

Touch Therapy and Therapeutic Listening: an Approach to Improve Attention Span and Behaviors of People with Autism

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Abstract. Autism Spectrum Disorder is a kind of mental illness that affects normal brain function causing impaired communication, learning, and social skills. Most children with autism are normal in appearance, but one may observe their markedly different behaviors from those of the typical children. These markedly different behaviors include disturbing and/or repetitive behaviors, and short attention span. The intricacy of managing a child with this disorder poses primary caregivers to seek help on how to address properly the child's behaviors. In order to lessen manifested behaviors, increasing the attention span of the child must first be addressed as limited attention span leads to different off-task behaviors. With this, the phenomenon calls for the necessity to propose another method on how to improve attention span and behaviors of people with autism through touch and listening therapy. A quasi-experimental method was applied. A sample of 12 children diagnosed with autism aged 4-10 years old are subjected to three different therapy methods, namely: touch therapy alone session, listening therapy session alone, and combined touch and listening therapy. Respondents were given pre-test and post test activities for each session. Meanwhile, primary caregivers were asked to fill-up the Rowe Behavioral Rating Inventory (RBRI) before and after the whole therapy sessions. The collected data were analyzed with the use of SPSS 20 t-test paired sample mean test and one-way analysis of variance (ANOVA) repeated-measures. Interestingly, results showed improvements on attention span and behaviors of children with autism after the whole therapy sessions.

Keywords: Touch Therapy, Therapeutic Listening, Attention Span, Behaviors, Autism.

1. Introduction

Since autism has no physical signs of its existence, most people often have incorrect conclusions and reactions about the child's behaviors; therefore, stigmatizing them as indifferent or disruptive. While the child remains undiagnosed, primary caregivers notice problems on speech development, attention span, and other manifestations of this disorder. Clueless on what the primary caregivers should do, they try to manage the child's behaviors. They recognize that there is a problem with the child's development, but they still lack the knowledge on how to address properly these manifested behaviors (Alipio, Allida, Almonte, Altea, Anastacio, & Andres, 2011). In order to deal with the manifested behaviors of these children, addressing their limited attention span must be the priority as limited attention span leads to different off-task behaviors.

Attention span is measured according to its precise definition of attention to be used. One of which is the sustained attention or vigilance, which refers to the ability to maintain attention over an extended period of time or the time spent continuously on the task given (Betts, McKay, Maruff, & Anderson, 2006). Attention span is measured with different diagnostic procedures like the DeGangi's Test of Attention in Infants (TAI) and Wechsler Intelligence Scale for Children-III (WISC-III) (Kindlon, 1998). It can also be measured by noting the off-task behaviors while the children are performing a specific task (Kindlon, 1998). Rowe and Rowe 1995 developed Rowe Behavioral Rating Inventory, which is a tool, used in assessing the children's everyday symptoms of inattentiveness and other behaviors (Fyffe, Hay, & Palmer, 2006). This tool was utilized in the said study.

Therapeutic touch, or TT, is a non-invasive method of healing that was derived from an ancient lying on of hands technique. This involves rubbing and stroking different parts of the body with some pressure and usually with the use of oil. Massage therapy was said to be effective in facilitating growth, pain reduction,

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increasing alertness, diminishing depression, and enhancing immune function. These effects are associated with the pressure stimulation, which in turn increases the vagal activity lowering the physiological arousal and stress hormones. As such, touch therapy can affect cognitive, emotional and physical development (Field T. M., 1998). Regular massage therapy sessions can increase attention span, relieve anxiety associated with social situations, and can even have a positive influence on one of the most common autism symptoms - an aversion to touch.

Therapeutic Listening is an individualized sound training program that consists of equipment and materials that have been designed to produce specific effects on listening skills. When combined with other therapy treatment approaches, it can have a significant impact on the client's functional abilities. Therapeutic listening coupled with sensory integrative treatment tends to speed the emergence of attention, organized behavior, self-regulation, postural control, coordination, fine-motor control, motor planning, oral motor skills and articulation, social skills and communication, and visual motor skill development.

Through the conduct of this study, the researchers determined the effect of touch therapy and listening therapy in the attention span and behaviors of people with autism in the Philippine setting. Three types of methods were compared and evaluated. The following methods were utilized: (a) touch therapy alone, (b) listening therapy alone, and (c) touch and listening therapy conducted simultaneously.

2. Methods

The study was conducted at the University of Santo Tomas St. Martin de Porres Building. Consent forms were distributed to the primary caregivers. Once candidates for participation had consented, they answered the Rowe Behavioral Inventory (RBRI), Sensory Integration Checklist, and Sensory Processing Disorder Checklist. The Sensory Integration Checklist and Sensory Processing Disorder Checklist served as the educational tool to determine if the child is not hypersensitive to touch and music. RBRI (with Cronbach alpha 0.710) served as the baseline data of their inattentiveness and other behaviors. This was also utilized at the end of the session.

