

## **A Selection of recent Therapeutic Music Research**

**TITLE: Use of music to decrease aggressive behaviors in people with dementia.**

AUTHORS: Clark ME; Lipe AW; Bilbrey M

AUTHOR AFFILIATION: Tennessee Technological University, Cookeville, USA.

SOURCE: J Gerontol Nurs 1998 Jul;24(7):10-7

CITATION IDS: PMID: 9801526 UI: 99018334

ABSTRACT: The purpose of this study was to examine the effects of recorded, preferred music in decreasing occurrences of aggressive behavior among individuals with Alzheimer's type dementia during bathing episodes. Eighteen older adults, age 55 to 95, with severe levels of cognitive impairment, participated in the study. They were randomly scheduled for observation during bath time under either a control (no music) condition or an experimental condition in which recorded selections of preferred music were played via audiotape recorder during the bathing episode. Following a 2-week (10 episode) observation period, conditions were reversed. A total of 20 observations were recorded for each individual. Results indicated that during the music condition, decreases occurred in 12 of 15 identified aggressive behaviors. Decreases were significant ( $p < 0.05$ ) for the total number of observed behaviors and for hitting behaviors. During the music condition, caregivers frequently reported improved affect and a general increase in cooperation with the bathing task. The implications of these findings for improving the overall quality of care for severely cognitively impaired older adults are discussed.

**TITLE: Bedside musical care: applications in pregnancy, childbirth, and neonatal care.**

AUTHORS: Olson SL

AUTHOR AFFILIATION: Michigan State University, USA.

SOURCE: J Obstet Gynecol Neonatal Nurs 1998 Sep-Oct;27(5):569-75

CITATION IDS: PMID: 9773369 UI: 98446546

ABSTRACT: Although music therapy in health care settings is not new, bringing live music to the bedside is a new way of extending the caring tradition of nursing practice. Bedside musical care is consistent with a philosophy of holistic nursing practice and can be used during pregnancy, childbirth, and in neonatal care. It is defined as live music at the bedside, which is part of a treatment plan to foster integrity, well-being, and health for varied populations across the life span.

**TITLE: The effect of music and multimodal stimulation on responses of premature infants in neonatal intensive care.**

AUTHORS: Standley JM

AUTHOR AFFILIATION: Center for Music Research, Florida State University, Tallahassee, USA.

SOURCE: Pediatr Nurs 1998 Nov-Dec;24(6):532-8

CITATION IDS: PMID: 10085995 UI: 99185914

ABSTRACT: To assess the benefits of lullaby singing and multimodal stimulation on premature infants in neonatal intensive care, 40 infants in a Level III Newborn Intermediate Care Unit were divided into control ( $n = 20$ ) and experimental ( $n = 20$ ) groups by pair matching on the basis of gender, birthweight, gestational age at birth and severity of medical complications. Participants met these project criteria: (a) corrected gestational age  $> 32$  weeks; (b) age since birth  $> 10$  days; and (c) weight  $> 1700$  g. All participants had been referred for developmental stimulation by the medical staff. Experimental infants received reciprocal, multimodal (ATVV) stimulation paired with line singing of Brahms' Lullaby. Stimulation was provided for 15-30 minutes, one or two times per week from referral to discharge. Dependent variables were (a) days to discharge, (b) weight gain/day, and (c) experimental infants' tolerance for stimulation. Results showed that music and multimodal stimulation significantly benefited females' days to discharge and increased weight gain/day for both males and females. Both male and female infants' tolerance for stimulation showed marked and steady increase across the stimulation intervals with females' tolerance increasing more rapidly than males. TITLE: The effect of music and multimodal stimulation on responses of premature infants in neonatal intensive care.

**TITLE: Psychophysiologic responses of mechanically ventilated patients to music: a pilot study.**

AUTHORS: Chlan LL

AUTHOR AFFILIATION: University of Minnesota School of Nursing, Minneapolis, USA.

