

The Effect's of Music on Increasing Motor Skills and Auditory Memory in Mental Retarded Children Aged 15-10 with 65-75IQ (Case Study)

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Abstract

Music has been successful as a therapeutic intervention for persons with mental and physical disabilities. Motor and mental coordination can be improved through many musical experiences. The purpose of this research was to evaluate the effects of music on increasing motor skills and auditory memory in mental retarded children aged 15-10 with 75-65 IQ. For this purpose, 40 male and female students were selected randomly-cluster method. To implement this research quasi-experimental methods and control groups were used. The descriptive statistics and t-test as well as spss software were used to analyze the data: the following results were obtained Music training improves and increases mentally motor skills of retarded children and also enhances listening memory.

Keywords: Music, Motor skills, Auditory memory, Mentally retarded children, IQ

1. Introduction

The word mental retardation is used to refer to those persons with more than one problem which has tremendous effect on their learning ability (Nocera, 1979). The psychosocial rehabilitation of the mental retardation has been a matter of importance in health policy. Music therapy has been recommended as a helpful part of a combined treatment policy for them. Music can supplement medical treatment. The low side effects and cost of music and the subsequently high level of patient satisfaction are some advantages. Multiple handicaps suffer from tremendous physical handicaps or defects that may include listening and seeing problems as well as problems in movement mechanism. Musical activities are often used for motion and also to motivate the conscious reactions and complete power of sensory motivations (Lathom, 1981). Music therapy is a controversial but effective form of rehabilitation on mentally handicapped people. Music process is used in order to restore, maintain, and improve emotional, physical, physiological, and spiritual health and well being (Aldridge, 2000). Some researches have proved the effects of music on sensory- motor and communication aspects, for example Hai-boyu, Yong-fengLiu and Li-xiong (2009) were found significant effect of acupuncture with music therapy on cerebral palsy persons.

Research by Gotell et al. (2009) illuminated caregiver singing and background music as improving the patient's ability to express positive emotions and moods, and to elicit a sense of vitality on the part of the person with severe dementia (Gotell, Brown, & Ekman, 2009). Nayak, Wheeler, Shiflett and Agostinelli (2000) also reported significant effect of music therapy on social interactions, mood on traumatic brain injury patients.

Music is organized reality, real event that occur in the minds and demands the moments a person is attentive. Music can provide expressive tool and boost a valuable of feelings (Sears W. W., 1968). Hebrew believed that music can have sedative result in people's daily lives. In ancient cultures of Egypt and Mesopotamia and the

Temple of Music and Healing with religious ceremonies was tied. Egyptians thought music as the spell verdict and a sign of the other sounds. Chinese ancient civilizations and India also knew the music healing. In the second century BC in China there have been special lectures about human soul connection and music and using music to induce moderation (Sears W. W., 1968). Pythagoras believed that a special music prescribed can make persons healthy and guide him to the sounds of the direct base to develop current music. Greeks were using music and dramatic programs to refine feelings. Romans have also believed in the healing power of music part (Fransworth P. R., 1969). Music sociologists and anthropologists have said that music is in all cultures, tribes and early civilized societies. He believes that rhythmic body music can be used to facilitate improved behavior rhythm (Gaston E. T., 1968). Using music is a very effective method in increasing the level of genius, knowledge and mental power. Music has many effects on the type of thinking and learning that subsequently, bring out remarkable changes in people lives. Certainly familiarity with music at an early age enhances these effects and the most important role of learning in humans belongs to that period. If the music consider as a means of strengthening the mind, the type of music in the influential of its role and it is better used instrumental music and favorite subjects. Music with the effect on the brain increases endorphins, and thus affects on nerve receptors (Ally J. M., 1979). The music drives spirit and is capable of causing strong and different effects; it could make humans calm or excited. Music can be used in different ways; invented the invention of tape recorder increased the gravity of music in hospitals, and were used music tapes for fun, comfortable sleeping, calming down, reducing the fear of surgery and anesthesia and analgesia. During First World War musical activities for joint exercises and muscles damaged in the war were advised (Lathom W., 1981). Also in medicine music has been used as a source of research and treatment for diseases such as sudden attacks, hypertension, mental disorders and ... and generally can be said music can be used as an effective factor improving faster range of diseases (Jacqueline Schmidt Ptrz. quotes Mohammadi Zadeh, 2001).

