

The Use of Music and Movement Therapy to Modify Behaviour of Children with Autism

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ABSTRACT

Children with autism are often associated with behavioural problems such as being restless and fidgety; exhibiting tendencies to touch and hit people; being noisy (shouting or screaming); temper tantrums, being inattentive; non-compliance; spaced out; and body stiff. These behavioural patterns might be extreme and highly apparent or more subtle. Hence, music and movement therapy was developed to help improve the behaviours of children with autism. There were a total of 41 children who participated in the research, and they were divided into two groups and two sessions. Group 1 comprised of 18 children (5 girls and 13 boys). The age of the children in Group 1 ranged from 2 to 10 years old. Meanwhile, Group 2 comprised of 23 children (2 girls and 21 boys). The age of the participants in Group 2 ranged from 11 to 22 years old. The music therapy was carried out weekly and two sets of music therapy were used alternately for 10 months. The duration for each session was an hour. A Target Behaviour Checklist was also developed for the study purpose. The parents, music teachers and research assistant evaluated the child's behaviour on an average of once a month for 10 months. One-way ANOVA and T-test were used to examine whether there was a significant change or improvement in the target behaviours among the two groups of children. The findings demonstrated that music and movement therapy has positive effects on the behaviours of these children, especially in helping children with autism to improve in restlessness, fidgety, temper tantrum and inattentive behaviours.

Keywords: Children with autism, modify behaviour, music and movement therapy, target behaviour checklist

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INTRODUCTION

Autism is a complex developmental disability that is typically manifested during the first three years of life and is believed to be the result of a neurological disorder

that affects the normal functioning of the brain, impacting development in the areas of social interaction and communication skills (Autism Society of America, 2008a). Parents are usually the first to notice unusual behaviours in their child. In some cases, the baby seems different from birth, unresponsive to people or focusing intently on one item for a long period of time. The first signs of autism can also appear in children who seem to have been developing normally. When an engaging, babbling toddler suddenly becomes silent, withdrawn, self-abusive, or indifferent to social overtures, something must be wrong (See, 2006).

Autism knows no racial, ethnic, social boundaries, family income, lifestyle, or educational levels and can affect any family, and any child. Although the overall incidence of autism is consistent around the globe, it is four times more prevalent in boys than in girls (Lord & Bishop, 2010; Autism Society of America, 2008b). A survey by the Office of National Statistics on the mental health of children and young people in Great Britain found a prevalence rate of 0.9 percent for autism spectrum disorders or 90 in 10,000 (Green, 2005) which includes autism, Asperger syndrome or any type of autism spectrum disorder. Baird (2006) published a report of a prevalence study which surveyed a population of children aged from 9-10 years old in the South Thames region. The results showed a prevalence rate of 38.9 in 10,000 for childhood autism, and 77.2 in 10,000 for other autism spectrum disorders, giving an

overall figure of 116 in 10,000 for all autism spectrum disorders.

According to the Centers for Disease Control Prevention (2007) in Autism Society of America (2008b), one in every 150 children in United States is diagnosed with autism – that is one new diagnosis in every 20 minutes, and this number is on the rise. Based on the statistics from the United States Department of Education and other governmental agencies, autism is growing at a startling rate of 10-17 percent per year. There is no official total number of children with autism in Malaysia but statistics showed that in 2010, the total number of children aged from 0-14 in Malaysia was 9,164,470 (Department of Statistic Malaysia, 2010). Based on the United State's prevalence of autism (one autistic child in every 150 children), it is estimated that today, as many as 61,096 children in Malaysia are believed to have some form of autism spectrum disorders.

MUSIC AND MOVEMENT THERAPY

Music and movement therapy has been used to address physical, emotional, cognitive, and social needs of individuals of all ages. Music and movement interventions can be designed to promote wellness, manage stress, alleviate pain, express feelings, enhance memory, improve communication, and promote physical rehabilitation.