SOURCE: Am J Crit Care 1995 May;4(3):233-8

CITATION IDS: PMID: 7787918 UI: 95307639

ABSTRACT:

BACKGROUND: Although mechanically ventilated patients experience numerous stressors, they have not been included in music therapy stress reduction and relaxation studies. OBJECTIVE: To examine selected psychophysiologic responses of mechanically ventilated patients to music.

**METHODS:** A two-group experimental design with pretest, posttest, and repeated measures was used. Twenty mechanically ventilated patients were randomized to a music-listening group or a nonmusic (headphones only) group. Physiologic dependent measures--heart rate and rhythm, respiratory rate, systolic and diastolic blood pressure, oxygen saturation, and airway pressure--were collected at timed intervals. Psychologic data were collected before and after intervention using the Profile of Mood States. **RESULTS:** Using repeated measures analysis of variance, results for heart rate and respiratory rate over time and over time between groups were significant. Between-group differences were significant for respiratory rate. Significant differences were found via t test for the music group's Profile of Mood States scores. No adverse cardiovascular responses were noted for either group.

**CONCLUSIONS:** Data indicated that music listening decreased heart rate, respiratory rate, and Profile of Mood States scores, indicating relaxation and mood improvement.

**TITLE: Effect of a music intervention on noise annoyance, heart rate, and blood pressure in cardiac surgery patients.**

**SOURCE:** Am J Crit Care 1997 May;6(3):183-91

**CITATION IDS:** PMID: 9131197 UI: 97277821

**ABSTRACT:**

**BACKGROUND:** Exposure to noise in a critical care unit may trigger a response by the sympathetic nervous system, thereby increasing cardiovascular work in patients recovering from cardiac surgery. **OBJECTIVE:** To investigate the effects of a music intervention given twice on the first postoperative day on noise annoyance, heart rate, and arterial blood pressure in subjects with high ( $n = 22$ ) and low ( $n = 18$ ) sensitivity to noise. **METHODS:** A prospective, quasi-experimental, repeated-measures design was used. Based on results of power analysis, the sample size was 40. Subjects were recruited preoperatively, and their sensitivity to noise was assessed. On the first postoperative day, repeated-measures data were collected on levels of noise annoyance and physiological variables during 15 minutes of baseline and 15 minutes of music intervention on two occasions. Subjects completed a follow-up questionnaire regarding their perceptions of the noise in the critical care unit and the music intervention. **RESULTS:** Repeated-measures analysis of variance showed that subjects had lower levels of noise annoyance during music intervention than at baseline. Heart rate and systolic blood pressure decreased during the music intervention compared with baseline. Diastolic blood pressure decreased during the music intervention from baseline during time 2, but not time 1. Subjects with high baseline scores of noise sensitivity preoperatively had higher baseline levels of noise annoyance in the critical care unit the first postoperative day. Subjects rated the music intervention as highly enjoyable regardless of their baseline noise sensitivity or noise annoyance. **CONCLUSION:** Results of this study support the idea that noise annoyance is a highly individual phenomenon, influenced by a transaction of personal and environmental factors. Use of a music intervention with cardiac surgery patients during the first postoperative day decreased noise annoyance, heart rate, and systolic blood pressure regardless of the subject's noise sensitivity.

**TITLE: The sedative and analgesic sparing effect of music.**

**AUTHORS:** Koch ME; Kain ZN; Ayoub C; Rosenbaum SH

**AUTHOR AFFILIATION:** Department of Anesthesiology, Yale University School of Medicine, New Haven, Connecticut 06510, USA.