In the late nineteenth century and early music was used in the treatment of hearing disorders and speech. After the World War II, music therapy activities were developed regularly professionally and organized and music was used to treat patients with various disorders (Lathom W., 1981) from the 1950s up now, when the music therapy as a profession developed ,music therapist mostly work in the realm of the adult psychiatry, but gradually the value of music therapy to fix the problem turned out to disabled children and many of them were subjective to use music therapy in lag problems (Lathom W., 1981). Carter believes that many music activities have therapeutic benefits for the mentally retarded people (Carter S. A., 2000). Music therapy is known to be effective for different groups (Gaston E. T., 1981). It can also be noted that music has a direct effect on motor skills in children debate is its effect on auditory memory, listening and learning skills of the mentally retarded children with IQ 75-65 and on learning to memorize information (Seif A. A., 2001). Since children with IQ 75-65 are faced with different problems in mental fields, motor skills, auditory memory and memorizing information. So this research seeks to answer whether Music therapy on the growth of motor skills and auditory memory in children with IQ in the 75-65 age range 15-10 years, has the effect or not? Since children with IQ 75-65 are faced with problems in the fields mental, motor skills and auditory memory, and memorizing information, so the present study attempts to answer whether the growth of music therapy on motor skills and auditory memory in children with IQ in the 65-75 age range 10-15 years. Has the effect or not?

Regarding the very high impact of appropriate music on children's performance and that the easiest method is the use of music for teaching children in all activities (Shryntvn, 2009) It seems that according to research conducted psychological and social characteristics of Iranian children based on effects of music and allowed the children to be able to upgrade the performance level of their ability to be effective and useful (Carroll V. A., 2009).

The present study was designed aimed at evaluating the performance of music on mental retardation to prove its effect on other people and ultimately to extend the exceptional effect of music on the other retarded children. The effect of music on the brain domestic endorphins increases and thus affects on nerve receptors. In fact, the effect of music on the body is the result of its effect on brain. Music affects on brain increasing endorphins and thus affects on never receptors caused on the brain (Carroll V. A., 2009).

2. Research Methodology

2.1 Research Objectives and Hypotheses

2.1.1 The Main Objective

To determine the effect of music on increasing motor skills and auditory memory, students with low IQ in the 65-75 aged 10-15.

2.1.2 Subsidiary Objectives

- 1) Cognitive effect of music on growth and enhancing motor skills of students with IQ 65-75.
- 2) Cognitive effect of music on the growth and strengthening of students with auditory memory, IQ 75-65.

2.2 Research Hypotheses

2.2.1 The Main Research Hypothesis

- 1) Music improves and strengthens motor skills of mentally retarded people.
- 2) Music improves and strengthens auditory memory mentally retarded people.

2.2.2 Secondary Research Hypotheses

- 1) The growing effect of music on mentally retarded boys in motor skills is more than in mentally retarded girls.
- 2) The effect of music on development and improvement of auditory memory, mental retardation girls is more than boys having mental retardation.

The population studied included all retarded students with IQ 65-75 aged 10-15 years in zahedan in the 2009-2010 academic year. Due to extensive statistical population, the sample was selected for the performance consisted of 40; 20 persons as the experimental group and 20 persons as control group. Doing research was used with 3 testers, one music educator as an undergraduate psychology people to implement and test one motor for training. How exactly express instructions were coordinated. Possible explanations to questions, explaining the limitations of behavior unlimitedness performing all the same were coordinated. Questionnaires and answer sheets were administered on order to form two separate contacts, which were Lincoln Avzrvtsky motor development scale and auditory memory span test. Performing at the time was trying to close occur. Accuracy was not controversial until the sensitivity (the class of interest or the image. Then, the tests were conducted individually in class. Methods were chosen semi-experimental methods of music therapy since independent variables and motor skills and auditory memory are dependent variables. The quasi-experimental study is pre-test - test after test and control groups with the goal to clarify the variability (motor skills and auditory memory) based on independent variables (music). And analysis of results was used included descriptive statistics (mean, frequency, standard deviation, graphs, frequency percentage) in inferential statistics and was used t-tests to compare one-way variance analysis.

3. Research Findings

3.1 Descriptive Findings

Table 1 indicates that percentage distribution of subjects according to gender and indicates that 50 percent of the subjects were girls and out of 50 percent were boys.

Table 2 indicates that the total number of subjects 15 percent were low years old, 27 percent 11, 12 percent 12, 32 percent 13, 7 percent 14 years, 5 percent are 15 years of age. The highest frequency related to the age of 13 years old.

Table 3 indicates that the total number of subjects 30 percent has IQ 65, 40 percent IQ 70, and 30 percent 75. The highest number of the subjects has IQ 70.

3.2 Analytic Findings

3.2.1 The First Research Hypothesis

Music improves and strengthens motor skills of mentally was retarded people.

Data table shows the average growth of motor skills that the experimental group significantly higher than control group ($t = 17.67$, $df = 38$, $p < 0.01$), so the above hypothesis is confirmed.

3.2.2 The Second Research Hypothesis

Music improves and strengthens auditory memory mentally retarded people.

Table data indicate that there is significantly difference between the average growth between auditory memory test and control groups.