Music and movement therapy can be defined as a planned and prescribed use of music that is based on a careful assessment and evaluation on individuals' specific needs, through the process of interaction and

shared musical experiences to influence and motivate positive changes in individuals' condition and behaviours (Peters, 2000). According to Staum (2008), music and movement therapy is a unique application of music to promote development in social/emotional, cognitive/learning, and perceptual-motor areas by effectuating positive changes in human behaviour.

Music therapy has been effective and helpful to autistic children (Whipple, 2004), who encounter difficulties interacting with people and become agitated in noisy, changeable environments. Autistic children respond very well to music therapy, as familiar harmony can bring a sense of calmness and comfort in a stressful situation and help them to socialize more effectively. Soraci *et al.* (1982) found that music with rhythmic characteristics is effective in reducing stereotypical behaviours found in children with autism such as restlessness, fidgety, temper tantrum and inattentiveness. Thaut (1984) stated that music therapy can decrease behaviours or break stereotyped autism features. Rhythmic activities and movement to music at a tempo other than that of body rocking, for instance, can be helpful in this regard.

The child with autism can begin to exercise perceptual processes, and learn to relate tactile, visual, and auditory stimulation through manual exploration of instruments. Movement to music can also aid in the integration of tactile/kinaesthetic and auditory perception and the differentiation of self/non-self (Thaut, 1984). In addition, action songs or rhythmical music are

believed to be able to help to develop auditory-motor coordination and refine the body awareness/image of autistic children (Alvin, 1975). The functional use of fingers and hands can be trained by playing musical instruments and the repeated movements in playing musical instruments help to improve their motor control and coordination (Alvin, 1976; Boxill & Chase, 2007). On a more complex level, perceptual learning sequences that combine pitch, loudness, and tempo, can teach the child to respond to percussion instruments. Orr *et al.* (1998) used music therapy to lessen head jerking and screaming from an 11 year old girl with autism. Music therapists used music at 50-60 beats per minute to increase the alpha waves, brain waves that are responsible for relaxation. Thirty days of data utilizing an ABAB design were analyzed by alternating baseline and musical intervention periods. The number child's head jerks and screaming during the first 20 minutes of the class was calculated during both periods. The average number of screams and head jerks recorded on days with music therapy was lower than that of baseline days.

The perception and development of music elements/skills appear to have similar patterns to the perception and development of speech and language skills (Donald & Janet, 1991; Lim, 2010). Music therapy is considered particularly effective in assisting children with speech language delays in the development and remediation of their speech and language skills (Donald & Janet, 1991). Music therapy encourages communicative

behaviour of autistic children through the unique non-verbal way of communication provided by music (Boxill & Chase, 2007). Music instruments, body movements, singing or improvised singing can help children to develop indirect communication. Moreover, listening to a variety of musical instruments and different vocal sounds can improve the auditory skill of autistic children (Adamek & Darrow, 2005; Donald & Janet, 1991).

In Western countries, there have been many studies conducted to identify the effectiveness of music therapy in training children with autism (Boxill & Chase, 2007; Lim, 2010; Orr, Myles, & Carlson, 1998; Whipple, 2004). These therapeutic effects of music therapy are well-documented. In Malaysia, however, there has been no specific research done to identify the effectiveness of music and movement therapy in helping children with autism to modify and change behaviour. The importance of music in the special education setting is often overlooked, and its true power is not harnessed. Therefore, a research was conducted where a protocol for music and movement therapy in the Malaysian context was developed to enable teachers, parents and counsellors to train the autistic children at home, centre or in school, so as to modify specific behavioural problems.

METHOD

A combination of qualitative and quantitative methods was used in this study. The participants were observed and evaluated

over a 10-month period using a Target Behaviour Checklist. The Target Behaviour Checklist was developed for this study and the parents of the autistic children who participated in the research were trained to use the checklist. The target behaviours of the autistic children were evaluated by the parents, music teacher and research assistant once a month, at every last session of the month. The checklist used Likert scales ranging from 0 – 5 [0 = Not applicable; 1 = Not able to control self at all (with physical prompt); 2 = Poor (self control with gestural and physical prompt); 3 = Average (self control with verbal and gestural prompt); 4 = Good (self control with verbal prompt); 5 = Very good (able to control self without prompting)]. The parents, music teachers and the research assistant sat down together to discuss and agreed on the scale given to the items in the checklist for each child. From the data collected over 10 months, a descriptive analysis was done. The One-Way ANOVA and T-Test were also conducted to explore changes from the entry month, the fifth month and the tenth month of the study and to explore any significant difference within and between the two groups.

