

Effect of Music in Inducing Sleep among Children in Need of Special Care in a Child Shelter Institution: Basis for Independent Nursing Intervention

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Abstract

For as long as anyone can remember the lullaby song has been an effective tool for helping babies to fall asleep. The song followed by the gentle humming of the same tune can put the most anxious baby calm and sound asleep. Sleep is quintessential to our lives. Every human being needs to sleep in order to survive.

The purpose of this pre-test/post-test study was to determine the effect of music in inducing sleep on the sleep onset latency of the children in need of special care in a child caring institution. Purposive sampling was used in this study to observe the sleep onset latency of children ages 1 – 6 years old, with no hearing impairment, can comprehend verbal instructions, oriented to time, place, and person and has no severe physiological or psychological problems. There were 16 research participants, male and female. Effect of music will be measured based on the duration of the sleep onset latency (NREM stage 1) of the research participants from the time they lie down on bed up to the time they fall asleep at night. One day was allotted for the observation of the sleep onset latency which served as the basis before music is played. Music was played 45 minutes from the time the participants lie on bed to sleep for seven days. Results revealed that there is significant difference on the effect of music in inducing sleep based on the shortened duration of sleep onset latency among the participants. However based on the effect of music in inducing sleep, there is no significant relationship according to the profile of the participants. The findings of this study provide evidence for the use of music therapy as an independent nursing intervention to induce sleep.

Keywords: Music, sleep, child shelter institution

1. Introduction

The effect of music in alleviation of physiological condition such as anxiety is a historical phenomenon. This practice is evidenced by some mythological or historical reflections, which have explained the origins of music in healing. A good exemplar of this was the story from the old testament in the Bible (cir. 1445 B.C.). David played his harp to King Saul when the spirit of the Lord departed from him and this made him troubled. After playing his harp, Saul was refreshed, and was well, and the evil spirit departed from him. Some attributes the rise of music in healing to the life in Stone Age, which is evident by the use of music as therapy. The Stone Age cultures did not view music as a self contained experience apart from life. The connection between music and healing has come a long way since its primitive stage; this connection has remained with the human existence. In this regard, music has been a universal agent that transcends time and space, barriers withstanding pain and anxiety. Its use as a healing agent has been shaped over thousands of years through human experience.

Many researchers have shown that music has a profound effect on our body and consciousness. Moreover, there's a growing field of healthcare known as Music Therapy, which uses music to heal. Even hospitals are now beginning to use music to help with pain management, to promote movement, to help ward off depression, to ease muscle tension, and to calm patients or simply to induce sleep. Research also reveals that music with a strong beat can stimulate brainwaves to resonate in sync with the beat. For faster beats, it brings sharper concentration and enhances alert thinking. A slower tempo of music can promote a calm, meditative state. Music can also be used to bring a more positive state of mind, keeping depression and anxiety at sidelined, which can prevent the stress response from wreaking havoc on the body. Some research suggests that music has been found to bring many other benefits, such as lowering blood pressure which can also reduce the risk of stroke and other health problems over time, and can boost immunity.

Child abuse is rampant these days. Many children are suffering from these horrific experiences and foster dangers of anxiety disorders. Anxiety is associated with childhood trauma. Hypothetically, children who experienced abuse are prone to cues of anger and threat compared to children who did not experience abuse. Authorities even state that children who have experienced abuse when they were young enter into the vicious cycle of being abusive parents and so the cycle continuous.

A child, by a court decision admitted in a child caring institution due to dreadful situations such as neglect, abandoned or orphaned by his/her parents may suffer from plethora of uncertainties and nervousness or

even anxiety disorder.

