



RESEARCH ARTICLE

EFFECT OF CLASSICAL MUSIC THERAPY ON BEHAVIOURAL PARAMETERS AMONG
PRETERM NEONATES

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dB- Decibel,
SPL- Sound Pressure Level,
NS- Not significant,
U- Wilcoxon signed rank test.

ABSTRACT

Introduction: The popularity and credibility of alternative treatment modalities such as music therapy have increased over the past decade. The primary purpose of this study is to assess the effect of classical music therapy on behavioural parameters among preterm neonates.

Methods: The research approach of the study was Quasi experimental with time series design. Classical music (Instrumental Flute) was played for preterm neonates with MP3 player for a total duration of 30 minutes at 20 to 30dB-SPL. The behavioural responses were assessed by Neonatal Behavioural Assessment Scale, and parameters were recorded at 5 minute intervals during the therapy period and for the pre music and after music therapy period, the time intervals were 2.5 minutes. The study duration was 60 minutes, 15 minutes before music therapy (BMT), 30 minutes of music therapy (DMT) and 15 minutes after music therapy (AMT). 50 preterm neonates admitted in newborn nursery were selected by convenient sampling and studied for 4 consecutive days. Day 1 and 3 for music therapy (experimental group) and day 2 and 4 as control group when no music was played through headphone. Here the subjects act as control group on alternate days.

Results: Regarding the neonatal behaviours in the experimental group with music therapy, 98% of preterm neonates were in the deep sleep states during music (DMT) and 97% had an ongoing effect after music (AMT) for a short period and found that music therapy is statistically highly significant (U= 9.9 (DMT) 9.85 (AMT), P= <0.001).

Conclusion: Listening to classical music therapy in Preterm neonates showed deep sleep behaviour states. These effects appear to persist beyond the music therapy for a short period and may play a useful role to achieve relaxation for babies in NICU.

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INTRODUCTION

To prevent lifelong developmental complications, the premature infant's learning process must begin at birth and continue during his / her stay in the Neonatal Intensive Care Unit. Music shows promise for soothing and nurturing preemies in reducing stress, stabilizing physiological functions and behaviour states, and promoting language exposure, thus enhancing maturation during this critical final stage of foetal development under medical treatment. (Standley, 2002) Music therapy during breast feeding found that, behavioural and physiological responses of neonates were significantly improved and associated with deep sleep. (Standley and Moore, 1995; Caine, 1991) Abnormal sensory input can be a source of potentially overwhelming stress and at a sensitive

period during development can modify the developing brain. The NICU environment therefore assumes a crucial role in the care of the sick neonates. (Mhairi et al., 2005) The use of music as a part of stress reduction therapy has been applied both to premature and term infants in the neonatal reanimation service. This aim of music therapy amounts to an attempt to help the premature infant regaining its physical and neurological balance, so important to its psychological and physical development, mainly by masking the excess noise present in the intensive care unit and or in the incubator. (Carlsson, 1991)

Statement of the problem

Effect of Classical music therapy on behavioural parameters in preterm neonates admitted in Newborn nursery of SAT hospital, Trivandrum.

Objective: To assess the effect of classical music therapy on behavioural parameters in preterm neonates

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Hypothesis

- H_A:** Classical music therapy will significantly improve the behavioural parameters of preterm neonates.
- H₀:** Classical music therapy will not significantly improve the behavioural parameters of preterm neonates.

MATERIALS AND METHODS

The present study was a quasi-experimental study with time series design which had conducted at SAT- New Born Nursery, Trivandrum with a sample size of 50 preterm neonates selected by convenient sampling with study duration of six weeks. In this study, the data were collected from each sample for four consecutive days, and the same subjects act as their control group on alternate days. The behavioural responses were assessed by Neonatal Behavioural Assessment Scale, at specific time intervals. Six observations were collected 15 minutes prior to administration of music therapy at an interval of 2.5 minutes and then introduced classical music therapy (Instrumental- flute) for 30 minutes with the help of MP 3 player with head phone at 20 to 30 dB and series of same observations are documented at 5 minutes intervals during music therapy. After music therapy series of same observations are also documented for about 15 minutes at an interval of 2.5 minutes. The sample of the study group was assessed daily by the investigator for four consecutive days and nearly 90 minutes were required for data collection of each sample for one day. Philips Go Gear Digital MP3 player (Philips-SA -1928) with head phone (Sennheiser EH 150) is used to deliver classical music therapy at 20 to 30 dB, calibrated by sound engineer, from Sound Engineering Academy (SEA), an ISO 9001:2000 certified institution. Neonatal Behaviour Assessment scale is a standard assessment used universally by medical professional (Brazelton and Nugent, 1995) and is measured as follows: Deep sleep -1 Restless sleep-2, Quiet alert - 3 Active alert - 4 and Crying - 5.

Criteria for Selection of Samples

Inclusion criteria

- Preterm neonates between the gestational age of 30 to 36 weeks.
- Preterm neonates with a birth weight of 1.5 kg and above.
- Preterm neonates with mild to moderate respiratory distress.

Exclusion criteria

- Preterm neonates with congenital anomalies.
- Parents or caregivers not willing to provide the consent.

Ethics and consent

After getting Human ethical committee clearance and permission from institution and respective units, informed consent has taken from parents of neonates and the confidentiality has maintained. The investigator first established a rapport with the parents or care givers. The purpose of the study was explained. It was assured to them that all the data will be kept strictly confidential and used only for this study purpose and obtained the informed consent. Followed the ethical principles and data collection was started.

RESULTS

Table 1 depicts that classical music therapy promotes deep sleep states during and after therapy (9.9 and 9.85) in the experimental group and it is significant at 0.01 levels. So it concludes that classical music therapy promotes deep sleep states in preterm neonates.

Table 1. Neonatal Behaviour and level of significance in relation to Classical Music Therapy on Experimental and Control group

Stage	Behavior Status	Experimental	Control
Before	Deep sleep	47	64
	Restless sleep	50	31
	Quiet alert	2	4
	Active alert	0	1
	Crying	1	0
During	Deep sleep	98	47
	Restless sleep	2	52
	Quiet alert	0	1
	Active alert	0	0
	Crying	0	0
After	Deep sleep	97	44
	Restless sleep	3	47
	Quiet alert	0	5
	Active alert	0	2
	Crying	0	2
Wilcoxon Signed	Before & During	9.9**	-
Ranks Test	Before & After	9.85**	-
	During & After	9.86**	-

**Significant at 0.01 level

DISCUSSION

The study findings disseminate that the classical music therapy has statistically significant effect on behavioural parameters in preterm neonates and it promotes deep sleep states and rejected the null hypothesis. A study done by Block and Jennings reported that while listening to classical music therapy, the neonates' become quiet and seemed to fall asleep. A decrease in activity reduced the calorie expenditure and enhances weight gain. (Block *et al.*, 2003) A study done by Staneslow stated that live music therapy is associated with a reduced heart rate and a deeper sleep at 30 minutes after classical music therapy. (Staneslow, 2006) Standley reported that music at 55 to 80dB was associated with improvement in behavioural state of preterm neonates and recommended music therapy for premature infants. (Standley, 2002)

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