**SOURCE:** Anesthesiology 1998 Aug;89(2):300-6

**CITATION IDS:** PMID: 9710387 UI: 98374161

**ABSTRACT: BACKGROUND:** To determine whether music influences intraoperative sedative and analgesic requirements, two randomized controlled trials were performed. **METHODS:** In phase 1, 35 adults undergoing urologic procedures with spinal anesthesia and patient-controlled intravenous propofol sedation were randomly assigned to hear favorable intraoperative music via headset or to have no music. In phase 2, 43 adults undergoing lithotripsy treatment of renal or ureteral calculi and receiving patient-controlled intravenous opioid analgesia were randomly assigned to either a music or no-music group. The effect of music on sedatives and analgesics requirements, recovery room duration, and adverse outcomes was assessed. **RESULTS:** In phase 1, patients in the music group required significantly less propofol for sedation than patients in the control group (0 [0-150] mg vs. 90 [0-240] mg, median[range];  $P < 0.001$ ). These findings persisted after adjusting for duration of surgery ( $0.3 \pm 0.1$  mg/min vs.  $1.6 \pm 0.4$  mg/min;  $P < 0.001$ ). Similarly, in phase 2, patients who listened to music had a significant reduction in alfentanil requirements (1,600 [0-4,250] microg vs. 3,900 [0-7,200] microg;  $P = 0.005$ ). This persisted after adjusting for duration of surgery ( $52 \pm 9$  microg/min vs.  $119 \pm 16$  microg/min, mean  $\pm$  SD,  $P < 0.001$ ). Duration of stay in the postanesthesia care unit and the rate of adverse events was similar in both groups ( $P = \text{NS}$ ). **CONCLUSIONS:** Use of intraoperative music in awake patients decreases patient-controlled sedative and analgesic requirements. It should be noted, however, that patients in the no-music group did not use a headset during operation. Thus, the decrease in sedative and analgesic requirements could be caused by elimination of ambient operating room noise and not by the effects of music.

**TITLE: Music therapy following suctioning: four case studies.**

AUTHORS: Burke M; Walsh J; Oehler J; Gingras J

SOURCE: Neonatal Netw 1995 Oct;14(7):41-9

CITATION IDS: PMID: 7565526 UI: 96027281

ABSTRACT: This descriptive study evaluates and compares the effectiveness of music, presented both aurally and vibrotactilely, in reducing agitation and physiological instability following a stress-producing intervention (suctioning) in infants with bronchopulmonary dysplasia. Heart rate, oxygen saturation levels, level of arousal, stressful facial expressions, and autonomic indicators were recorded for each of four preterm infants. All infants experienced a reduction in the level of arousal during the taped music intervention when compared with the control condition. Three infants spent an increased amount of time in a quiet alert state and had improved oxygen saturation levels during the vibrotactile intervention. All infants spent more time sleeping during the taped music condition than without music or with the vibrotactile intervention. Results suggest that music is effective in reducing stress-related behaviors for some infants.

**TITLE: Effect of music on ambulatory surgery patients' preoperative anxiety.**

AUTHORS: Augustin P; Hains AA

AUTHOR AFFILIATION: Day Surgery/Postanesthesia Care Unit, St Mary's Hospital-Ozaukee, Mequon, Wisc, USA.

SOURCE: AORN J 1996 Apr;63(4):750, 753-8

CITATION IDS: PMID: 8660020 UI: 96267669

ABSTRACT: The authors investigated music as a method to reduce ambulatory surgery patients' preoperative anxiety. They assigned 42 patients to either an experimental or a control group and compared the patients' vital signs and self-reports of anxiety, which were measured using the state portion of the State-Trait Anxiety Inventory. The study results indicate that music can be more beneficial than preoperative instruction alone in reducing ambulatory surgery patients' anxiety. Patients who listened to their choice of music before surgery in addition to receiving preoperative instruction had significantly lower heart rates than patients in the control group who received only preoperative instruction. Differences in experimental and control group patients' blood pressure measurements and respiratory rates approached significance. The authors suggest that perioperative nurses offer music as a viable option to reduce anxiety in ambulatory surgery patients who believe music is a method of relaxation.