Participants

This research was conducted at an autistic centre in the north of Peninsular Malaysia. The centre has about 60 children of various races and they ranged from the age 3 to 24 years old. All the participants of this research were diagnosed with mild to severe autism spectrum disorder. The total number

of children who participated in the music and movement therapy was 41 children, whereby 34 children were boys (82.9%) and seven children were girls (17.1%). The participants were divided into two groups and two sessions. The groups were divided according to the children's age. The age of the children in Group 1 ranged from the age of 2 to 10 year-old while the age of the participants in Group 2 ranged from the age of 11 to 22 year-old. Group 1 comprised of 18 younger children (5 girls, 27.8% and 13 boys, 72.2%). Meanwhile, Group 2 comprised of 23 older children (2 girls, 8.7% and 21 boys, 91.3%).

Materials and Procedure

Two sets of music and movement therapy module (Set 1 and Set 2) were used to train the behaviour of children with autism. These (two) sets of music and movement therapy module incorporated the use of different musical media to achieve the goals. Through movements to music and dance routines, body movements may become more controlled, fluid and purposeful. It offers increased flexibility and adaptability. Musical instruments were used to work on compliance and control. In particular, the act of singing assists in the maintenance and improvement of attentiveness. In the study, there were nine sequences with nine songs for each set of music and movement therapy sets. In each set, there are greeting, hand actions, body movement, dance routine, using certain instruments such as cloth, bean bag, casternet, and ribbon wand for certain songs, and singing to achieve the goals.

Two sets of music and movement therapy were used at alternate months. Over a period of eight months, Set 1 was used every week in the odd months and Set 2 was used every week in the even months. In the last two months, Set 1 and Set 2 were used alternately each week (four sessions of Set 1 and four sessions of Set 2). The length of time of music therapy module was about 30 minutes.

Autistic children need routine and structure, so the protocol in each set of music and movement therapy module is structured so that the autistic children will not have to deal with any changes that normally upset them (American Autism Society, 2011; Autism Today, 2010; Autism United, 2011). The songs, hand actions, body movements, dance routines and the use of musical instruments were specifically designed to meet the needs of these children.

A Target Behaviour Checklist was developed in line with the research goals by the researcher of this study, two music teachers, 10 parents, and two special education teachers. Feedbacks from the parents, music teachers and special education teachers were taken into consideration. The target behaviour and skills that were assessed include: (i) behaviour (comprising of two sub-categories such as disruptive behaviour and non-compliance behaviour); (ii) social skills; (iii) speech and language skills (comprising of two sub-categories such as expressive language and receptive language); and (iv) motor and coordination skill (comprising of three sub-categories such as gross motor, fine motor and coordination).

All the parents who participated in the research were trained to use the Target Behaviour Checklist. The parents, music teacher and research assistant evaluated the child's behaviours once a month, i.e. at every last session of the month. The evaluation took place after the music and movement session. If the child displayed any or all of the target behaviour stated in the checklist, it would be noted down by the child's parents, music teacher and research assistant. The scale given to a child was confirmed by all the three individuals involved. Details of the Target Behaviour Checklist are presented in Table 1.

The Likert rating scale was used with six scales ranging from 0-5, i.e. from "not applicable" to "very good in controlling self without prompting."

RESULTS AND DISCUSSION

Descriptive Analysis

In the first section, the data were analyzed using the descriptive analysis. Every

parent, music teacher and research assistant evaluated the child's behaviour once a month. Over the period of 10 months, they evaluated the child for a total of 10 times.