Two sessions were conducted which transpired on May 5 and May 12, 2012. On the 1st day, the researchers began with an introduction followed by the pre-test activity that involves a 20-item matching type question. During the pre-test activity, off-task behaviors and time to finish the activity were noted. After the activity, facilitators conducted the touch therapy session, which lasted for 10-15mins. The facilitators demonstrated the step-by-step procedure of touch therapy (adapted from Field, et al., 1997) to the primary caregivers of the children so that they may do it to their children. Post-test activity, with the same contents given on the pre-test, was administered. Same as the previous, off-task behaviors were observed and noted. The time the respondents finished the activity was recorded.

After a 15-minute break, the researchers proceeded to conducting another pre-test activity. Off-task behaviors and the time it takes for the respondents to finish the activity were observed and recorded. After which, listening therapy was conducted. While playing a familiar song to the kids, the children were asked to draw their dream house. This lasted for 5-6 minutes. Post-test activity, with the same content given on the pre-test, was administered. Same as the previous, off-task behaviors were observed and taken down. The time the respondents finished the activity was recorded. After the activities, the primary caregivers were given a copy of the touch therapy procedure and were encouraged to continue doing the touch therapy at home so as to see the effects after the study, as well as to promote bonding with their child.

The second session was conducted on May 12, 2012. The children were given a pre-test table top activity (15 pieces and 4 pieces jigsaw puzzles). Same as the first session, off-tasks behaviors were noted and the time it takes for the respondents to finish the activity was recorded. Afterwards, touch therapy, simultaneous with listening therapy, was administered. The combined session lasted for 10-15 minutes. Post-test table top activity was also administered. Off-task behaviors and time the activity was finished were noted.

Subsequently, the primary caregivers of the respondents were asked to fill-up a feedback form from which they have to state all the noticeable changes in the behaviors of the kids. Aside from the feedback form, the primary caregivers were also asked to fill-up the 12-item RBRI.

3. Results

Table 1: Mean scores of touch and listening therapy session with the use of t-test paired samples

Paired Samples Statistics						
		Mean	N	SD	t-value	p-value
Touch therapy	Pre	12.75	12	5.29365	0.401	0.696
	Post	11.8333	12	5.87496		
Listening therapy	pre1	9.4167	12	0.90034	-2.244	0.046
	post1	10	12	0.00000		

Table 1 showed the computation in comparing the score differences of the respondents in touch and listening therapy session. Based on the data, the t- value of the scores in touch therapy session is 0.401. The t- value is less than 1.96 (p-value 0.696 > 0.05 α). Results showed that there was no significant difference between the pre and post-test scores of the respondents. Therefore, there were no noticeable improvements in the scores of the respondents before and after the touch therapy sessions. While, the t-value of the scores in listening therapy session is -2.244. The t-value is more than -1.96 (p-value < 0.05 α). Results showed that there was significant difference between the pre and post-test scores of the respondents. Therefore, listening therapy helped improve the cognitive aspect of people with autism.

Table 2: Mean time of touch and listening therapy session with the use of t-test paired samples

Paired Samples Statistics						
Time		Mean	N	SD	t-value	p-value
Touch therapy	Pre	4.9167	12	3.08835	0.311	0.762
	Post	4.4167	12	4.69929		
Listening therapy	pre1	4.9167	12	2.4293	4.064	0.002
	post1	1.3083	12	0.99769		

Table 2 showed the computation in comparing the time differences of the respondents to complete the activity in touch therapy session and listening therapy session. Based on the data, the t-value of the time in touch therapy session is 0.311. The t-value is less than 1.96 (p-value 0.762 > 0.05 α). Results showed that there was no significant difference between the pre and post-test time to complete the activity in the touch therapy session. Therefore, there were no noticeable improvements in the time it takes for the respondents to finish the activity. While, the t-value of the time in listening therapy session is 4.064. The t-value is more than 1.96 (p-value 0.002 < 0.05 α). Results showed that there was a significant difference between the pre and post-test time to complete the activity. Hence, the listening therapy helped improve the time it takes for the respondents to finish the activity.

Table 3: Computation of combined touch and listening therapy session time with the use of T-test for Two Related Samples or Paired (Dependent) T-test

Paired Samples Statistics						
		Mean (seconds)	N	SD	t-value	p-value
Touch & Listening therapy	pre	355.2857	7	264.48296	.045	0.965
	post	353.5714	7	274.0729		

Table 3 showed the time differences of the respondents to complete the puzzle activity in the combined touch and listening therapy session. The table only showed 7 outputs out of the 12 respondents because the remaining 5 respondents were not able to attend the session. Based on the data, the t-value of the time in combined touch and listening therapy session is 0.045. The t-value is less than 1.96 (p-value 0.965 > 0.05 α). Results showed that there was no significant difference between the pre and post-activity time. Hence, the combined touch and listening therapy did not improve the time it takes for the people with autism to finish the given task.