**TITLE: Therapeutic effects of music and mother's voice on premature infants.**

AUTHORS: Standley JM; Moore RS

SOURCE: Pediatr Nurs 1995 Nov-Dec;21(6):509-12, 574

CITATION IDS: PMID: 8700604 UI: 96334589

ABSTRACT: Aversive environment auditory stimuli is a common concern in neonatal intensive care. Recently, interest has developed regarding the use of music applications to mask such stimuli and to reduce the high risk for complications or failure to thrive. In this study of 20 oxygenated, low birth weight infants in a Newborn Intensive Care Unit of a regional medical center in the Southeastern United States, 10 infants listened to lullabies and 10 infants to recordings of their mother's voice through earphones for 20 minutes across three consecutive days. Oxygen saturation levels and frequency of oximeter alarms were recorded. Results indicated a differential response to the two auditory stimuli as listening time progressed. On Day 1, the infants listening to music had significantly higher oxygen saturation levels, but these effects disappeared by Days 2 and 3. On Days 2 and 3, however, the babies hearing music had significantly depressed oxygen saturation levels during the posttest intervals after the music was terminated. Infants hearing music had significantly fewer occurrences of Oximeter alarms during auditory stimuli than did those listening to the mothers' voice. Implications for the therapeutic use of auditory stimuli in the Newborn Intensive Care Unit are discussed.

**TITLE: Effectiveness of a music therapy intervention on relaxation and anxiety for patients receiving ventilatory assistance [see comments]**

AUTHORS: Chlan L

AUTHOR AFFILIATION: University of Iowa, College of Nursing, Iowa City 52242, USA.

SOURCE: Heart Lung 1998 May-Jun;27(3):169-76

CITATION IDS: PMID: 9622403 UI: 98283746

COMMENT: Comment in: Heart Lung 1999 Jan-Feb;28(1):79-80

ABSTRACT: OBJECTIVE: To test the effects of music therapy on relaxation and anxiety reduction for patients receiving ventilatory assistance. DESIGN: Two-group, pretest-posttest experimental design with repeated measures. Subjects randomized to either a 30-minute music condition or a rest period. SETTING: Four urban midwestern intensive care units. SUBJECTS: Fifty-four alert, nonsedated patients receiving mechanical ventilation. OUTCOME MEASURES: State anxiety (pretest and posttest), heart rate, and respiratory rate obtained every 5 minutes for 30 minutes. RESULTS: Subjects who received music therapy reported significantly less anxiety posttest (10.1) than those subjects in the control group (16.2). Heart rate and respiratory rate decreased over time for those subjects in the music group as compared with the control group subjects.

CONCLUSIONS: A single music therapy session was found to be effective for decreasing anxiety and promoting relaxation, as indicated by decreases in heart rate and respiratory rate over the intervention period with this sample of patients receiving ventilatory assistance.

**TITLE: Music as an adjunct to antiemetic therapy.**

AUTHORS: Ezzone S; Baker C; Rosselet R; Terepka E

AUTHOR AFFILIATION: Arthur G. James Cancer Hospital and Research Center, Ohio State University, Columbus, USA.

SOURCE: Oncol Nurs Forum 1998 Oct;25(9):1551-6

CITATION IDS: PMID: 9802051 UI: 99018859

ABSTRACT: PURPOSE/OBJECTIVES: To test whether use of music as a diversional intervention during high-dose chemotherapy administration would affect perception of nausea and episodes of vomiting. SAMPLE: 39 patients undergoing bone marrow transplant. A total of 33 patients were included in the data analysis, with 17 in the control group and 16 in the music intervention group. METHODS: Patients were assigned randomly to a control group (usual antiemetic protocol) or the experimental group (usual antiemetic group plus music intervention during the 48 hours of high-dose cyclophosphamide administered as part of the preparative regimen). MAIN RESEARCH VARIABLES: Use of a music intervention, perception of nausea, and instances of vomiting. FINDINGS: Significant differences were found between group scores on a visual analog scale for nausea and number of episodes of vomiting, demonstrating that the experimental group experienced less nausea and fewer instances of vomiting. CONCLUSION: This study found that music is an effective adjunct to a pharmacologic antiemetic regimen for lessening nausea and vomiting, and this study merits further investigation through a larger multi-institutional effort. IMPLICATIONS FOR NURSING PRACTICE: Using music as a diversional adjunct intervention to antiemetic therapy is helpful in decreasing nausea and vomiting. The intervention can be initiated independently by nurses and individualized for each patient, leading to greater patient comfort and compliance with high-dose chemotherapy.

