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An investigation how classical music and silence affect children's sleep

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Abstract
Music therapy is an interpersonal process in which the therapist uses music and all of its facets—physical, emotional, mental, social, aesthetic, and spiritual—to help clients to improve or maintain their health. In some instances, the client's needs are addressed directly through music; in others they are addressed through the relationships that develop between the client and therapist. Music therapy is used with individuals of all ages and with a variety of conditions, including: psychiatric disorders, medical problems, physical handicaps, sensory impairments, developmental disabilities, substance abuse, communication disorders, interpersonal problems, and aging. It is also used to: improve learning, build self-esteem, reduce stress, support physical exercise, and facilitate a host of other health-related activities. In this paper we are investigate how classical music and silence affect children's sleep. The experiment was performed on preschool kids. In this experiment we use: 10 nursery children aged 4 to 5 years old, 1 classical music CD, 1 CD player, 1 stopwatch and so many.

Keywords: Recuperate, Heartbeat, Womb

Introduction

Music is both a vital and pervasive piece of the human experience. It is a basic part of human life. It is valuable to live with joy and wellbeing. Music has been around for a long time and is not restricted to any society or country. It has been called a universal dialect as one does not need to talk the dialect with a specific end goal to welcome a society's music [9]. All societies, religions and countries have some type of local melody, music or instrument that is a piece of their custom. The reason music is well known in all societies is a direct result of the alleviating impact it has on individuals. Listening to delicate music and getting a charge out of it can adjust a man's state of mind and bring a sure satisfaction, euphoria and bliss in them. This can be extremely valuable in lifting our spirits on occasion when we are feeling down, disillusioned or discouraged. Music can offer in helping so as to decrease some assistance with stressing our muscles to unwind, while lessening our breathing rate. It additionally invigorates the creation of the hormone serotonin that fulfills us feel and enhances our temperament [10]. Music is likewise ready to hoist our dispositions by modifying our cerebrum waves. Quick, motivational music can be valuable in getting our adrenalin pumped with the goal that we will be roused amid activity or work. The ability to perceive emotion in music is said to develop early in childhood, and improve significantly throughout development [5]. The capacity to perceive emotion in music is also subject to cultural influences, and both similarities and differences in emotion perception have been observed in cross-cultural studies [6]. Empirical research has looked at which emotions can be conveyed as well as what structural factors in music help contribute to the perceived emotional expression. There are two schools of thought on how we interpret emotion in music. The cognitivists' approach argues that music simply displays an emotion, but does not allow for the personal experience of emotion in the listener. Emotivists argue that music elicits real emotional responses in the listener [7, 8]. It has been argued that the emotion experienced from a piece of music is a multiplicative function of structural features, performance features, listener features and contextual features of the piece, shown as:
Experienced Emotion = Structural features x Performance features x Listener features x Contextual features

Where:
Structural features = Segmental features x Suprasegmental features
Performance features = Performer skill x Performer state
Listener features = Musical expertise x Stable disposition x Current motivation
Contextual features = Location x Event [7].

Sleep is an important part of the human routine [4]. It helps our mind to rest and our body to recuperate after a long day's work. Children require more sleep than adults because they need to grow and develop. A newborn baby will require 18 hours of sleep a day compared to 12 hours for children, and 8 hours for adults. Babies are used to listening to their mothers' heart beat for nine months whilst in their mother's womb. Therefore they are more accustomed to rhythmic background sounds. It gives them security. After the child is born, this need for a sound can be replaced by a slow lullaby, slow classical music, the ticking of a clock or the sound of flowing water. Consistency is very important, for children to feel secure. Children will normally feel uncomfortable when the environment changes. Sudden silence can also be such a change. That is probably why sometimes children sleep better with light music in the background. Another problem with a silent environment is that any sudden noises in the background would be enough to wake up the child. Our hypothesis is that Children made to listen to classical music will be able to fall asleep more quickly.

Related Work

In [1] author proposed 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. In [2] author proposed the impacts of music on rest quality in youthful members with poor rest. In [3] author proposed the impact of music in inciting mull over the rest onset inertness of the youngsters needing unique consideration in a kid minding establishment. Purposive inspecting was utilized as a part of this study to watch the rest onset inactivity of kid's ages 1 – 6 years of age, with no listening to hindrance, can understand verbal guidelines, situated to time, spot, and individual and has no serious physiological or mental issue.

