

Exploring the Impact of Intraoperative Interventions for Pain and Anxiety Management During Local Anesthetic Surgery—A Systematic Review and Meta-Analysis

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Purpose: *To compare the effectiveness of audiovisual and relaxation-based intraoperative interventions for their impact on intraoperative pain and anxiety.*

Design: *Systematic review and meta-analysis.*

Methods: *The following databases were searched for articles published between 1990 and January 2014: MEDLINE, PsychINFO, CINAHL, and Web of Science. Twenty randomized trials meeting the following inclusion criteria were included; adult participants undergoing elective outpatient surgery under local anesthetic using a form of distraction-based intraoperative intervention for the management of anxiety and pain.*

Finding: *Thirty percent of studies reviewed found that intraoperative interventions improved patient experience in comparison to treatment as usual, 20% of studies were inconclusive, and 50% of studies found that interventions during surgery provided no benefit.*

Conclusions: *Both relaxation-based and audiovisual interventions were found to be efficacious for pain and anxiety management during surgery under local anesthetic. This review indicates that relaxation-based interventions could be more effective than audiovisual interventions for managing intraoperative anxiety.*

Keywords: *anxiety, pain, surgery, interventions.*

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AS DEMANDS ON THE NATIONAL HEALTH SERVICE grow, means to limit spending and cut waiting times are increasingly sought. Advances in surgical and anesthetic practice mean that conscious surgery offers an attractive solution.

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Conflict of interest: None to report.

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Conscious surgery refers to elective nonemergency procedures conducted under local anesthetic on an outpatient basis, from which patients are able to return home hours rather than days after surgery.¹ In recent years, there has been a dramatic increase in the frequency and range of procedures now available on an outpatient basis,² and local anesthetic surgery is fast becoming the norm for the vast majority of elective surgical procedures in the United Kingdom.^{3,4}

Although conscious surgery provides a range of benefits for both patients and health care providers, it also poses a number of specific challenges

for the nursing world. Nurses must now ensure not only the physical but also the mental and emotional well-being of patients during surgical procedures, when they would traditionally have been unconscious. Thus, the environment of the operating room and the stimuli it provides must be considered in response to the conscious surgical patient.

For many people, the prospect of surgery can be a source of anxiety, and the thought of being conscious during the procedure can make this anxiety worse.⁴ The links between surgery, anxiety, pain, and suboptimal surgical outcomes are well documented.⁵⁻⁹ Elevated anxiety manifests itself in the form of increased heart rate, blood pressure, and raised levels of hormones such as cortisol and adrenaline.¹⁰

These physiological changes are also associated with slower wound healing,¹¹ diminished immune response,¹² and increased risk of infection.¹³ Heightened anxiety can lead to complications in the administration of presurgical drugs; it can hinder the induction of anesthesia and has found to be associated with poorer postsurgical outcomes.¹⁴ Decreasing anxiety will therefore not only improve patient experience but could also impact the course of recovery.

With this in mind, a range of interventions, based on the principles of distraction, have been used for both preoperative and postoperative anxiety management.⁴⁶ A multitude of studies have investigated the use of music in medical patients, in a range of settings and populations, and mixed results have emerged.^{15,16} Many other types of intraoperative interventions, from virtual reality,¹⁷ audiovisual stimuli,⁸ and visual distractions¹⁸ to interpersonal distractions such as touch¹⁹ have been assessed for the efficacy for presurgical and postsurgical anxiety management, and findings have emerged both for and against their use.

From the literature, it appears that nonpharmacological interventions for surgical anxiety management can be divided into two main camps: those that use audiovisual elements and those that are based on fostering a sense of relaxation in the surgical patient. Both types of intervention aim to reduce intraoperative patient anxiety; however, the strategies used by each type of intervention are very different.

A recent systematic review²⁰ was the latest in a quartet of Cochrane Collaboration reviews exploring the effect of music for anxiety reduction in medical patients (for coronary heart disease patients²¹; mechanically ventilated patients²²; and cancer patients²³). All four reviews concluded music may be beneficial but warned that because of the high risk of bias, caused largely by a lack of blinding, these findings should be interpreted with caution. Bradt and Dileo (2013)²⁰ focused on the use of music preoperatively, whereas an earlier systematic review²⁴ found music could be beneficial for anxiety management when applied at any stage of the perioperative experience before surgery, during surgery, and after surgery. This was confirmed in a randomized controlled trial (RCT)²⁵ that found audio interventions were superior to treatment as usual (TAU) when applied either during or after surgery, with no significant differences between the two groups.

De Jong and Middelkoop (2007)²⁶ reviewed the effects of nonpharmacological relaxation-based nursing interventions for pain relief during burn treatment. The review included experimental, quasi-experimental, and nonexperimental research and found a scarcity of experimental evidence for nursing-based interventions. They concluded that active hypnosis and distraction relaxation were the most effective for pain management during burn care. These findings were mirrored in the review by Uman and Chambers (2008)²⁷ which indicated that distraction, combined cognitive-behavioral interventions, and hypnosis were the most effective interventions for needle-related procedural pain and distress in children and adolescents.

These reviews provide evidence promoting both audio and relaxation-based interventions, but it remains unclear as to which is the best time for implementation to achieve maximum benefit. Most research has focused on the effects of interventions applied either preoperatively or postoperatively. Given the dramatic increase in conscious surgery now performed worldwide, a new set of questions are emerging. Now that patients are aware of themselves and their surroundings during surgery, the focus of research needs to shift toward the intraoperative period, rather than pre and post surgery.

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