A comparison of the target behaviour between the two groups of children with autism (Group 1 which comprised 18 children ranging from 2 to 10 years and Group 2 which comprised of 23 children ranging from 11 to 22 years) was conducted at the beginning and at the end of the programme to identify any improvement in the target behaviour among the children after they had undergone the music and movement therapy. The eight scales showing improvement or regression in these behaviours were identified, and these were: (i) improve one scale (↑1); (ii) improve two scales (↑2); (iii) improve three scales (↑3); (iv) regress one scale (↓1); (v) regress two scales (↓2); (vi) regress three scales (↓3); (vii) no changes/sustain (N/C); and (viii) not applicable (N/A).

The analysis focused on the number of children who showed improvement by one

TABLE 1
Details of the Target Behaviour Checklist

Sub-Categories/Items	Rating Scales Used
I. Disruptive Behaviour:	
• Restlessness (moving about)	(a) 0 – N/A – Not applicable
• Fidgety	(b) 1 – Not able to control self at all (with physical prompt)
• Touch the child beside him/her	(c) 2 – Poor (self-control with gestural and physical prompt)
• Hitting a child beside him/her	(d) 3 – Average (self-control with verbal and gestural prompt)
• Noisy (shouting or screaming)	(e) 4 – Good (self-control with verbal prompt)
• Temper tantrum	(f) 5 – Very good (able to control self without prompting)
II. Non-Compliance:	
• Inattentiveness	
• Non-compliance	
• Space out	
• Freezing up body and not following	

scale, two scales and three scales; regress by one scale, two scales, and three scales; and no change/sustain. Nonetheless, some children did not display any of these specific behaviours. Therefore, they were put under the not applicable (N/A) scale, i.e. the children with appropriate behaviour before they were given the music and movement therapy. Thus, the number of children in each target behaviour might vary, while the percentage calculation of the children for each specific behaviour was based on the number of children who displayed that particular specific behaviour.

The results of the target behaviour change are presented in Table 2 and Table 3.

The target behaviour has two sub-categories, namely, disruptive behaviour and non-compliance behaviour. Table 2 shows the target behaviour change for the disruptive behaviour. Under the disruptive behaviour, there are six items, which include (a) restlessness (moving about); (b) fidgety; (c) touching the child beside him/her; (d) hitting the child beside him/her; (e) noisy (shouting or screaming); and (f) temper tantrum.

(a) Restless (moving about): Out of 16 children in Group 1, twelve (75.0%) showed a one scale improvement in the restless behaviour and only one child (6.2%) had improvement of two scales. Meanwhile, three children (18.8%) showed no change at all. In Group 2, 13 (61.9%) out of 21 children showed a one scale improvement in the restless behaviour and only one child (4.8%) showed two scales improvement. Seven children (33.3%) showed no change at all.

(b) Fidgety: Eight children (50.0%) out of 16 children in Group 1 showed a one scale improvement in the fidgety behaviour, while two children (12.5%) showed improvement of two scales, and five children (31.2%) did not change at all. Meanwhile, one child (6.3%) showed a one scale regression. In Group 2, 13 (61.9%) out of 21 children showed a one scale improvement in the fidgety behaviour and three children (14.3%) showed two scales improvement. Five children (23.8%) showed no change at all.

(c) Touching the child beside him/her: In Group 1, four (28.6%) out of 14 children showed a one scale improvement in touching the child beside him/her, while one child (7.1%) showed improvement of two scales, and nine children (64.3%) showed no change at all. Four (25.0%) out of 16 children in Group 2 showed a one scale improvement in touching the child beside him/her, and only one child (6.3%) showed improvement of two scales. Eleven children (68.7%) did not show any change.