Table 4: One-way ANOVA (repeated measures) of the post-test time to finish the given activity of the three different methods

Mauchly's Test of Sphericity^a

Measure: MEASURE_1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon ^b		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
factor1	.659	23.767	2	.000	.746	.761	.500

Effect		Value	F	Hypothesis df	Error df	Sig.
factor1	Pillai's Trace	.719	72.853	2.000	57.000	.000

Tables 4 showed the time to finish the activity of the three methods namely touch therapy alone, listening therapy alone, and touch therapy and listening therapy combined. Based on the data, the f-value is 72.853. The f-value is more than 3.16 critical value ($p\text{-value } 0.000 < 0.05\alpha$); therefore, results showed that there were significant differences in the attention span of people with autism as measured with the use of the time they were able to finish the given activity.

Based on table 2, and 3, touch therapy session alone and combined touch therapy and listening therapy session did not improve the attention span of the respondents as there were no significant differences from the pre and post-test time to finish the activity. On the other hand, listening therapy session improved attention span. Therefore, the whole therapy sessions improved the attention span of the respondents as seen from table 4.

Table 5: Mean rating pre and post-test scores with the use of t-test paired sample

		Paired Differences			
		Mean	SD	t	P-value
Pair 1	Pre - post	-0.7497	0.50634	-5.129	0.000

Table 5 showed the mean rating scores of RBRI. Based on the data, the t-value of the mean rating scores is -5.129. The t-value is more than 01.96 ($p\text{-value } 0.000 < 0.05\alpha$). Results showed that there was a significant difference between the pre and post-test rating scores. Therefore, the sessions conducted were effective enough to make noticeable improvements on the behaviours of the respondents.

Feedbacks from Primary Caregivers: The primary caregivers noticed that their children became relaxed, placid, and gentle after doing touch therapy at home. They have also observed that their kids love the touch therapy that the children ask them to repeat the said therapy to them. Aside from that, the primary caregivers also reported that their children easily go to sleep after they do the touch therapy. The touch therapy even serves as their bonding moment with their kids.

4. Discussion

Touch therapy session alone did not improve the cognitive aspect and attention span of people with autism as showed in tables 1 and 2. Although the touch therapy session did not cause any improvements in the attention span, the touch therapy session caused a lot of improvements in terms of the behaviors of the respondents. Based on the collected feedbacks from the primary caregivers, there were noticeable improvements of the behaviors of their children in terms of being relaxed or calm, gentle, able to sit still, and more. As seen in tables 1 and 2, listening therapy showed improvements on the cognitive aspect and attention span of people with autism. The combined touch therapy and listening therapy in this study resulted in no noticeable improvements in the attention span of people with autism. As showed in table 5, generally, the respondents showed notable improvements in their attention span and behavior after the whole therapy sessions.

5. Conclusion

The more active physical contact and relaxation involved in the touch therapy may have contributed to the improvement of the attention span and behaviors of children with autism as measured by the Rowe

Behavioral Rating Inventory. The notable improvements could have been related to enhance vagal activity that usually occurs during touch therapy.

In the study, listening therapy did not cause any tantrums to the children. This may have been related to the fact that the music used is very familiar to the kids that it did not cause any issues that can cause tantrums. In this study it has been noticeably seen that music also showed noticeable improvement in scores. Listening therapy may be correlated too in improving the cognitive aspect aside from improving the attention span and behaviors.

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7. References

- [1] Alipio, M. C., Allida, J. M., Almonte, K., Altea, P., Anastacio, M., & Andres, M. J. (2011). Lights and Shades: The Lived Experiences of the Primary Caregivers Of Children with Autism.
- [2] Betts, J., Mckay, J., Maruff, P., & Anderson, V. (2006). The Development of Sustained Attention in Child Neuropsychology, 205–221.
- [3] Field, T. M. (1998). Touch Therapy Effects on Development. *International Journal of Behavioral Development*, 779-797.
- [4] Field, T., Lasko, D., Mundy, P., Henteleff, T., Kabat, S., Talpins, S., et al. (1997). Brief Report: Autistic Children's Attentiveness and Responsivity Improve After Touch Therapy. *Journal of Autism and Developmental Disorders*.
- [5] Fyffe, L. R., Hay, I., & Palmer, G. (2006). An Investigation of Primary School Children with High and Low Value Scores and the Development of an Instrument to Measure Children's Values.
- [6] Kindlon, D. J. (1998). The Measurement of Attention. *Child Psychology & Psychiatry Review*, 72-78.
- [7] Lutz, H. R., Patterson, B. J., & Klein, J. (2011). Coping With Autism: A Journey toward Adaptation. *Journal of Pediatric Nursing*, 1-8.
- [8] Rowe, K. (2006). Effective teaching practices for students with and without learning difficulties:. Australian Council for Educational Research.