

Live Music Research
(assembled 2013) NM, MG

Unpublished study (Presented at ISQRMM Conference July 2013 University of Georgia)

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Collecting information on observable and measurable effects pre- and post- live therapeutic music sessions at patient's bedside

Background: This study is a prototype, based on a random sample, to begin to explore the effects and quality of effects of live, bedside music provided by Certified Music Practitioners® (CMPs) on different types of patients. The purpose of the study is to determine if effects documented from live, bedside music are significant or due to chance, and to compare where effects are the strongest in benefitting the patient's well-being.

Methodology: The sample in this study included randomly selected data from 101 live music sessions. Data analysis involved repeated measures (pre- and post-) to identify effects in observable and measurable conditions. Data was collected by CMPs on a standardized form.

Results: Data from this study demonstrates that live bedside music that addresses as well as changes in response to the patient's condition has a stabilizing effect on the patient's physical and emotional well-being, as evidenced by changes in observed conditions, including agitation, restlessness, and disorientation, and, in measured effects, as evidenced by the patient's lower blood pressure post-music.

Conclusions: Further data collection and analysis, with possible additional data to clarify effects, will confirm the strengths of this study's determinations, and elucidate opportunities for adaptation in order to ensure that goals in healing and well-being are met. Further data collection and analysis will also substantiate opportunities for facilities considering using CMPs to support the care of their patients. In addition, findings from comparative studies may be generalizable to support the practice of live, therapeutic musicians.

Music Therapy Research in the NICU: An Updated Meta-Analysis.

Jayne J Standley

Neonatal Netw 31(5):311-6 (2012), PMID 22908052

Purpose: To provide an overview of developmental and medical benefits of music therapy for preterm infants. Design: Meta-analysis. Sample: Empirical music studies with preterm infants in the neonatal intensive care unit (NICU). Main Outcome: Evidence-based NICU music therapy (NICU -MT) was highly beneficial with an overall large significant effect size (Cohen's $d = 0.82$). Effects because of music were consistently in a positive direction. Results: Results of the current analysis replicated findings of a prior meta-analysis and included extended use of music. 1 Benefits were greatest for live music therapy (MT) and for use early in the infant's NICU stay (birth weight).

The contribution of intimate live music performances to the quality of life for persons with dementia

Maike van der Vleuten, Adriaan Visser, and Ludwien Meeuwesen

Patient Educ Couns 89(3):484-488 (2012), PMID 22742983

OBJECTIVE: The aim of this study was to assess the effect of intimate live music performances delivered by professional singers on the quality of life of persons with mild and severe dementia in nursing homes. **METHODS:** A sample of 54 persons with varying degrees of dementia participated in the study. Complete data sets are available for 45 persons. Using a quasi-experimental design, quality of life was assessed on the dimensions of participation (human contact, care relationship and communication) and mental well-being (positive emotions, negative emotions and communication). Observational rating scales were completed by

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caregivers and family after the performance. **RESULTS:** Intimate live music performances have a positive effect on human contact, care relationships, positive emotions and negative emotions, especially for the mild dementia group. They lead to improved human contact, better communication, more positive and less negative emotions, and an improved relationship between caregiver and receiver. **CONCLUSION:** Intimate live music performances are an inexpensive, non-invasive, feasible way to improve a deteriorating quality of life for persons suffering from dementia. This form of supplementary care may also alleviate the task of caregivers. **PRACTICE IMPLICATIONS:** Nursing homes should make more use of intimate live music performances as forms of complementary care. Copyright © 2012 Elsevier Ireland Ltd. All rights reserved.

A randomized controlled trial exploring the effect of music on quality of life and depression in older people with dementia.

Marie Cooke, Wendy Moyle, David Shum, Scott Harrison, Jenny Murfield
J Health Psychol 15(5):765-76 (2010), PMID 20603300

This randomized controlled trial investigated the effect of live music on quality of life and depression in 47 older people with dementia using the Dementia Quality of Life and Geriatric Depression Scale. The control/reading group reported higher mid-point feelings of belonging than the music group ($F(1, 45) = 6.672, p < .05$). Sub-analyses of ≥ 50 per cent music session attendance found improvements in self-esteem over time ($F(2, 46) = 4.471, p < .05$). Participants with scores that were suggestive of increased depressive symptoms had fewer depressive symptoms over time ($F(2, 22) = 8.129, p < .01$). Findings suggest music and reading activities can improve self-esteem, belonging and depression in some older people with dementia.

Effect of live music therapy for patients undergoing magnetic resonance imaging.