(d) Hitting the child beside him/her: Four (33.3%) out of 12 children in Group 1 showed a one scale improvement by not hitting the child beside him/her and eight children (66.7%) showed no change. In Group 2, five (38.5%) out of 13 showed one scale of improvement by not hitting the child beside him/her and only one child (7.7%) showed two scales improvement. Meanwhile, seven children (53.8%) did not show any change at all. The small percentages of the improvement in the behaviour of touching and also hitting the child beside him/her could be due to the

TABLE 2
Target Behaviour Change (Disruptive Behaviour)

Items	Group	Scales of Change						Total	
		↑1	↑2	↑3	↓1	↓2	↓3		N/C
Restlessness (moving about)	G1	12 (75.0)	1 (6.2)					3 (18.8)	16 (100)
	G2	13 (61.9)	1 (4.8)					7 (33.3)	21 (100)
	Total	25 (67.6)	2 (5.4)					10 (27.0)	37 (100)
Fidgety	G1	8 (50.0)	2 (12.5)		1 (6.3)			5 (31.2)	16 (100)
	G2	13 (61.9)	3 (14.3)					5 (23.8)	21 (100)
	Total	21 (56.8)	5 (13.5)		1 (2.7)			10 (27.0)	37 (100)
Touching the child beside him/her	G1	4 (28.6)	1 (7.1)					9 (64.3)	14 (100)
	G2	4 (25.0)	1 (6.3)					11 (68.7)	16 (100)
	Total	8 (26.7)	2 (6.7)					20 (66.6)	30 (100)
Hitting the child beside him/her	G1	4 (33.3)						8 (66.7)	12 (100)
	G2	5 (38.5)	1 (7.7)					7 (53.8)	13 (100)
	Total	9 (36.0)	1 (4.0)					15 (60.0)	25 (100)
Noisy (shouting or screaming)	G1	6 (40.0)			1 (6.7)			8 (53.3)	15 (100)
	G2	6 (31.6)		1 (5.3)				12 (63.1)	19 (100)
	Total	12 (35.4)		1 (2.9)	1 (2.9)			20 (58.8)	34 (100)
Temper tantrum	G1	12 (70.6)	2 (11.8)					3 (17.6)	17 (100)
	G2	7 (35.0)	1 (5.0)	1 (5.0)				11 (55.0)	20 (100)
	Total	19 (51.4)	3 (8.1)	1 (2.7)				14 (37.8)	37 (100)

number of children in the group with limited space, and so the children were seated close to each other.

(e) Noisy (shouting or screaming): In Group 1, six (40.0%) out of 15 children showed a one scale improvement in the noisy behaviour and eight children (53.3%) showed no change at all. Meanwhile, one child (6.7%) showed a one scale regression. This was followed by six (31.6%) out of 19 children in Group 2 who showed a one scale improvement in the noisy behaviour and one child (5.3%) showed three scales improvement. Twelve children (63.1%) did not show any change.

(f) Temper tantrum: Twelve (70.6%) out of 17 children in Group 1 showed a one scale improvement in the temper tantrum behaviour and two children (11.8%) showed two scales improvement. Three children (17.6%) showed no change. In Group 2, seven children (35.0%) showed a one scale improvement in the temper tantrum behaviour, followed one child (5.0%) showed two scales improvement and one child (5.0%) showed three scales improvement. Meanwhile, 11 children (55.5%) did not show any change.

Table 3 shows the target behaviour change for the non-compliance behaviour category. Under the non-compliance behaviour, there are four items, as follows: (a) inattentiveness; (b) non-compliance; (c) space out; and (d) freezing up body and not following.

(a) Inattentiveness: Eleven (61.1%) out of 18 children in Group 1 showed a one scale improvement in the inattentive

behaviour and only one child (5.6%) showed improvement of two scales. Nonetheless, six children (33.3%) did not show any change. In Group 2, 11 (47.9%) out of 23 children showed one scale of improvement in the inattentive behaviour and this was followed by two children (8.7%) who showed two scales improvement. Ten children (43.3%) did not show any change.

(b) Non-compliance: In Group 1, seven (38.9%) out of 18 children showed a one scale improvement in the non-compliance behaviour as compared to 11 children (61.1%) who did not show any change. Eleven (50.0%) out of 22 children in Group 2 showed a one scale improvement in the non-compliance behaviour and only one child (4.5%) showed improvement of two scales. Ten children (45.5%) did not show any change.