2. Statement of the problem

The purpose of this study is to determine the effect of music in inducing sleep among children, 1-6 years old in a child caring institution. More specifically, the study attempted to answer the following questions:

1. What is the socio-demographic profile of the research participants in terms of:
 - 1.1 Age
 - 1.2 Gender
 - 1.3 Reason for shelter/institutionalization
 - 1.4 Length of stay in the shelter
2. What is the duration/amount of time it takes for research participants to fall asleep according to their socio-demographic profile?
3. What is the effect of music in inducing sleep based on the duration/amount of time it takes for research participants to fall asleep according to their socio-demographic profile?
4. Is there a significant difference between the duration of falling asleep before and after music is played at sleeping time?
5. Is there a significant relationship between the respondents' profile and the effect of music in inducing sleep?
6. Based on the results of the study, what type of nursing intervention can be proposed?

3. Methodology

Quasi experimental pre-test/post-test design was used to determine the effects of music in inducing sleep among the subjects after obtaining ethical clearance and a written consent from the institution for 16 subjects.

Purposive sampling, classified as non probability was used and the criteria set was children in need of special care.

Observation technique was used in this study to determine the sleep onset latency of the subjects. The researcher introduced herself as volunteer to prevent Hawthorne effect. A checklist was used to record the amount of time the participants actually fall asleep. The tool used to determine whether music has an effect or ineffective is the standardized sleep latency test by Arand, et al., (2005). The data was collected and analyzed using descriptive and inferential statistics.

A lullaby song was played for 45 minutes during post-test. The title of the CD is "My baby's quiet time" (touch by nature) by the various artists. The volume of music was set low, lights were turned off to facilitate relaxation and the windows were slightly closed to prevent noise to come in.

4. Results

The participants were categorized into three (3) age groups. The largest group of 7 (43%) were 1 – 2 years old; 6 participants (37.5%) are between 4 – 5 years old; and the 5 – 6 years old has 3 (18.75%) members. Male gender is composed of 11 children (67.85) while females are 5 (31.25). Majority of the subjects stayed in the institution for more than 1 year and have adapted their way of living in the shelter institution. Asociacion de Damas de Filipinas caters to 6 categories of children in need of special care and only 3 cases of these categories are present. The dependent with a total of 12 (75%), 3 were abandoned children (18.75%) and the lone surrendered category. The reason of institutionalization for the dependent category of children is due to the facts that parents cannot provide the basic necessity of the child because of financial difficulty, parents is suffering from mental instability, or in prison.

Before music therapy the overall total duration of SOL has an average of 40.38 minutes and after providing music therapy the total duration of SOL has an average of 19.85 minutes. The effect of music in inducing sleep among children in need of special care reveals that out of the 16 participants, **1 got an effect, 11 subjects confirm moderate effect and 4 did not experience the effect of music at sleeping time.** Based on the result of the study music therapy has a significant effect on the sleep latency of the subjects.

5. Conclusions

The age of majority were children ages 1-2 years old, these children belong to the developmental stages of infancy and early childhood which most significant tasks are: **Infancy** - trust VS mistrust; **Early childhood** - autonomy VS shame and doubt. These two stages the significant relationship is the maternal parent, in which the focal figure is missing. Music therapy used as lullaby is a formed of maternal care that could be given in the absence of the biological mother.

Without music therapy SOL has an average of 40.38 minutes which concludes that there is inability of

falling asleep among children in asociacion de damas de Filipinas compared to the average sleep latency of approximately 30 minutes. Hence, the proposed nursing intervention is to provide music as independent nursing intervention.

In conclusion, music therapy has achieved moderate effect in inducing sleep among children in need of special care.