Darcy D DD Walworth
J Music Ther 47(4):335-50 (2010), PMID 21488602

The purpose of the current study was to identify the effects of live music therapy interventions compared with preferred recorded music for patients undergoing MRI scans. To date, there has not been a published study involving the use of live music therapy during MRI scans. The current study investigated the differences between teenage through adult patients receiving live music therapy intervention during outpatient MRI scans versus the standard protocol of care listening to recorded music ($N = 88$). Subjects ranged in age from 15 to 93 years old. Results indicated subjects who received the live music therapy protocol reported significantly better perception of the MRI procedure ($p < 0.05$). Additionally, subjects receiving the live music therapy protocol had fewer scans repeated due to movement. Of the repeated images, 26% occurred in the live music group and 73% occurred in the recorded music group. Subjects receiving live music therapy also requested less breaks from the scan. Two percent of the live music subjects requested a break and 17.6% of the control patients requested breaks. When comparing the same type of scan between groups, subjects receiving the live music protocol required less time to complete the scans. For lumbar scans without contrast ($N = 14, n = 7, n = 7$), live music subjects spent an average of 4.63 less min per scan for a total of 32 less min for 7 subjects. For brain scans ($N = 8, n = 4, n = 4$), live music subjects spent an average of 5.8 less min per scan for a total of 23 less min for 4 subjects. Results of the current study supports the use of live music therapy intervention for teenage and adult patients undergoing MRI scans to reduce patient anxiety and improve patient perception of the scan experience. Additionally, live music therapy has the potential to shorten the length of time required for patients to complete MRI

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scans due to decreased patient movements and fewer breaks requested during the scans. The cost savings impact of reduced procedure time can positively impact the facility productivity by allowing more scans to be scheduled daily.

The impact of a live therapeutic music intervention on patients' experience of pain, anxiety, and muscle tension.

Kari Sand-Jecklin and Howard Emerson

Holist Nurs Pract 24(1):7-15 (2010), PMID 20023519

This exploratory study demonstrated the positive impact of live music as a holistic patient intervention directed toward reducing pain, anxiety, and muscle tension levels of patients admitted to a tertiary care center for an emergent medical condition. Music can be combined with other holistic interventions to positively impact patient outcomes.

Effects of live music therapy sessions on quality of life indicators, medications administered and hospital length of stay for patients undergoing elective surgical procedures for brain.

Darcy D Walworth, Christopher S CS Rumana, Judy J Nguyen, Jennifer J Jarred

J Music Ther 45(3):349-59 (2008), PMID 18959455

The physiological and psychological stress that brain tumor patients undergo during the entire surgical experience can considerably affect several aspects of their hospitalization. The purpose of this study was to examine the effects of live music therapy on quality of life indicators, amount of medications administered and length of stay for persons receiving elective surgical procedures of the brain. Subjects (N = 27) were patients admitted for some type of surgical procedure of the brain. Subjects were randomly assigned to either the control group receiving no music intervention (n = 13) or the experimental group receiving pre and postoperative live music therapy sessions (n = 14). Anxiety, mood, pain, perception of hospitalization or procedure, relaxation, and stress were measured using a self-report Visual Analog Scale (VAS) for each of the variables. The documented administration of postoperative pain medications; the frequency, dosage, type, and how it was given was also compared between groups. Experimental subjects live and interactive music therapy sessions, including a pre-operative session and continuing with daily sessions until the patient was discharged home. Control subjects received routine hospital care without any music therapy intervention. Differences in experimental pretest and posttest scores were analyzed using a Wilcoxon Matched-Pairs Signed-Rank test. Results indicated statistically significant differences for 4 of the 6 quality of life measures: anxiety (p = .03), perception of hospitalization (p = .03), relaxation (p = .001), and stress (p = .001). No statistically significant differences were found for mood (p > .05) or pain (p > .05) levels. Administration amounts of nausea and pain medications were compared with a Two-Way ANOVA with One Repeated Measure resulting in no significant differences between groups and medications, $F(1, 51) = 0.03$; $p > .05$. Results indicate no significant differences between groups for length of stay ($t = .97$, $df = 25$, $p > .05$). This research study indicates that live music therapy using patient-preferred music can be beneficial in improving quality of life indicators such as anxiety, perception of the hospitalization or procedure, relaxation, and stress in patients undergoing surgical procedures of the brain.

Music stimulation has been shown to provide significant benefits to preterm infants. We hypothesized that live music therapy was more beneficial than recorded music and might improve physiological and behavioral parameters of stable preterm infants in the neonatal intensive care unit.

Arnon, S, Shapsa, A, Forman, L, Regev, R H, Baur, S, Litmanovitz, I, Dolfin, T Z

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Journal: Birth, Vol. 33 (2): 131-6, 2006