(c) Space out: In Group 1, nine (52.9%) out of 17 children showed a one scale improvement in the space out behaviour and eight children (47.1%) did not show any change. Five (23.8%) out of 21 children in Group 2 showed a one scale improvement in the space out behaviour and only one child (4.8%) showed improvement of two scales. A majority of fifteen children (71.4%) did not show any change for this particular behaviour.

(d) Freezing up body and not following: Six (35.3%) out of 17 children in Group 1 showed a one scale improvement in the freezing up body and not following behaviour, and two children (11.8%) showed improvement of two scales. Nonetheless, nine children (52.9%) did not show any

TABLE 3
Target Behaviour Change (Non-Compliance Behaviour)

Item		Scales of Change						Total	
		↑1	↑2	↑3	↓1	↓2	↓3		N/C
Inattentiveness	G1	11 (61.1)	1 (5.6)					6 (33.3)	18 (100)
	G2	11 (47.9)	2 (8.7)					10 (43.3)	23 (100)
	Total	22 (53.7)	3 (7.3)					16 (39.0)	41 (100)
Non-compliance	G1	7 (38.9)						11 (61.1)	18 (100)
	G2	11 (50.0)	1 (4.5)					10 (45.5)	22 (100)
	Total	18 (45.0)	1 (2.5)					21 (52.5)	40 (100)
Space out	G1	9 (52.9)						8 (47.1)	17 (100)
	G2	5 (23.8)	1 (4.8)					15 (71.4)	21 (100)
	Total	14 (36.8)	1 (2.6)					23 (60.6)	38 (100)
Freezing up body and not following	G1	6 (35.3)	2 (11.8)					9 (52.9)	17 (100)
	G2	5 (27.7)	1 (5.6)					12 (66.7)	18 (100)
	Total	11 (31.4)	3 (8.6)					21 (60.0)	35 (100)

change. In Group 2, five (27.7%) out of 18 children showed one scale of improvement in the freezing up body and not following behaviour, while only one child (5.6%) showed two scales improvement. Twelve children (66.7%) did not show change at all.

DATA ANALYSIS

In the second section, a T-test was also conducted to examine any significant change in all the target behaviours within Group 1 and within Group 2 over time. In addition, the One-Way ANOVA was also conducted to

examine any significant difference between the participants in Group 1 and Group 2 in all the target behaviours over time.

Table 4 shows the results of the T-Test in the target behaviour for Group 1 in March, October and December. The results showed significant changes within Group 1 on the target behaviour for March ($t=11.457$, $p<.001$), October ($t=13.193$, $p<.001$) and December ($t=13.632$, $p<.001$). The results also revealed an increasing mean value in Group 1's overall target behaviour from March ($M=2.97778$), October ($M=3.47222$)

TABLE 4
T-Test of the Target Behaviour Change for March, October and December (Group 1)

	Test Value = 0					
	<i>t</i>	do	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
March	11.457	17	.000	2.97778	2.4294	3.5261
October	13.193	17	.000	3.47222	2.9169	4.0275
December	13.632	17	.000	3.51667	2.9724	4.0610

TABLE 5
The T-Test of the Target Behaviour Change for Group 2 in March, October and December

	Test Value = 0					
	<i>t</i>	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
March	13.364	22	.000	2.93043	2.4757	3.3852
October	14.283	22	.000	3.31304	2.8320	3.7941
December	14.522	22	.000	3.40870	2.9219	3.8955

and December (M=3.51667). This indicated that the children in Group 1 had improved in their target behaviour over the past 10 months.

Table 5 shows the results of the t-Test in the target behaviour change for Group 2 in March, October and December. The results showed significant changes within Group 2 on the behaviour for March ($t=13.364$, $p<.001$), October ($t=14.283$, $p<.001$) and December ($t=14.522$, $p<.001$). The results also revealed an increasing mean value in Group 2's overall target behaviour from March (M=2.93043), October (M=3.31304) and December (M=3.40870). This indicated that the children in Group 2 had improved in their target behaviour over the past 10 months.