Methodology

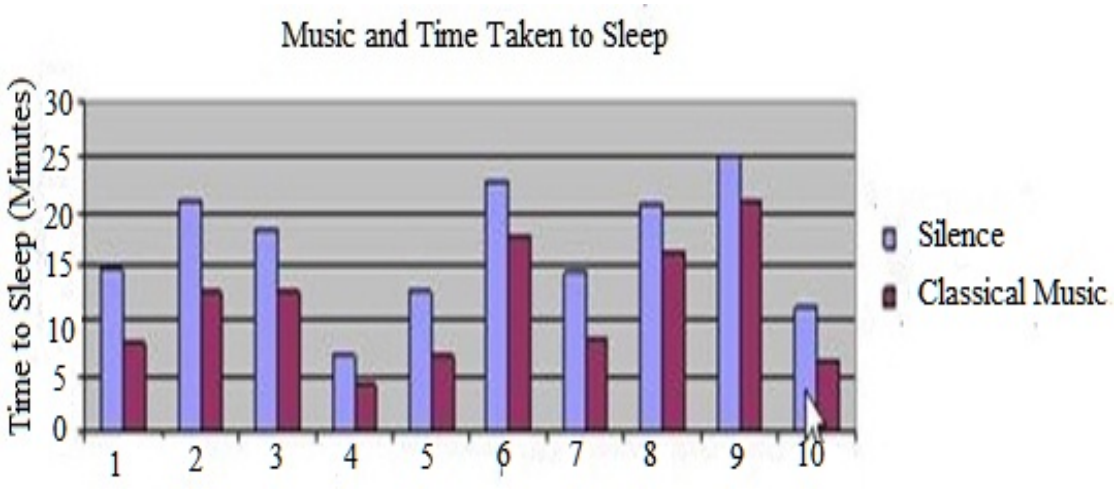
1. In this experiment we use: 10 nursery children aged 4 to 5 years old, 1 classical music CD, 1 CD player, 1 stopwatch and Permission from the selected nursery to do observation, ensuring that parental consent forms have been signed.
2. For this experiment, the independent variable is either silence or playing classical music during the children's nap time. The dependent variable is the time it takes for the child to sleep. This is determined by using a stopwatch to time and observe the child not making any movement for 5 minutes. The constants (control variables) are the age of the children, the gender of the children and the environment of the room (bed firmness, air conditioning, etc.).
3. Permission is obtained from the nursery school administration and the parents of the selected children to observe their children's sleeping pattern for the next 10 days.
4. Arrangements are made with the school to maintain a similar level of activity for the children in the nursery for the next 10 days. This is so that the children do not become more tired on certain days and go to sleep early due to tiredness and not the environment.
5. On the odd days of observation (1st, 3rd, 5th, 7th and 9th days) no music is played. The children are made to sleep in the quiet room. The time taken for each child to sleep is recorded in the table below.
6. On the even days of observation (2nd, 4th, 6th, 8th, 10th days) classical music is played in the background whilst the children sleep. The time taken for the children to fall sleep is again recorded in the table below.

Results and Analysis

The results showed that the children were able to fall asleep more quickly on the days that the classical music was playing in the background.

Condition	Days	Time taken for child to go to sleep (minutes)									
		Child1	Child2	Child3	Child4	Child5	Child6	Child7	Child8	Child9	Child10
Silence	1	15	22	18	8	12	22	12	22	28	8
	3	18	18	15	4	14	26	15	26	22	12
	5	12	24	18	8	15	24	15	18	24	14
	7	18	20	20	6	12	22	18	18	24	12
	9	10	22	22	8	10	20	12	20	28	10
	Average	14.6	21.2	18.6	6.8	12.6	22.8	14.4	20.8	25.2	11.2
Classical Music	2	8	12	15	4	8	18	10	18	22	8
	4	4	10	13	6	6	15	8	16	20	6
	6	12	15	14	4	8	18	10	16	22	6
	8	8	12	11	4	4	18	6	14	18	4
	10	8	15	10	4	8	20	8	18	24	8
	Average	8	12.8	12.6	4.4	6.8	17.8	8.4	16.4	21.2	6.4

The chart below represents the results of our observation.



Conclusion

The hypothesis that children who are made to listen to classical music will be able to fall asleep more quickly, is proven to be true. Most parents have difficulty making children fall a sleep at night. Babies who sleep about 14 hours a day will need to be fed and have diapers changed many times in the night. However, having the proper environment with light music can help a child sleep for a longer period of time by keeping the child calm and feeling secure.

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