A Prospective Randomized Controlled Trial: The Effect of Music Therapy Intervention on Pain and Anxiety in Adult Patients Undergoing Total Shoulder Arthroplasty

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Background: Leading studies have demonstrated that patients treated with music therapy show decreased pain intensity, anxiety, length of hospitalization, and increased pain relief. This study investigated whether music therapy interventions would reduce pre- and post-operative pain and anxiety in patients undergoing total shoulder arthroplasties as compared with patients who received standard of care without music therapy.

Methods: This study was a prospective, randomized, non-blinded clinical trial. Patients were identified from a list of consecutive scheduled elective shoulder surgeries. Consented patients were randomized into 3 groups: live music therapy, recorded music therapy, and control (no music therapy). An evidence-based intervention was designed by board-certified music therapists to include components of induction, autogenic muscle relaxation, and imagery with sedative guitar playing. All patients completed the PROMIS Emotional Distress-Anxiety-Short Form and Pain Scale Survey at 6 designated care point times pre- and post-surgery. Linear mixed-effects models were developed to account for repeated measurements within each patient, analyzing pain scores and anxiety-T scores separately. Age and self-reported gender and race demographic variables were collected.

Results: A total of 108 patients were included in this study (mean age 67, 49% male, 51% female): 35 patients were included in the live music group, 34 in the recorded music group, and 39 in the control group. Patients receiving live music therapy reported significantly greater reduction in pain score changes ($p=0.0013$) and anxiety score changes ($p=0.0002$) compared to patients in the control group. Patients receiving recorded music therapy also reported significantly greater reduction in pain score changes ($p=0.0142$) and anxiety score changes ($p=0.0186$) compared to patients in the control group. There were no significant differences in pain score changes ($p=0.4663$) or anxiety score changes ($p=0.1791$) between the live and recorded music therapy groups.

Conclusions: Patients receiving the designed music therapy intervention had a significantly greater reduction in pain and anxiety scores compared to the control group patients. Findings were not dependent on live versus recorded presentation. This study demonstrates the potential benefits of incorporating music therapy to minimize anxiety and post-operative pain in patients undergoing total shoulder arthroplasty.