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## Occupational Therapy's Role in Pain Management using Virtual Reality

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# Occupational Therapy's Role in Pain Management using Virtual Reality

Johnathan Quach; Becki Cohill, OTD, OTR/L; Susan MacDermott, OTD, OTR/L

## BACKGROUND

Pain is a complex phenomenon that affects millions every day and is frequently associated with activity restriction and decreases in psychosocial health. The prevalence of pain continue to persist because medical responses are costly and still rely on drugs. Healthcare professionals must promote ongoing research and dissemination on the role of effective nonpharmacologic treatments in pain management. *This includes occupational therapists!*

The use of virtual reality (VR) has been shown to be an effective adjunct and alternative to conventional analgesics. As experts in assessing and understanding pain and its many dimensions, occupational therapists should utilize VR's ability to help change the way patients cope with pain.

## PURPOSE

To determine and outline the appropriate and potential role of virtual reality within the scope occupational therapy practice concerning pain management.

## METHODS

### VR Observations

200 hours of site observations @ PoNG

### Semi-structured Interviews

A thematic analysis yielding several meaningful conclusions regarding VR's potential in pain management.

### Online Survey Study

Awareness, Interest and Perception Survey approved by IRB Committee

*Acknowledgement: Special thanks to Trent & Leanne from PoNG, my mentor Tom Walters, and those who took the time to answer my questions via interview or survey.*

## RESULTS

### Data Analysis of Online Survey Study

Key words: fun, novel, engaging, versatile

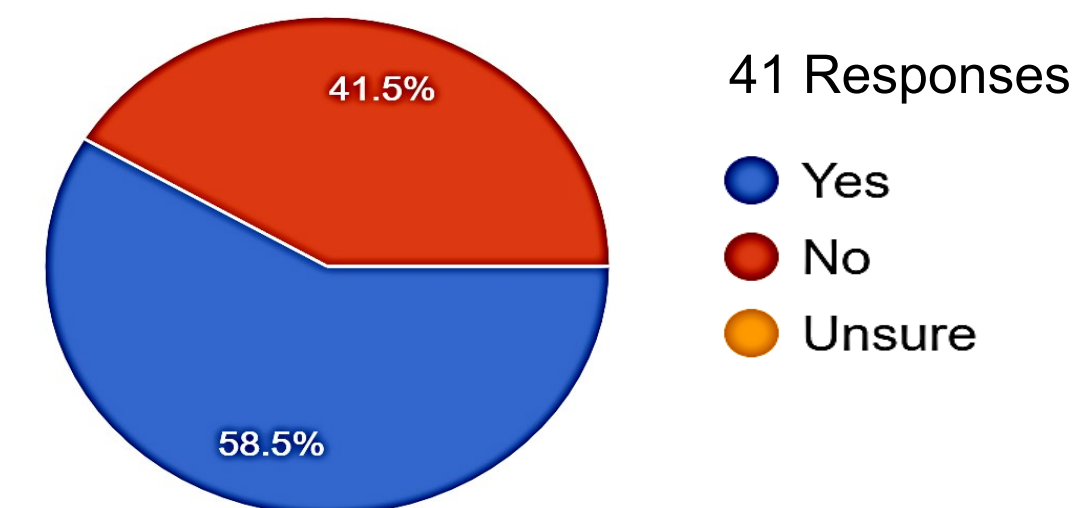
63% aware that VR is being used to treat and manage pain

95% believe there is a need for alternative pain treatments

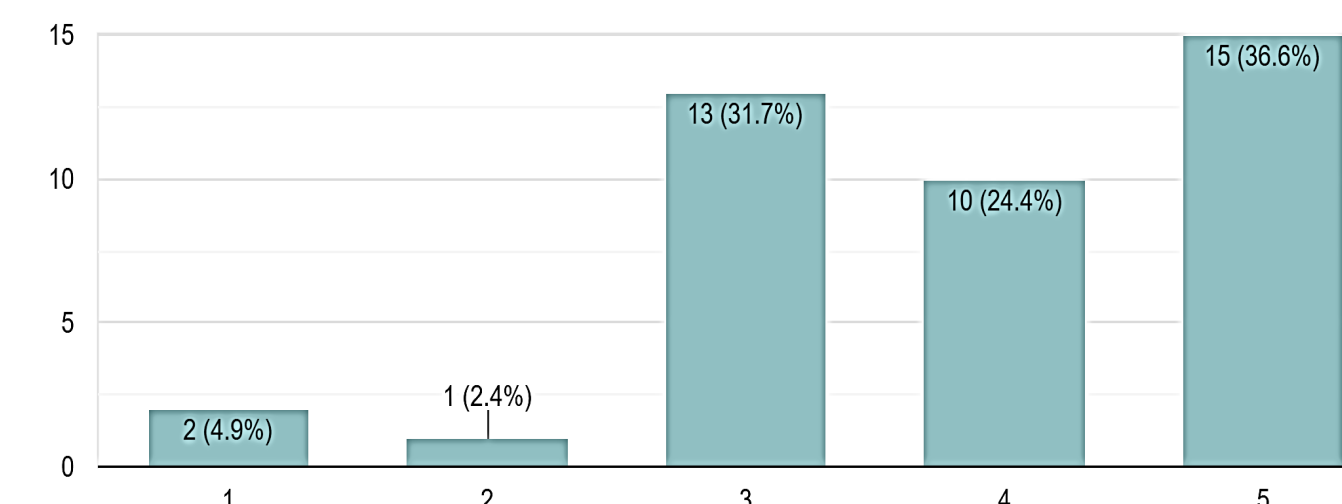
98% of participants interested in learning more about VR and how it can treat pain

Perceived barriers: cost, time constraints, practitioner competency, infection control

Have you ever used or seen virtual reality used in a clinical setting?