Table 6 presents the results of the One-Way ANOVA on the overall target behaviour between Group 1 and Group 2 for March, October and December. However, the results revealed no statistically significant difference between Group 1 and Group 2 in all the target behaviour ($p<.05$) for the month of March ($F=0.20$, $p<.889$), October ($F=.204$, $p<.652$) and December ($F=.095$, $p<.759$). This finding implied that music and movement therapy is suitable and applicable for children with autism from different age ranges.

DISCUSSION

The findings in the study have indicated that music and movement therapy did help children with autism to improve in

TABLE 6
The One-Way ANOVA of the Target Behaviour Change between Group 1 and Group 2 for March, October and December

		Sum of Squares	df	Mean Square	F	Sig.
March	Between Groups	.023	1	.023	.020	.889
	Within Groups	45.000	39	1.154		
	Total	45.022	40			
October	Between Groups	.256	1	.256	.206	.652
	Within Groups	48.422	39	1.242		
	Total	48.678	40			
December	Between Groups	.118	1	.118	.095	.759
	Within Groups	48.243	39	1.237		
	Total	48.361	40			

these types of behaviour: (a) restlessness (in Group 1, 75% of the children showed a one scale improvement and 6.2% of the children revealed improvement of two scales; and in Group 2, 61.9% of the children had a one scale improvement and 4.8% of the children showed two scales improvement); (b) fidgety (in Group 1, 50.0% of the children showed a one scale improvement and 12.5% of the children showed improvement of two scales; and in Group 2, 61.9% of the children showed a one scale improvement and 14.3% of the children had two scales improvement); and (c) temper tantrum behaviour (in Group 1, 70.6% of the children obtained a one scale improvement and 11.8% of the children had two scales improvement, while in Group 2, 35.0% of the children revealed a one scale improvement, 5.0% of the children obtained two scales improvement, and 5.0% of children showed three scales improvement).

In addition, music and movement therapy helped children with autism to improve in the inattentive behaviour. In

more specific, 61.1% of the children in Group 1 showed a one scale improvement while 5.6% others showed improvement of two scales. Meanwhile in Group 2, 47.9% of the children showed one scale of improvement and 8.7% others had two scales improvement.

CONCLUSION

The research findings indicated that most of the children (75.0%) in Group 1 and more than half of the children (61.9%) in Group 2 were less restless after they had undergone the music and movement therapy. Meanwhile, half of the children (50.0%) in Group 1 and 61.9% of those in Group 2 were less fidgety after they had undergone music and movement therapy. These findings imply that music and movement therapy has helped the young and older children with autism in reducing their restlessness and fidgety behaviour. Nonetheless, there were children who did not show any improvement in their behaviours. This could be due to factors such as parents not being able to

handle the child, and/or the child was not able to adapt to the environment.

The research findings also showed that 64.3% of the children in Group 1 and 68.7% of those in Group 2 continued to touch the child beside him/her. About 66.7% of the children in Group 1 and 53.8% of those in Group 2 continued to hit the child beside him/her. About 53.3% of the children in Group 1 and 63.1% of those in Group 2 continued to be noisy. This could be due to the fact that there were too many children in the music and movement sessions and the venue where the music and movement therapy was conducted was rather small. As a result, the children were seated close to each other.

About 70.6% of the children from Group 1 displayed less temper tantrum after they had undergone the music and movement therapy. This means the music and movement therapy is effective in helping younger children to reduce their temper tantrum behaviour during the sessions. This implies that early intervention is necessary to reduce temper tantrum among younger children with autism.

Meanwhile, more children in Group 1 showed improvement in the non-compliance behaviour category in terms of inattentiveness, space out, body stiff and not following behaviour as compared to the improvement shown by the children in Group 2. Once again, these findings emphasize the importance of using music and movement therapy as an early intervention strategy to help younger children with autism reduce their non-compliance behaviour.

All in all, this research has shown that children and young adult persons with autism could attain improvement in the target behaviours after participating in the music and movement therapy, and thus, implying that behaviours can be modified.

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