



# Utility of recorded guided imagery and relaxing music in reducing patient pain and anxiety, and surgeon anxiety, during cutaneous surgical procedures: A single-blinded randomized controlled trial

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**Background:** Guided imagery and music can reportedly reduce pain and anxiety during surgery, but no comparative study has been performed for cutaneous surgery to our knowledge.

**Objectives:** We sought to determine whether short-contact recorded guided imagery or relaxing music could reduce patient pain and anxiety, and surgeon anxiety, during cutaneous surgical procedures.

**Methods:** Subjects were adults undergoing excisional surgery for basal and squamous cell carcinoma. Randomization was to guided imagery (n = 50), relaxing music (n = 54), or control group (n = 51). Primary outcomes were pain and anxiety measured using visual analog scale and 6-item short-form of the State-Trait Anxiety Inventory, respectively. Secondary outcomes were anxiety of surgeons measured by the 6-item short-form of the State-Trait Anxiety Inventory and physical stress of patients conveyed by vital signs, respectively.

**Results:** There were no significant differences in subjects' pain, anxiety, blood pressure, and pulse rate across groups. In the recorded guided imagery and the relaxing music group, surgeon anxiety was significantly lower than in the control group.

**Limitations:** Patients could not be blinded.

**Conclusion:** Short-contact recorded guided imagery and relaxing music appear not to reduce patient pain and anxiety during excisional procedures under local anesthetic. However, surgeon anxiety may be reduced when patients are listening to such recordings. (J Am Acad Dermatol 2016;75:585-9.)

**Key words:** anxiety; cosmetic procedure; guided imagery; relaxing music; skin cancer surgery.

Excisional procedures to remove skin cancers performed under local anesthesia can inspire significant pain and anxiety in patients.<sup>1,2</sup> Patients are awake; attuned to the sounds, smells,

and sights associated with surgery; and fearful of the potentially disfiguring scars yet to come. These issues are magnified in patients who have a low pain threshold or those especially prone to anxiety.<sup>3</sup>

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Analgesics and anxiolytics are commonly and effectively used to reduce perioperative pain and anxiety. However, patients may decline drugs, and the hangover effects associated with the relatively long duration of action of oral anxiolytics mitigate their utility in outpatient surgery.<sup>4</sup> Nonmedication methods suggested to reduce pain and anxiety for surgical patients include music, guided imagery, hypnosis, and meditation.<sup>5,6</sup> Guided imagery and music, given the relative facility and speed with which they can be implemented, may be most practical among these options for office surgery. These strategies are inexpensive, do not require specialized equipment or extensive provider training, and are not associated with adverse events.<sup>5,7</sup>

In guided imagery, the imagination is harnessed to help overcome physical symptoms and reduce anxiety and stress.<sup>5,8</sup> In the context of surgery, guided imagery leads patients to focus on expected postprocedure benefits and healing, and to have increased confidence in their medical team. Eight studies from a recent systematic review found guided imagery reduced anxiety about surgery.<sup>5</sup> In another systematic review, approximately 50% of reviewed studies found that listening to music reduced pain and anxiety in surgical patients.<sup>9</sup>

The purpose of our study was to assess whether recorded guided imagery or standardized relaxing music could mitigate patient pain and anxiety, and surgeon anxiety, associated with surgery for skin cancer. We restricted our subject enrollment to those receiving skin cancer excision of the face because such procedures can entail significant facial disfigurement and loss of sensory function, and hence appear likely to be associated with the type of pain and anxiety that guided imagery and music have been shown to reduce. We also chose to develop interventions that were relatively time- and resource-efficient, and did not require specialized staff to administer or personalization for specific patients. Hence, if these interventions were found to be effective, they could be easily adapted to clinical practice. To our knowledge, there are no studies that directly compare recorded guided imagery and standardized relaxing music in reducing patient pain and anxiety, or surgeon anxiety, during cutaneous surgical procedures.

## METHODS

### Study design

This was a randomized controlled study with an allocation ratio of 1:1:1, using a random block size of 9. Assignments were sealed in opaque envelopes and numbered consecutively. All data were collected at an urban academic hospital. This study was approved by the Northwestern University Institutional Review Board, and was registered with [www.clinicaltrials.gov](http://www.clinicaltrials.gov) (NCT 00374062).

### Patient selection

Included were consecutive adults pending staged excisional surgery for basal or cutaneous squamous cell carcinoma of the face (ie, Mohs micrographic surgery) and able to comply with study procedures. Subjects

were excluded if they had any known mental illness (including anxiety or pain disorder).

### Materials

Two customized recorded materials were prepared, both by a certified psychologist skilled in guided imagery and hypnosis. The guided imagery recording, 13 minutes and 25 seconds in length, explained in detail how the surgery would proceed painlessly and without incident to a conclusion free of cancer, associated with rapid healing and with the least scar possible. The standardized relaxation music recording, 30 minutes and 25 seconds in length, with a tempo of 60 to 70 beats per minute, was composed of soothing music and nature sounds such as falling water and chirping birds.

### Study protocol

Consecutive patients scheduled for treatment at least 4 to 7 days before their procedure were eligible to enroll. Enrolled patients were randomly assigned to 1 of 3 groups: guided imagery, relaxing music, or control group. After enrollment via institutional review board–approved verbal consent obtained by telephone, subjects randomized to the guided imagery group were sent a recording of the guided imagery by overnight mail. They were instructed to listen to this at least once a day starting at least 4 days before their surgery. Subjects randomized to the other 2 arms were not asked to do anything until the day of surgery. On the day of surgery, patients in all

## CAPSULE SUMMARY

- Live hypnotic induction and music of choice can reduce perioperative anxiety.
- Short-contact guided imagery and standardized relaxing music, which are feasible for routine clinical practice, may not reduce patients' perioperative pain and anxiety. However, such interventions reduce surgeon anxiety.
- Methods to reduce patient and surgeon anxiety should be further studied.

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