

Applicability of Virtual Reality Therapy for Patients Undergoing Chronic Pain Procedures

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INTRODUCTION

- Patient experience during an invasive medical procedure, especially in the hospital environment, is inherently stress-inducing and painful
- While virtual reality (VR) was initially created for entertainment purposes, it may potentially play a role in the clinical setting.
- The integration of virtual reality (VR) into medical procedures has surfaced as a viable approach to tackling patient anxiety, stress, and pain.¹ A systematic review conducted by Mallari et. al offer supporting evidence for the effectiveness of VR therapy in alleviating acute pain during interventions.²
- More evidence is necessary to determine the efficacy of VR in the context of chronic pain management.
- Here, we present the case of a patient with chronic bilateral knee pain treated with genicular nerve radiofrequency ablation (GNRFA) both with and without virtual reality therapy.

METHODS

- The RelieVRx headset from AppliedVR, Inc. was placed on the patient and adjusted to fit comfortably.
- The patient was familiarized with the potential risks and side effects and was then instructed to select the “Relax” VR Experience option using the handheld controller.
- The module runs for 9-16 minutes and consists of visually immersive experiences enriched with sounds and elements such as vibrant colors and scenic environments that enhance elicitation of desired states of arousal and affect.
- After the procedure has been concluded, the patient experience survey is administered to assess for intraprocedural anxiety, pain, and overall satisfaction.



Figure 1. An image of the headset from Applied VR, Inc. with a QR code taking you to their website.

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VIRTUAL REALITY DEMONSTRATES POTENTIAL EFFICACY AS AN ANALGESIC AND ANXIOLYTIC IN CHRONIC PAIN MANAGEMENT PROCEDURES.



CASE REPORT

- A 72-year-old gentleman who presented as a follow up for debilitating bilateral knee pain for the past 5 years.
- Pain in both knees was equally rated 7/10 and increased to 10/10 with exacerbating movements including ambulation and climbing stairs.
- He had received one bilateral GNRFA in the past, which provided greater than 80% relief for the past 7 months. He was initially scheduled for a left GNRFA without VR therapy.
- Upon completion, he reported an intraprocedural anxiety score of 70/100, intraprocedural pain score of 100/100, communication capability score of 100/100, and overall procedural satisfaction of 100/100.
- A subsequent attending physician survey revealed an intraprocedural pain perception of 90/100 and overall perceived procedural satisfaction of 50/100.
- The patient then returned for a right GNRFA procedure with VR therapy. Prior to the procedure, the patient was provided instructions on how to use the device. The patient again tolerated the procedure well without complications.
- After completion, he reported an intraprocedural anxiety score of 60/100, intraprocedural pain score of 65/100, communication capability score of 100/100, and overall satisfaction of 90/100. The attending physician rated pain perception to be 50/100 and satisfaction with the procedure to be 80/100. Both GNRFA procedures were performed by the same attending.

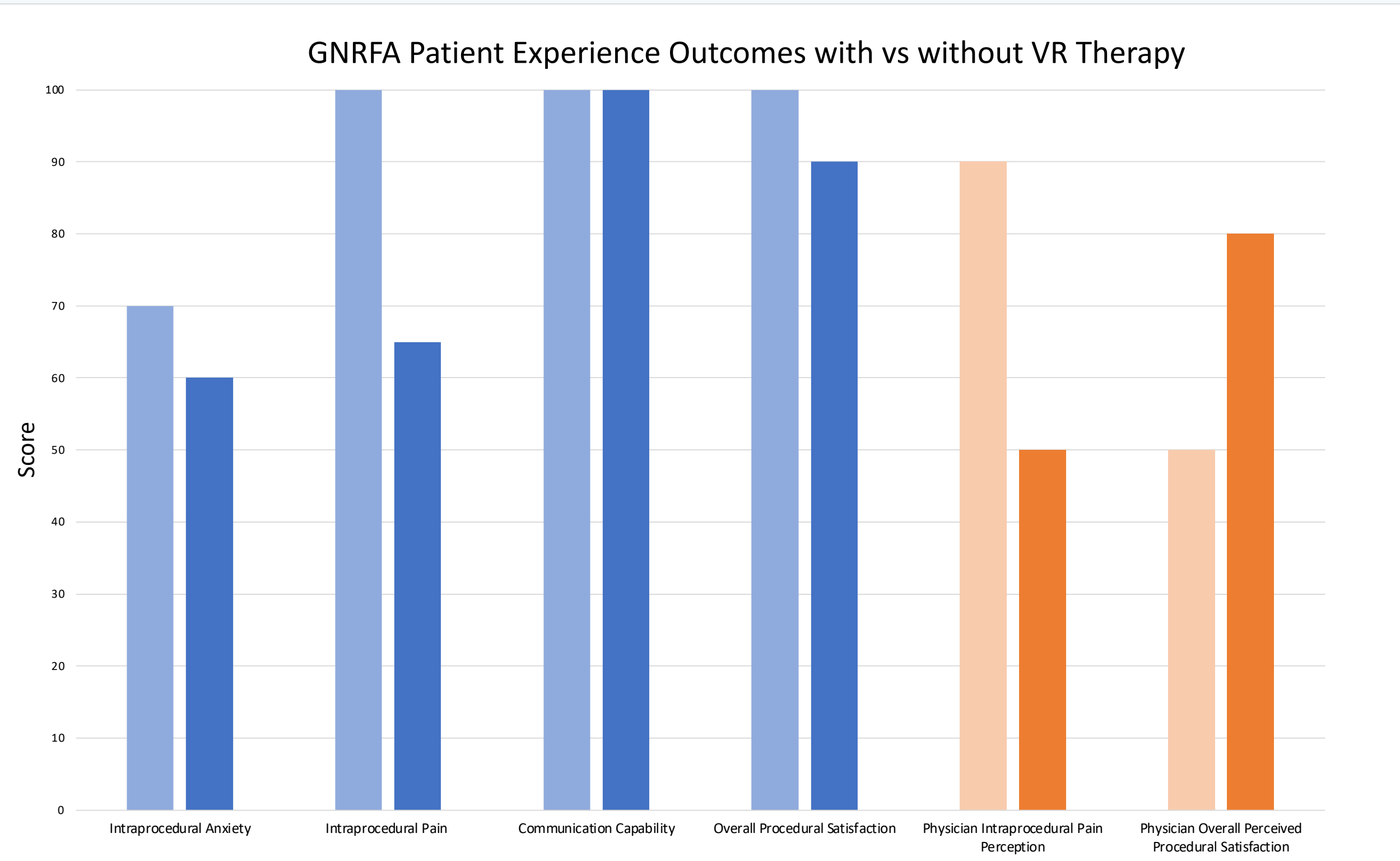


Figure 2. Comparison of patient experience scores with and without VR therapy. The supplementation of VR therapy resulted in decreased intraprocedural anxiety score, decreased intraprocedural pain score, decreased physician intraprocedural pain perception, and increased overall physician perceived procedural satisfaction.

DISCUSSION

- Our study demonstrated the potential efficacy of VR therapy supplementation as an analgesic and anxiolytic in chronic pain management.
- In particular, VR therapy led to a 35-point pain reduction and a 10-point anxiety reduction while allowing for continued patient-provider communication throughout the procedure.
- This highlights VR's potential benefits in managing intraprocedural pain and anxiety over pharmacological alternatives with potential side effects.³
- The advantages mentioned demonstrate the potential for additional research utilizing virtual reality in pain medicine.