($t = 2.89$, $df = 38$, $p < 0.01$), so the above hypothesis is confirmed.

3.2.3 The Third Research Hypothesis

There is a significant difference in test group between the effects of music on motor development of boys and girls, mentally retarded.

The Table 7 suggests that the effect of music on motor skills of boys and girls in mentally retarded group, t is calculated as 0.45 in the 95% level is higher than the critical v . So it can be concluded that the observed difference is statistically significant. And regarding the mean and standard deviation measured the girls performed better than the boys ($t=0.45$, $p=0.02$, $p<0.05$).

3.2.4 Fourth Research Hypothesis

There is a significant difference between growth and healing effect of music on auditory memory of mentally retarded boys and girls in the experimental group.

The Table 8 suggests that Music effects on growth and improvement of auditory memory of mentally retarded boys and girls group, t is calculated as 1.19 in the 95% level which is lower than the critical value. It can be concluded that the observed difference is not statistically significant but regarding the mean and standard deviation measured, the girls performed better than the boys ($t=-1.19$, $p=0.19$, $p>0.05$).

4. Conclusion

Music therapy techniques have been used to develop and maintain joint and muscle function or to increase fine and gross motor coordination and control, increase muscle strength, and range of motion, improve cardiopulmonary and respiratory functioning and oral-motor skills. In our study it has been observed that music, mainly from its rhythm, the subjects started to move hand, leg, head and body movements and emotional reactions such as face tongue. Listening to music accompany with playing bells instruments, empowered better balance of their physical movements and body posture and to evoke a positive feeling by facilitated self-control in these way. The results indicated that music activities can enforce willing to respond the orders and also imitating in multiple handicap persons. Relationship with each other within musical activities help them to learn some social activities such as knowing the group members, collective work, waiting for the other's turn, self-confidence and ability to learn working.

Musical skills tests - motor coordination patterns of movement, speed, eye coordination - and the rate of hand movements, indicate that music in motor coordination - and the movement pattern, rhythm and tone of speaking children before 5 years is affective. However, this effect is more evident in girls than boys (Boxil E. H., 1999).

Music education is a factor that can improve and increase motor skills in children with IQ 65-75; our study confirmed these results. Therefore, he noted that the use of such music is in a very effective method of increasing the level of ingenuity, knowledge and mental power. The type of thinking and learning music has many effects. Using music is a very effective method of increasing the ability of such thinking, motor skills and ... (Mohammadi Z. A., 2001).

Also according to the results we can say that music can amplify auditory memory mentally retarded individuals. In line results obtained by Afshari (2000), Barzegar Yar Mohammad (2001), Fakhri et al. (2005). It should be noted that listen to songs can easily create a wide range of feelings that is impossible to achieve them only through playing instruments due to their limitation. Listening to music is very important in the incidence of children's feeling and their drive projection. In general, we can mention that the effect of music on motor development of boys and girls are mentally retarded and there is a significant difference between the effects of music on the growth of motor skills among the boys and girls mentally retarded and this effect is more obvious among the girls.

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Table 1. Percentage distribution of subjects according to gender

Gender	Frequency	Frequency percentage
Boy	20	50.00
Girl	20	50.00
Total	40	100.00

Table 2. Percentage distribution of subjects by age

Age	Frequency	Frequency percentage
10	6	15,00
11	11	27,00
12	5	12,00
13	13	32,00
14	3	7,00
15	2	5,00
Total	40	100,00

Table 3. Percentage distribution of subjects based on IQ

IQ	Frequency	Frequency percentage
65	12	30,00
70	16	40,00
75	12	30,00
Total	40	100,00

Read phonetically

Table 4. Mean and standard deviation of test scores before and after testing motor skills and auditory memory

Group	Pretest score motor skills	Standard deviation	Motor skills test score	Standard deviation	Auditory memory score pretest	Standard deviation	Auditory memory test score	Standard deviation
Control	43.4	5.17	52.75	5.16	49	2.1	50	2
Experimental	43.85	5.9	81.95	5.27	48.5	2.6	56.3	1.8

Table 5. Results of t test on the first research hypothesis

Variable	Group	M	SD	df	T	P
Motor skills	Control	52.75	5.16	38	17.67	0.00
	test	81.95	5.27			

Table 6. Results of t test hypotheses regarding the second research

Variable	Group	M	SD	df	T	P
Auditory memory	Control	50	2	38	2.89	0.00
	test	56.3	1.8			

Table 7. Results of t test hypotheses regarding the third research

Variable	Group	M	SD	df	T	P
Motor skills	Boy	81.40	3.9	18	-0.45	0.02
	Girl	82.50	6.5			

Table 8. Results of t test hypotheses regarding the fourth research

Variable	Group	M	SD	df	T	P
Auditory memory	Boy	51.8	1.61	18	-1.19	0.19
	Girl	52	2			