How interested are you in incorporating virtual reality in your own setting?



VR Themes	Sample Interview Responses
Ecologically valid and safe	<ul style="list-style-type: none"> <li>"...by addressing and engaging all of one's senses, all the visual, auditory, and haptic senses in real-time, we really are able to address a patient's functional needs in a manner that closely resembles real-world functional abilities."</li> <li>"I mean... it's in the name, the word 'reality.' Yes, it's a 'virtual' reality, but the idea is to create the best version of 'reality' possible. If we are able to do that, we are surely able to transfer skills and success found virtually..."</li> </ul>
Allows us to take therapy anywhere	<ul style="list-style-type: none"> <li>"You may not be able to play tennis in a clinic, or cook food while in a hospital, but with virtual reality, you can... That is a great advantage to have."</li> </ul>
Helps us better understand the patient experience	<ul style="list-style-type: none"> <li>"When a client is going through a simulation of a traumatic event, for example, the therapist is seeing it. I mean, they're seeing what the patient sees in the simulation... I think in some ways, they're getting closer to the patient compared to just the patient's narration as they imagine it in their head."</li> </ul>
Can help establish better connections in the brain	<ul style="list-style-type: none"> <li>"We can use VR for added intensity and repetition that cannot be obtained currently in the real world... to gain that extra or needed capacity to do things"</li> </ul>
Can be tailored to meet all kinds of needs	<ul style="list-style-type: none"> <li>"The possibilities with VR are endless. Limitless. Only bound by your imagination and how skilled you are at choosing or designing your environment... However, you need to have certain knowledge or skills in order to understand that process for your patients."</li> </ul>

## IMPLICATIONS FOR OT

It is of utmost importance that occupational therapists continue to keep up with the latest advances in technology available for rehabilitation. Thus, it is time for occupational therapists to seriously consider adding virtual reality to their toolkit. Findings from this capstone project highlight the impact VR can have as a tool for rehabilitation, and further support the need for awareness and buy-in from occupational therapists working in pain management. However, occupational therapists must take the time to learn how VR equipment and programs work so that they can modify them to fit the needs of each individual patient. Collaborating with developers or participating in evidence-based research will help. Virtual reality must be thoughtfully applied in order to have a meaningful role in occupational therapy.

## CONCLUSION

A role exists for virtual reality within the scope of occupational therapy practice. However, the most appropriate role is still to be determined. More collaboration, education and evidence-based research is necessary. VR must be used properly in order to fully capture its potential in the world of rehab and pain management.

References

Ahmadpour, N., Randall, H., Choksi, H., Gao, A., Vaughan, C., & Poronnik, P. (2019). Virtual Reality interventions for acute and chronic pain management. *The International Journal of Biochemistry & Cell Biology*, 114, 105568. <https://doi.org/10.1016/j.ijb.2019.105568>

Garrett, B., Taverner, T., & McDade, P. (2017). Virtual reality as an adjunct home therapy in chronic pain management: an exploratory study. *JMIR Med Inform*, 5(2), e11. <https://doi.org/10.2196/medinform.7271>

Keefe, F. J., Huling, D. A., Coggins, M. J., Keefe, D. F., Zachary Rosenthal, M., Herr, N. R., & Hoffman, H. G. (2012). Topical review: Virtual reality for persistent pain: A new direction for behavioral pain management. *Pain*, 153, 2163-2166. <https://doi.org/10.1016/j.pain.2012.05.030>

Li, A., Montano, Z., Chen, V. J., & Gold, J. I. (2011). Virtual reality and pain management: current trends and future directions. *Pain management*, 1(2), 147-157.

Mallari, B., Spaeth, E., Goh, H., & Boyd, B. (2019). Virtual reality as an analgesic for acute and chronic pain in adults: A systematic review and meta-analysis. *Journal of Pain Research*, Volume 12, 2053-2085. Retrieved from <https://doi.org/10.2147/JPR.S200498>

Tick, H., Nielsen, A., Pelletier, K. R., Bonakdar, R., Simmons, S., Glick, R., ... Zador, V. (2018). Original research: evidence-based nonpharmacologic strategies for comprehensive pain care. The consortium pain task force white paper. *EXPLORE*, 14, 177-211. <https://doi.org/10.1016/j.explore.2018.02.001>

Treede, R.-D., Rief, W., Barke, A., Aziz, Q., Bennett, M. I., Benoliel, R., ... Wang, S.-J. (2015). A classification of chronic pain for ICD-11. *Pain*, 156(6), 1003-1007. <https://doi.org/10.1097/j.pain.0000000000000160>