**TITLE: Music therapy increases serum melatonin levels in patients with Alzheimer's disease.**

AUTHORS: Kumar AM; Tims F; Cruess DG; Mintzer MJ; Ironson G; Loewenstein D; Cattan R; Fernandez JB; Eisdorfer C; Kumar M

AUTHOR AFFILIATION: Department of Psychiatry and Behavioral Sciences, University of Miami School of Medicine, FL 33101, USA. akumar@med.miami.edu

SOURCE: Altern Ther Health Med 1999 Nov;5(6):49-57

CITATION IDS: PMID: 10550905 UI: 20018568

ABSTRACT: CONTEXT: Music therapy is known to have healing and relaxing effects. Although these effects appear to be mediated by release of neurotransmitters and neurohormones, the specific neurohormonal systems involved have not been fully investigated. OBJECTIVE: To assess the effects of a music therapy intervention on concentrations of melatonin, norepinephrine, epinephrine, serotonin, and prolactin in the blood of a group of patients with Alzheimer's disease. DESIGN: Blood samples were obtained before initiating the therapy, immediately at the end of 4 weeks of music therapy sessions, and at 6 weeks follow-up after cessation of the sessions. SETTING: Miami Veterans Administration Medical Center, Miami, Fla. PATIENTS: 20 male inpatients with Alzheimer's disease. INTERVENTION: 30- to 40-minute morning sessions of music therapy 5 times per week for 4 weeks. MAIN OUTCOME MEASURES: Changes in melatonin, norepinephrine, epinephrine, serotonin, and prolactin following music therapy. RESULTS: Melatonin concentration in serum increased significantly after music therapy and was found to increase further at 6 weeks follow-up. A significant increase was found between baseline values and data recorded after the music therapy sessions as well as at 6 weeks follow-up. Norepinephrine and epinephrine levels increased significantly after 4 weeks of music therapy, but returned to pretherapy levels at 6 weeks follow-up. Serum concentration of prolactin and platelet serotonin levels remained unchanged after 4 weeks of music therapy and at 6 weeks follow-up. CONCLUSION: Increased levels of melatonin following music therapy may have contributed to patients' relaxed and calm mood.



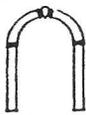
## ANNOTATED CRITICAL REFERENCES

- (46) Beck, S.L. (1991)<sup>1</sup>. The therapeutic use of music for cancer-related pain. *Oncology Nursing Forum*, 18(8), 127-1337. Examined the effect of music on cancer-related pain in patients who were receiving scheduled analgesics in their home. Excellent implications discussed supporting the use of music as an independent nursing intervention to relieve pain.
- (47) Collins, S.K., & Kuck, K. (1991)<sup>4</sup>. Music therapy in the neonatal intensive care unit. *Neonatal Network*, 9(6), 23-26. Only study to examine the hospitalized neonate. Describes the effects of taped uterine sounds combined with synthesized female vocal singing on the heart rate, mean arterial pressure, oxygen saturation, and behavior state of 17 agitated intubated premature infants. Although limited in sample size, findings demonstrated improved oxygen saturation and behavioral state in sample. Any measure that will improve physiologic and psychological parameters in the neonatal period may positively influence later development.
- (48) Mullooly, V.M., Levin, R.F., & Feldman, H.R. (1988)<sup>12</sup>. Music for postoperative pain and anxiety. *Journal of the New York State Nurses Association*, 19(3), 4-7. Examined the role of music in reducing postoperative pain and anxiety. Anxiety was reduced in the music listening group on Day 1 and on Day 2, both pain and anxiety were reduced in the music group. Implications for clinical practice are presented.
- (49) Standley, J.M. (1986)<sup>15</sup>. Music research in medical/dental treatment: Meta-analysis and clinical applications. *Journal of Music Therapy*, XXIII(2), 56-122. Comprehensive analysis and application of music therapy research in the general field of music in medicine. Thorough review of the literature and meta-analysis of all empirical studies using music in actual medical/dental treatments.
- (50) Updike, P. (1990)<sup>16</sup>. Music therapy results for ICU patients. *Dimensions of Critical Care Nursing*, 9(1), 39-45. Examined the effect of music on a variety of patients in an adult ICU. Although not statistically significant, all patients expressed feeling more calm, relaxed or comforted following the music and reported diminished, increasingly manageable, or absence of pain after music listening. Specifically provides implications for nurse managers as well as the bedside nurse.
- (51) White, J.M. (1992)<sup>17</sup>. Music therapy: An intervention to reduce anxiety in the myocardial infarction patient. *Clinical Nurse Specialist*, 6(2), 58-63. Examined the effects of relax-

