

Study finds music therapy lowers anxiety during surgical breast biopsies

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A first-of-its-kind study published in the *Journal of Clinical Oncology* finds that music therapy lessened anxiety for women undergoing surgical breast biopsies for cancer diagnosis and treatment. The two-year study out of University Hospitals Seidman Cancer Center involved 207 patients.

"To the best of our knowledge, this is the first randomized controlled trial to test music therapy for anxiety management with women undergoing outpatient breast cancer surgery, and the largest study of its kind to use live music therapy in the surgical arena," said lead author Jaclyn Bradley Palmer, music therapist at UH. "Our aim was to determine if music therapy affected [anxiety levels](#), anesthesia requirements, recovery time and patient satisfaction with the surgical experience," she said.

Patients were randomly assigned to one of three study groups. One group listened to preferred live music before surgery, one listened to preferred recorded music, and one experienced usual care with no music before surgery. The participants who listened to either recorded or live music, selected their song choice, which was downloaded and played or learned and performed by the music therapist preoperatively.

"We discovered that anxiety levels dropped significantly from pre-test to post-test in patients who heard one preferred song of either live or recorded music before surgery," said Bradley Palmer. "In this trial, both live and recorded preoperative music therapy interventions reduced anxiety significantly more than usual preoperative management by 28 and 27 points, representing percent reductions of 43 percent and 41 percent, respectively."

For the study, a nurse research assistant administered a pre-test to obtain a baseline reading on the women's anxiety levels, then a post-test after 5 minutes of music therapy or usual care

without music. Live music was performed vocally with guitar or keyboard accompaniment by a music therapist who stood at the patient's bedside and presented the brief music therapy session as the patient awaited surgery.

Whether patients heard live music or pre-recorded music before surgery, music therapists in both instances would engage the patients for five minutes in a short music therapy session which included the preferred song, conversation over the music choice and processing of any emotions which may have arisen. During surgery, the two groups that experienced live or recorded music, also listened to staff-selected, pre-recorded harp music through headphones, carefully chosen for its smooth melodic lines, stable rhythms, and consistent dynamics.

Patients in the control group received usual pre-operative care with no music therapy and awaited surgery in typical fashion. The control group was given noise blocking earmuffs during surgery to cancel out any potential music played by the surgeon.

In addition to anxiety measurement, researchers also looked at patient satisfaction, recovery time and the amount of anesthesia (drug: propofol) administered to reach moderate sedation during surgery.

"There wasn't a significant difference in anxiety between live music and recorded music," added Bradley Palmer. "It seems like music, no matter how it is delivered, had a similar effect on reducing a patient's preoperative anxiety."

Deforia Lane, Ph.D., Director of Art and Music Therapy at UH Seidman Cancer Center and one of the co-authors of the study, said "We know that music touches parts of our brain: The emotional center that creates release of our body's natural opiates, for example, endorphins, enkephalins and

serotonin. All of those things that are released, are triggered by auditory stimulation, and music is prime in that... and it's without using any pharmacologic intervention-it is simply using the music as medicine."

Provided by University Hospitals Case Medical Center

The music groups and controls did not differ in the amount of anesthesia requirement needed to reach moderate sedation, and satisfaction scores were universally high across all groups. Recovery time did not differ among the music and the control groups, but those who listened to [live music](#) preoperatively had a shorter [recovery time](#) when compared to those who received recorded music. Additionally, subjective reactions to perioperative music therapy revealed that it may be an enjoyable addition to the surgical experience.

"What we can conclude from our findings is that music therapy may effectively serve as a complimentary modality during cancer surgery treatment. A brief music therapy session has the ability to manage the anxiety that surrounds breast cancer surgery in a way that is effective, safe, time-efficient and enjoyable," said Bradley Palmer.

The study was funded by a Kulas Foundation grant to the music department of UH Seidman Cancer Center. Other researchers included Diane Mayo, MSN, UH Case Medical Center, Mark Schluchter, PhD, Department of Epidemiology and Biostatistics, Case Western Reserve University, and Rosemary Leeming, MD, Director of the Comprehensive Breast Program, with UH Seidman Cancer Center at the time of the study and now with Geisinger Health System.

"Women facing [surgery](#) for breast cancer diagnosis and treatment may be understandably anxious as they face the unknown," said Bradley Palmer. "By offering the additional care of preferred [music](#) therapy, women may be comforted and supported by familiar melodies and lyrics that offer the expected and familiar during an unusual time and environment. During this trial, it has been an honor to serve hundreds of women facing a crucial time, and I hope that our findings will inspire other hospitals to implement surgical [music therapy](#) so that many patients may benefit in the future."

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