References

A). Books

- Bunt, L. & Hoskyns, S. (1999) *The handbook of music therapy*. East Sussex, UK: Brunner-Routledge.
- Kosier, B., Erb, G., Berman, A., & Snyder, S. (2005). *Fundamentals of Nursing: The art and science of nursing care*, 5th ed. Philadelphia. Lippincott Williams and Wilkins.
- Potter, P.A., Perry, A.G., (1993) *Fundamentals of Nursing*, (3rd ed). St. Louis: Mosby.
- Sacks, O. (2008). *The case of Harry S.: Music and emotion*. Musicophilia. New York: Random House Inc.
- Sacks, O. (2008). *Music identity.: Dementia and music therapy*. Musicophilia. New York: Random House Inc.
- Sacks, O. (2008). *Speech and song. Aphasia and music therapy*. Musicophilia. New York: Random House Inc.
- Sadock, B.J., and Sadock, V.A. (2007). *Synopsis of psychiatry: Behavioral sciences/clinical psychiatry*, 10th ed. Philadelphia. Lippincott Williams and Wilkins.
- 1 Samuel 16: 14-23. Holy bible, the old and the new testament (1993). Utah, USA. The Church of Jesus Christ of the Latter-day Saints.
- Shives, L.R. (2008) *Psychiatric-Mental health nursing* (7th ed.) Philadelphia: Lippincott, Williams and Wilkins.
- Stillwell, S. (2002). *Critical care nursing* (3rd ed.). St. Louis: Mosby
- Videbeck, S. (2004) *Psychiatric Mental health nursing* (2nd ed.). Baltimore: Lippincott, Williams and Wilkins.
- White, L., (2005) *Foundations of nursing*, (2nd ed). Australia: Thomson Delmar Learning.

B). Newspaper articles

- Esguerra, C.V. (2008). Filipino talent gives dose of good music, healing. *Philippine Daily inquirer* Aug., p 18.
- Flores, N. (2001). Ma dies to save daughter. *Philippine Daily inquirer* Aug., p 9.
- Sarte, M. (2009). Sleep disorder may cause shorter life span. *Philippine star* July, p 23.
- Mallari, P.G.S. (2000). The power of music. *The Manila Times* May, p 26.
- Lujan, N.C (1999) Twelve year old boy electrocutes father. *Philippine Daily inquirer* April, p 14.

C). Journals

- Gregory, A.M. (2008) Child sleep problems linked to later behavioral difficulties, study shows. *JAMA*. Vol 162, No. 4, pp. 330-335.
- Hui-Ling, L., Good, M. (2004). Music improves sleep quality in older adults. *The Journal of Advanced Nursing*. Vol 49, issue 3. Pp 234-244.
- Hui-Ling Lai, et al (2006). Randomized controlled trial of music during kangaroo care on maternal state anxiety and preterm infants' responses. *International Journal of Nursing Studies*. 43 (2): 139-146.
- Johnson, J.E. (2003). The use of music to promote sleep in older women. *Journal of Community Health Nursing* 20 (1), 27-35.
- McManus, F.V. (2008). Anxiety assessment and treatment. *Medical Progress* Vol. 35 No. 5 pp. 220
- Mornhinweg, G.C., Voignier, R.R. (1995). Music for sleep disturbance in the Elderly. *Journal of Holistic Nursing*. Vol. 13, No. 3, 248-254
- Thaut, M.H. (1990). Neurophysiological processes in music perception and their relevance in music therapy. *Music therapy in the treatment of adults with mental disorder* pp 3-32
- Rich, D.J., Gingerrich, K.J., and Rosen, L.A., (1997) Childhood Emotional Abuse and Associated Psychopathology in College Students" *Journal of College Student Psychotherapy*. 11(3): pp13-28

D). Websites

- American Music Therapy Association (2005) *History of music as a medicine*. Sept. 2009. <http://www.musictherapy.org/> .(Google)
- Alexander Golbin, M.D. *Effects of Anxiety on Sleep Are Different Than Depression*. December 2009. http://www.talkaboutslepp.com/sleep-disorders/archives/other_sleep_disorders_anxiety.htm . (Google)
- How much sleep does your child need?* – November 2009. http://www.babycenter.com/0_how-much-sleep-does-your-child-need_64915.bc. (Google)
- Policy Development and Planning Bureau (PDPB, 2006), DSWD* September 2009. http://www.dswd.gov.ph/images/Articles/Child_Abuse_2006.pdf. (Google)
- Steven Reinberg. *Sedentary Kids May Take Longer to Fall Asleep* (July 2009). January 2010.