ing music on elevated state anxiety in patients with confirmed diagnosis of acute myocardial infarction. Results suggest that music therapy may be an effective intervention to reduce state anxiety levels in the acute myocardial infarction patient. Excellent implications for the CNS in the ICU.

## PRACTICE IMPLICATIONS

- (52) Despite limitations within individual studies, overall analysis of the fourteen research reports indicates music, as an audioanalgesia, is an effective nursing intervention for pain and anxiety management. Researchers reported statistically significant decreases in heart rate (Locsin, 1981<sup>10</sup>; Bonny, 1983<sup>3</sup>; Davis-Rollans & Cunningham, 1987<sup>7</sup>; White, 1992<sup>17</sup>) as well as a statistically significant decrease in blood pressure (Updike, 1990)<sup>16</sup>, a statistically significant decrease in respiratory rate (White, 1992)<sup>17</sup> and a statistically significant improvement in oxygen saturation (Collins & Kuck, 1991)<sup>4</sup>. These studies demonstrate a desirable change in physiologic parameters that may enhance patient outcomes.
- (53) In addition, the data suggests significant psychological benefits as well. Five studies reported statistically significant decreases in pain after the musical intervention (Locsin, 1981<sup>10</sup>; Bonny, 1983<sup>3</sup>; Mullooly et al., 1988<sup>12</sup>; Zimmerman et al., 1989<sup>19</sup>; Beck, 1991<sup>1</sup>). Four studies reported statistically significant decreases in anxiety levels (Bonny, 1983<sup>3</sup>; Mullooly et al., 1988<sup>12</sup>; Bolwerk, 1990<sup>2</sup>; White, 1992<sup>17</sup>) and two studies (Curtis, 1986<sup>6</sup>; Zimmerman et al., 1988<sup>18</sup>) reported that individual analysis revealed trends in mood improvement.
- (54) Due to the wide variety of independent variables examined by the researchers it is impossible to draw specific conclusions about what kind of audioanalgesia (music type, duration of exposure, researcher vs. patient selection) will lead to positive outcomes. Improvement in physiological and psychological parameters were obtained with varied types of music, varied duration of exposure as well as patient vs. researcher composition selection. It has, however, been clearly demonstrated that music has no adverse effects on ill patients. It is not implied that music be used alone, but rather, in conjunction with other therapies or analgesics. A clear advantage of music as an adjunct nursing intervention is that it is non-invasive, has no untoward side effects and no deleterious interactions with other pharmacologic agents.



on CINHAL, 1980-1992; MEDLINE, 1980-1992 and PSYCH 1980-1992. The CINHAL search yielded 65 articles, 23 of which were identified as research and 10 which met the criteria for this review. The MEDLINE search did not yield additional studies but repeated the research identified in the CINHAL search. The PSYCH review yielded 14 additional articles, two of which met the review criteria, and both were included in this review.

(60) The reference lists of two previous reviews of music therapy research (Cook, 1981<sup>5</sup>; Standley, 1986<sup>15</sup>) were also utilized in identifying possible studies for inclusion. These reviews were comprehensive and not limited to a set of research criteria. Two additional studies were obtained from these reviews and included in this analysis.

