mendes - 0000-0001-8223-6786

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*Dear Editor,*

We recently used immersive virtual reality on a 21-week pregnant patient scheduled for an elective anterior cruciate ligament repair as a sedation-sparing technique. She had no major comorbidities and no past surgical history. Some readers might find useful insights reading this letter and further research could come as a result. Immersive Virtual Reality (IVR) is an amazing alternative candidate during anesthesia practice when a nonpharmacological approach for anxiolysis, unique patient experience, adjuvant analgesia, and procedural amnesia are desired.

In the recent literature, exciting results across different patient populations explored the ease to use, the noninvasiveness characteristics, the analgesic, and the anxiety-relieving benefits of this technology.[1,2] Moreover, there is a positive public perception of the gadget and its application in healthcare as more people understand its use in other daily activities.[3]

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Pharmacological sedation and its overdosage come with risks, especially in the pregnant population. As such, oversedation increases upper airway obstruction risks and can cause significant hemodynamic changes. Indeed, the most common mechanism encompassing 21% of the closed claims database in monitored anesthesia care is respiratory depression due to relative or absolute sedation overdose.[4] Besides, there is a widespread belief that sedatives can adversely affect their yet-to-be-born children and emerges as a challenge to providers.

Accordingly, after we conducted neuraxial and peripheral nerve blocks under no sedation per the patient's request, the IVR headset was provided. The technology generated (Fig. 1) tridimensional computerized footage with immersive songs. The diopter adjustment created a better tridimensional experience as reported by the patient. Using a touchscreen remote wired to the headset, the patient determined the scenario, volume, and other parameters. We performed periodic satisfaction assessments feeling confident the technology was positively impacting her care given the feedback received. Total IVR exposure lasted for approximately 2-hours. No adverse or unexpected events were observed. Discharge happened on the same day from the Post-Anesthesia Care Unit (PACU) with optimal pain control and patient satisfaction with the technology. She stated that she would undergo the same experience if another procedure should be done under the same conditions. Important to note is the lack of a standardized satisfaction assessment scale applied to Virtual Reality under these circumstances. It limited our objective measurement of the patient's contentment. Plus, due to time restrictions, we made no outpatient assessment. Thus, all the feedback given was non-standardized and subjectively appraised. Despite these constraints, the use of the technology, the feasibility, and the level of patient satisfaction match literature findings.[2]

#### Authors' contributions

Writing: Ramon Magalhães Mendonça Vilela.

Review and Edition: Enrique Goytizolo and Florentino Fernandes Mendes.

#### Conflicts of interest

The authors declare no conflicts of interest.

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Figure 1 An immersive virtual reality headset generated tridimensional computerized footage with immersive songs.

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