<http://www.usnews.com/health/family-health/sleep/articles/2009/07/23/sedentary-kids-may-take-longer-to-fall-asleep.html>. (Google)

The American Academy of Child and adolescent Psychiatry (2008). *Facts for families/child abuse the hidden bruises*. August 2009 http://www.aacap.org/cs/root/facts_for_families/child_abuse_the_hidden_bruises. (Google)

Wagner, K.V. (1992)*Theories of Sleep*. December 2010.

<http://psychology.about.com/od/Stateofconsciousness/p/TheoriesOfSleep.htm>. (Google)

World Federation of Music Therapy. *Music and the Quality of Life*. November 2009.<http://www.njmt.no/selectruud97.html>. (Yahoo)

E). Research studies

Concepcion, H. (2006). The effects of music therapy on the vital signs and anxiety of post-op patient in San Juan Medical Center. (Master thesis)

Garbarino, J. , Garbarino, A. 1(994) Emotional Maltreatment of Children. Chicago, National Committee to Prevent Child Abuse. (Master thesis)

Rider, M., Floyd, J., and Kirkpatrick, J. (1985) The effect of Music, Imagery and Relaxation on Adrenal Corticosteroids and the Reentrainment of Circadian Rhythm. (Master thesis)

Jellison , J. A., Brooks, B., and Huck, A. (1984). A Meta-Analysis on the Effects of Music as Reinforcement for Education/Therapy Objectives. (Master thesis)

Mok, E., Wong, K. (2003) Effects of music on patient’s anxiety. (Master thesis)

Gold, C., (2007) Music Therapy on adults hospitalized with schizophrenia. (Master thesis)

Benbadis, S.R, et al, (1999) Dreams and rapid eye movement *sleep* on the Multiple *Sleep Latency Test*. (Doctoral dissertation)

Benbadis S.R., et al. (1996) The Multiple Sleep Latency Test; Comparison of sleep onset criteria. (Doctoral dissertation)

Thirumalachari, T. (1995) Effects of Music Therapy on Stuttering. (Doctoral dissertation)

Ward, L.A. (1987). The use of music and relaxation techniques to reduce pain of burn patients during daily debridement. (Master thesis)

Rudenberg, M. & Royka, A. (1989). Promoting psychosocial adjustment in pediatric burn patients through music therapy and child life therapy. *Music Therapy Perspectives*. (Master thesis)

Lindenmuth G.F., Patel. M., and Chang P.K. (1992). Effects of music on sleep in healthy elderly and subjects with senile dementia of the Alzheimer type. (Master thesis)

Table 1

Below is the tool used to determine whether music therapy was effective or not. It was based on the multiple sleep latency test. A standardized sleep Latency Test by Arand, et al., (2005). It is a validated objective measure of the ability or tendency to fall asleep. The interpretation or rating used were as follows:

RATING	SCALE:
EFFECTIVE (E)	< 10 mins.
MODERATELY EFFECTIVE (ME)	11-20 mins.
NOT EFFECTIVE (NE)	21 and above

Table 2. Frequency distribution of participants according to age

AGE	FREQUENCY	PERCENTAGE
1 - 2 years old	7	43.75
3 - 4 years old	6	37.5
5 - 6 years old	3	18.75
Total	16	100

Table 3. Frequency distribution of participants based on category/reason for institutionalization

CATEGORY	FREQUENCY	PERCENTAGE
Abandoned	3	18.75
Neglect	0	0
Orphaned	0	0
Dependent	12	75
Foundling	0	0
Surrendered	1	6.25
Total	16	100

Table 4. Duration of sleep onset latency (SOL) without music according to the age of the participants

AGE	Frequency	TOTAL SOL	AVERAGE
1 - 2 years old	7	190 mins	27.1 min.
3 - 4 years old	6	274 mins	45.7 mins
5 - 6 years old	3	182 mins	60.7 mins

Table 5. Significant difference on the duration of sleep onset latency (SOL) Before and after music is played at sleeping time.