METHODS: Thirty-one stable infants randomly received live music, recorded music, and no music therapy over 3 consecutive days. A control of the environment noise level was imposed. Each therapy was delivered for 30 minutes. Inclusion criteria were postconceptional age \geq 32 weeks, weight \geq 1,500 g, hearing confirmed by distortion product otoacoustic emissions (DPOAEs), and no active illness or documentation of hyperresponsiveness to the music. Heart rate, respiratory rate, oxygen saturation, and a behavioral assessment were recorded, every 5 minutes, before, during, and after therapy, allowing 30 minutes for each interval. The infant's state was given a numerical score as follows: 1, deep sleep; 2, light sleep; 3, drowsy; 4, quiet awake or alert; 5, actively awake and aroused; 6, highly aroused, upset, or crying; and 7, prolonged respiratory pause $>$ 8 seconds. The volume range of both music therapies was from 55 to 70 dB. Parents and medical personnel completed a brief questionnaire indicating the effect of the three therapies. **RESULTS:** Live music therapy had no significant effect on physiological and behavioral parameters during the 30-minute therapy; however, at the 30-minute interval after the therapy ended, it significantly reduced heart rate (150 \pm 3.3 beats/min before therapy vs 127 \pm 6.5 beats/min after therapy) and improved the behavioral score (3.1 \pm 0.8 before therapy vs 1.3 \pm 0.6 after therapy, $p < 0.001$). Recorded music and no music therapies had no significant effect on any of the tested parameters during all intervals. Both medical personnel and parents preferred live music therapy to recorded music and no music therapies; however, parents considered live music therapy significantly more effective than the other therapies. **CONCLUSIONS:** Compared with recorded music or no music therapy, live music therapy is associated with a reduced heart rate and a deeper sleep at 30 minutes after therapy in stable preterm infants. Both recorded and no music therapies had no significant effect on the tested physiological and behavioral parameters.

The Effects of Music Therapy on Vital Signs, Feeding, and Sleep in Premature Infants

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Abstract

OBJECTIVES: Recorded music risks overstimulation in NICUs. The live elements of music such as rhythm, breath, and parent-preferred lullabies may affect physiologic function (eg, heart and respiratory rates, O₂ saturation levels, and activity levels) and developmental function (eg, sleep, feeding behavior, and weight gain) in premature infants.

METHODS: A randomized clinical multisite trial of 272 premature infants aged \geq 32 weeks with respiratory distress syndrome, clinical sepsis, and/or SGA (small for gestational age) served as their own controls in 11 NICUs. Infants received 3 interventions per week within a 2-week period, when data of physiologic and developmental domains were collected before, during, and after the interventions or no interventions and daily during a 2-week period.

RESULTS: Three live music interventions showed changes in heart rate interactive with time. Lower heart rates occurred during the lullaby ($P < .001$) and rhythm intervention ($P = .04$). Sucking behavior showed differences with rhythm sound interventions ($P = .03$). Entrained breath sounds rendered lower heart rates after the intervention ($P = .04$) and differences in sleep patterns ($P < .001$). Caloric intake ($P = .01$) and sucking behavior ($P = .02$) were higher with parent-preferred lullabies. Music decreased parental stress perception ($P < .001$).

CONCLUSIONS: The informed, intentional therapeutic use of live sound and parent-preferred lullabies applied by a certified music therapist can influence cardiac and respiratory function.

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Entrained with a premature infant's observed vital signs, sound and lullaby may improve feeding behaviors and sucking patterns and may increase prolonged periods of quiet-alert states. Parent-preferred lullabies, sung live, can enhance bonding, thus decreasing the stress parents associate with premature infant care.

Study on Nursing Presence with Music vs Recorded Music without Presence

J Clin Nurs. 2012 Mar;21(5-6):745-56. Epub 2011 Nov 18.

Effects of music intervention with nursing presence and recorded music on psycho-physiological indices of cancer patient caregivers.

Lai HL, Li YM, Lee LH.

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Abstract

AIMS AND OBJECTIVES: To compare the effects of music intervention with nursing presence and recorded music on blood volume pulse amplitude, the low/high frequency ratio component of heart rate variability, depression, anxiety and sleep quality in cancer patient caregivers; to compare the participants evaluation of these two forms of musical intervention.

BACKGROUND: Presence is one of the activities of caring. However, little is known about the effect of music intervention with nursing presence on psycho-physiological indices.

DESIGN: Randomised crossover controlled trial.

METHOD: Thirty-four female participants were randomly assigned to a music intervention with nursing presence/recorded music sequence or recorded music/music intervention with nursing presence sequence. Each intervention lasted 30 minutes and was held at the participant's home. The music intervention with nursing presence consisted of an erhu and recorder performance. In the recorded music session, participants listened to prerecorded music for 30 minutes. Continuous measurements of blood volume pulse and low/high frequency ratio were taken throughout the procedure. Depression, anxiety and sleep quality were measured before and after each intervention.

RESULTS: Both music intervention with nursing presence and recorded music interventions had beneficial effects on anxiety, depression and blood volume pulse amplitude. Significant differences between the two interventions were also observed for anxiety. Music intervention with nursing presence was more effective in lessening anxiety and on improving the ease of getting to sleep compared with recorded music ($p < 0.05$). All participants reported that they preferred music intervention with nursing presence to recorded music. Significant differences were found in music evaluation scores between the two interventions in terms of harmony and friendliness ($p < 0.05$).

CONCLUSIONS: Both music interventions were beneficial, as measured on psycho-physiological indices. The music intervention with nursing presence provided a more friendly music experience to the listeners.

RELEVANCE TO CLINICAL PRACTICE: The findings provide evidence for nurses that the therapeutic use of music and nursing presence as a research-based nursing intervention for the welfare of caregivers. PMID:22098540[PubMed - in process]