The Effects of Music on Diminishing Anxiety Among Preoperative Patients

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ABSTRACT: The purpose of this project was to examine the effect of music on anxiety among preoperative patients. A convenience sample of 137 patients participated in this two-group quasi-experimental study. Participants were assigned to a music group ($n = 73$) or a nonmusic group ($n = 64$). Both groups were similar in terms of gender, age, and initial anxiety level. Clinical experts designated surgeries as invasive ($n = 48$) or noninvasive ($n = 89$), and no difference in initial anxiety level was found between these two groups. Findings showed that patients who listened to music had a small significant decrease in anxiety when compared with patients in the nonmusic group. In addition, results showed that the influence of music on changes in anxiety was related to initial anxiety level. For example, patients with high levels of anxiety in the music group had the largest change in anxiety when compared with other participants. (J Radiol Nurs 2014;33:199-202.)

KEYWORDS: Music; Anxiety; Preoperative patients.

INTRODUCTION

Background

There is strong evidence to suggest that patients awaiting surgery experience anxiety (Leach, Zernike, & Tanner, 2000; Saadat et al., 2006). These individuals are often anxious, worried about the procedure, and fearful of the outcome (Vanderboom, 2007). Waiting for surgery may elicit concerns regarding the outcome and fear of the process (Cooke, Chaboyer, & Hiratos, 2005). Individuals experiencing anxiety related to surgery may have difficulty using usual coping mechanisms. They may be unable to follow instructions, thereby placing them at risk for complications (Schupp, Berbaum, Berbaum, &

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Lang, 2005). There is conflicting evidence regarding the effectiveness of music during this waiting period. Although music can distract the patient and promote relaxation (Cooke et al., 2005; Thaut, 1990; Vanderboom, 2007), the overall effect of music on anxiety preoperatively remains elusive. Thaut's scientific model for therapy and medicine forms the theoretical foundation for this study (Thaut, 2000). This model provides a paradigm for studying the influence of music on human behavior. Music is described as a lifelong activity that can be used as an intervention that can affect individuals physiologically and psychologically. Thaut (1990) theorized that listening to music has a positive effect on the sympathetic nervous system and deactivates the parasympathetic system, thereby promoting a sense of relaxation.

Two systematic reviews (Nilsson, 2008; Vanderboom, 2007), and a randomized controlled trial (Ni, Tsai, Lee, Kao, & Chen, 2012) suggests that music is effective in decreasing anxiety among preoperative patients, whereas another review found music to be ineffective in relation to diminishing anxiety (Evans, 2002). The literature, therefore, is inconclusive as to whether music is an effective intervention to reduce anxiety among preoperative patients.

Problem and Purpose Statement

The anxiety that occurs preoperatively for patients may interfere with their emotional well-being and ability to

follow instructions both pre- and postoperatively (Vanderboom, 2007). The purpose of this study was to examine the effect of music on diminishing anxiety among preoperative patients.

Research Questions

Research questions included (1) What is the difference in anxiety between patients who listen to music preoperatively and those who do not? (2) What is the difference in change in anxiety pre- and postsurgery between patients who listen to music preoperatively and those who do not? and (3) What is the influence of initial anxiety level and music on change in anxiety?

METHOD

Design and Participants

In the present study, a two-group quasi-experimental design was used. A convenience sample of 137 preoperative patients participated in the study. Participants were assigned to a music group ($n = 73$) or a nonmusic group ($n = 64$) depending on availability of staff to supervise the music experience. Inclusion criteria included English speaking and at least 18 years old. Patients who required anxiolytics were excluded. Clinical experts classified surgeries according to degree of invasiveness (invasive, $n = 48$ and noninvasive, $n = 89$). There was no difference in initial anxiety between those patients undergoing invasive surgery versus those patients undergoing noninvasive surgery ($t[76.68] = -0.29$, p = .77).

Participants in the music ($n = 73$) and nonmusic group ($n = 64$) were also similar in terms of gender, age, and initial anxiety level. There were 59 females in the music group (80.8%) and 64 females in the nonmusic group (75.0%) ($\chi^2[1, n = 137] = 0.38$, p = .54). Average age in the music group was 54.64 years (standard deviation [SD] = 12.81) and 48.78 years ($SD = 15.13$) in the nonmusic group ($t[135] = -2.46$, p = .02). The difference in age was statistically significant, whereas mean ages for each group differed by only 6 years. Of a possible score of 10, mean initial anxiety was 5.0 ($SD = 2.50$) in the music group and 5.5 ($SD = 2.25$) in the nonmusic group ($t[135] = 1.22$, p = .22) (Table 1).

Procedures

Approval of the study was obtained from the Institutional Review Board at Baptist Health Lexington, a 383-bed Magnet® redesignated community hospital. The principal investigator (PI) and three research assistants (registered nurses employed on the unit) completed the Health Protecting Human Subject Research Participant training from the National Institute of Health.

To promote standardization of the data collection process, the PI provided comprehensive education regarding the study to all employees involved in care delivery throughout the preoperative phase. For example, staff was encouraged to diminish interruptions for participants in the study as much as possible. Also, the PI educated three research assistants on the appropriate use of the instrument and the procedure to collect data for the study.

Data were collected throughout preassigned shifts by one or more of the individuals on the research team. This process ensured that the appropriate staff was available during each shift as data were collected throughout the study. Each preoperative room was designated as either a music room (a magnetic music symbol was placed on a board outside the patient's room) or a nonmusic room. Televisions in the music rooms were set to provide instrumental music using the hospital network. Data collection sheets were managed by the PI and stored in a secure locker on the hospital unit.

Data Collection

On entering the preoperative area and completion of registration, patients were prepped for surgery. This process included a complete physical assessment, administration of intravenous fluids as prescribed, a series of questions related to readiness for surgery, and completion of the medical and nursing record. Anesthesia providers conducted a presurgical interview and an additional physical assessment. An individualized preoperative educational session was provided for each participant (lasting approximately 5 min). On completion of this session, consent to participate was obtained. Using a visual analog scale (VAS), participants were asked to rate their anxiety. After completion of the pre-intervention anxiety assessment, participants in the designated music rooms listened to music for periods

Table 1. Characteristics of participants in the music and nonmusic groups

Variable	Music group ($n = 73$)	Nonmusic group ($n = 64$)
Age	$M = 54.64$ ($SD = 12.81$)	$M = 48.78$ ($SD = 15.13$)
Initial anxiety score	$M = 5.00$ ($SD = 2.50$)	$M = 5.50$ ($SD = 2.25$)
Gender—female	80.8% ($n = 59$)	75.0% ($n = 48$)
Invasive surgery—intrusive	41.1% ($n = 30$)	28.1% ($n = 18$)