Child	Pre-test	Post-test	Rating
1	25	16.1	ME
2	31	15.57	ME
3	25	9.86	E
4	24	20.57	ME
5	22	18.43	ME
6	33	18.86	ME
7	30	18.57	ME
8	54	17.71	ME
9	56	11.57	ME
10	79	30.29	NE
11	70	31.57	NE
12	26	14.57	ME
13	55	32.29	NE
14	27	20.71	ME
15	57	23.86	NE
16	32	17.14	ME

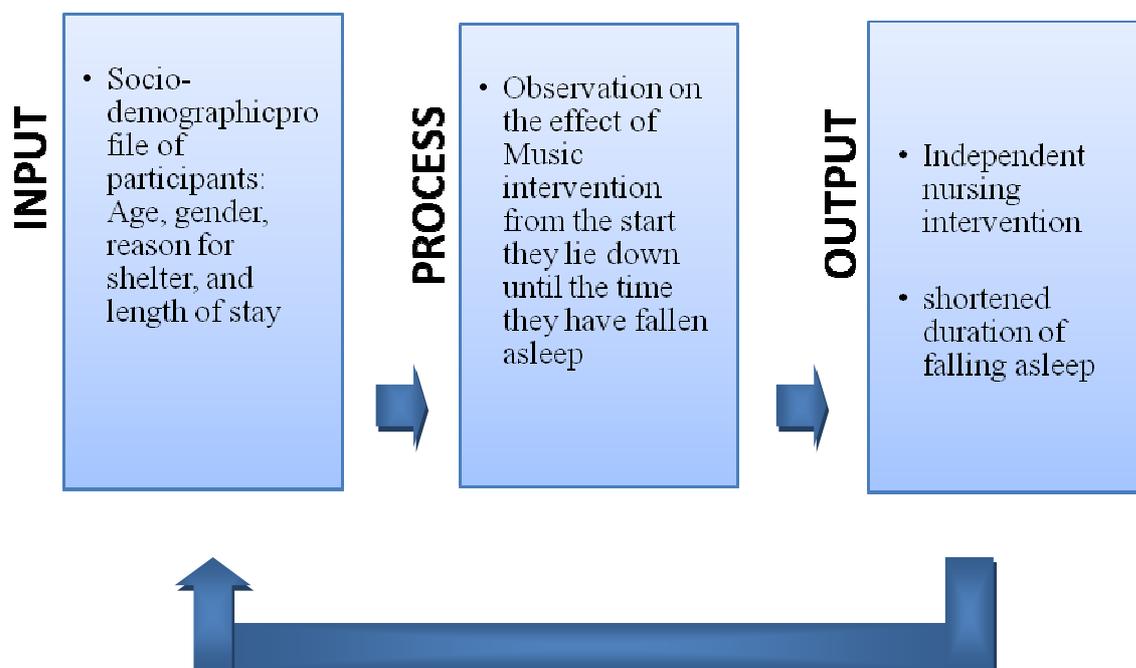
Legend: CV- computed value, DF-degrees of freedom (15), VI – verbal interpretation at 0.05 level of significance.

CRITICAL VALUE	COMPUTED VALUE	DEGREES OF FREEDOM	INTERPRETATION
2.131	5.31	15	Ho is REJECTED

Table 6. Effectiveness of music therapy on the duration of sleep onset latency (SOL) based on the age of the participants

Scale	1-2 yrs. old	3-4 yrs. old	5-6 yrs. old	Frequency	Computed value	Critical value	DF	Interpret.
Effective	1	0	0	1				
Moderately Effective	6	5	0	11	$\chi^2 = 13.06$ <	$\chi^2_{0.05}$ 25.00	15	Ho is accepted
Not Effective	0	1	3	4				
TOTAL	7	6	3	16				

CONCEPTUAL FRAMEWORK



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