## REFERENCES

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1527
2. Bolwerk, C.A. (1990). Effects of relaxing music on state anxiety in myocardial infarction patients. *Critical Care Nursing Quarterly*, 13(2), 63-72. Medline Reference
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19. Zimmerman, L., Pozehl, B., Duncan, K., & Schmitz, R. (1989). Effects of music in patients who had chronic cancer pain. *Western Journal of Nursing Research*, 11(3), 298-309. Medline Reference

**The effects of music intervention on anxiety in the patient waiting for cardiac catheterization.**

**Hamel W J.**

**BACKGROUND:** Hospitalization causes anxiety for many patients. It increases when patients anticipate their turn for cardiac catheterization. Music therapy reduces the psychophysiologic effects of anxiety and stress through the relaxation response. **AIM:** To determine the effects of music therapy on anxiety, heart rate and arterial blood pressure in patients waiting for their scheduled cardiac catheterization. **METHODS:** In a quasi-experimental, pretest-posttest design, 101 subjects were randomly assigned to either the test group: those who listened to 20 minutes of preselected music, or the control group: those who received treatment as usual. Subject anxiety levels and physiological values were measured while waiting their turn for cardiac catheterization and just prior to departure to the cardiac lab. **RESULTS:** 63 males and 38 females participated in the study. There was a statistically significant reduction in anxiety in the test group alone ( $P = 0.003$ ) and in comparing the test to the control group ( $P = 0.004$ ). In comparing the initial and departure physiologic values, it was noted that both heart rate and systolic blood pressure dropped in the test group, but increased in the control group. Within gender groups, there were no statistically significant differences in hemodynamics or STAI scores, but between gender groups there were significantly higher diastolic blood pressure in males and STAI initial and departure scores for females. **DISCUSSION:** Patients waiting for their cardiac catheterization benefit from music therapy. Anxiety and the heightened physiological values elicited by the stress response are reduced. Results also suggest that women waiting for cardiac catheterization experience a higher level of anxiety than males.

PMID: 11866419 [PubMed - in process]

Am Med News 1983 Jul 1-8;26(25):34 Related Articles, Books

Physician notes effects of music on patients' health.

Winter R.

PMID: 10264151 [PubMed - indexed for MEDLINE]

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1: Anesthesiology 1998 Aug;89(2):300-6 Related Articles, Books, LinkOut

The sedative and analgesic sparing effect of music.

Koch ME, Kain ZN, Ayoub C, Rosenbaum SH.

Department of Anesthesiology, Yale University School of Medicine, New Haven,  
Connecticut 06510, USA.

**BACKGROUND:** To determine whether music influences intraoperative sedative and analgesic requirements, two randomized controlled trials were performed. **METHODS:** In phase 1, 35 adults undergoing urologic procedures with spinal anesthesia and patient-controlled intravenous propofol sedation were randomly assigned to hear favorable intraoperative music via headset or to have no music. In phase 2, 43 adults undergoing lithotripsy treatment of renal or ureteral calculi and receiving patient-controlled intravenous opioid analgesia were randomly assigned to either a music or no-music group. The effect of music on sedatives and analgesics requirements, recovery room duration, and adverse outcomes was assessed. **RESULTS:** In phase 1, patients in the music group required significantly less propofol for sedation than patients in the control group (0 [0-150] mg vs. 90 [0-240] mg, median[range];  $P < 0.001$ ). These findings persisted after adjusting for duration of surgery ( $0.3 \pm 0.1$  mg/min vs.  $1.6 \pm 0.4$  mg/min;  $P < 0.001$ ). Similarly, in phase 2, patients who listened to music had a significant reduction in alfentanil requirements (1,600 [0-4,250] microg vs. 3,900 [0-7,200] microg;  $P = 0.005$ ). This persisted after adjusting for duration of surgery ( $52 \pm 9$  microg/min vs.  $119 \pm 16$  microg/min, mean  $\pm$  SD,  $P < 0.001$ ). Duration of stay in the postanesthesia care unit and the rate of adverse events was similar in both groups ( $P = \text{NS}$ ). **CONCLUSIONS:** Use of intraoperative music in awake patients decreases patient-controlled sedative and analgesic requirements. It should be noted, however, that patients in the no-music group did not use a headset during operation. Thus, the decrease in sedative and analgesic requirements could be caused by elimination of ambient operating room noise and not by the effects of music.

Publication Types:

Clinical trial

Randomized controlled trial

PMID: 9710387 [PubMed - indexed for MEDLINE]