

The Effect of Music Therapy Intervention on Pain and Anxiety in Adult Patients Undergoing Total Shoulder Arthroplasty

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INTRODUCTION:

Although there are many different types of pain management strategies for patients undergoing shoulder surgery, many patients still experience significant post-surgical pain following their procedures. Post-surgical pain has profound effects on patients' recovery process and overall long-term outcomes; therefore, optimization of analgesic techniques is crucial. Leading studies have demonstrated that music therapy has decreased pain intensity, increased pain relief, reduced anxiety, and decreased length of hospital stay. Furthermore, music therapy in the medical setting is unlikely to have any negative side effects commonly experienced with the use of pharmaceutical analgesia and can be an effective adjunct for pain control in patients undergoing shoulder surgery.

METHODS:

Patients were prospectively identified from a list of scheduled elective shoulder surgeries. At the preoperative visit, consented patients were randomized into one of three groups. Patients in Group 1 received live music therapy, patients in Group 2 received recorded music therapy, and patients in Group 3 received no music therapy. Demographic information including the patient's age, weight, BMI, sex, race, history of pain and depression, pain and anxiety medication use, and surgery type (total vs. reverse shoulder arthroplasty) was collected. In addition, standard of care data including the patients' heart rate, respiratory rate, O₂ saturation, and blood pressure were recorded. All patients completed the PROMIS Emotional Distress-Anxiety-Short Form and Pain Scale Survey at the preoperative visit (Visit 1), on the day of surgery before pre-surgical anesthesia (Visit 2), immediately post-surgery in the post-anesthesia care unit (Visit 3), 12-24 hours after surgery (Visit 4), approximately 2 weeks post-surgery (Visit 5), and approximately 6 months post-surgery (Visit 6).

RESULTS: A total of 108 patients were included in this study. Thirty-five patients were included in the live music group, 34 patients were included in the recorded music group, and 39 patients were included in the control group. There were statistically significant differences in the mean change in pain scores between the live music vs. control groups ($p = 0.0013$) as well as the recorded music vs. control groups ($p = 0.0142$). However, there were no statistically significant differences in pain scores between live music vs. recorded music groups ($p = 0.4663$). Similarly, there were statistically significant differences in the mean change in anxiety T-scores between the live music vs. control groups ($p = 0.0002$) as well as between the recorded music vs. control groups ($p = 0.0186$). There were no statistically significant differences in anxiety T-scores between the live music and recorded music groups ($p = 0.1791$).

DISCUSSION AND CONCLUSION:

Patients who received music therapy had significantly lower pain scores compared to patients who did not receive music therapy. Similarly, patients who received music therapy also had significantly lower anxiety T-scores compared to patients who did not receive music therapy. These findings were not dependent on type of music therapy (live vs. recorded). Our study demonstrates the potential benefits of incorporating music therapy in order to minimize anxiety and postoperative pain in patients undergoing total shoulder arthroplasty.

Differences of Pain Score and Anxiety T-score

Measurement	Comparison	Mean Differences	P Value
Pain Score	Live Music to Recorded Music	-0.1329	0.4663
	Live Music to Control	-0.5685	0.0013
	Recorded Music to Control	-0.4356	0.0142
Anxiety T-score	Live Music to Recorded Music	-1.0064	0.1791
	Live Music to Control	-2.7220	0.0002
	Recorded Music to Control	-1.7156	0.0186