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Life skill Development of Autistic Children Following Education Therapy in Specialized Schools

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Abstract

Life skill development is a comprehensive approach to measuring skills outcome that evaluates an individual's level of skills that develops. A cross sectional study was done among purposively selected 158 respondents and age range of autistic child was 5 to 20 years old who attended PROYASH specialized school-based treatment in Dhaka city from January to December 2016. All the respondents were school teachers, class teacher assistant and parents of 5 to 20 years old previously diagnosed autistic children with male predominance which was almost 68%. Among 158 cases more than 90% child were diagnosed as autistic within 2 to 3 years of e and 99.4% autistic children get formal education. After getting special intervention in specialized school 61.39% could utter words but couldn't make sentences, 37.97% could communicate with sentences and 0.63% had no verbal communication. In this study 99.4% children get the treatment for autism. Medicines also help in the regeneration of nerves. In this study 61.4% autistic child only utter words, 38% child make sentences and only 0.6% with autism do not talk at all after therapy. The study identified the apparent situation of skills and relationship among variables and daily living skills could be improved by intervention therapies like SCERTS (Social communication, Emotional regulation, Transactional support) model, Applied Behavior Analysis (ABA), Auditory Integration Training (AIT), Daily Life Therapy, THE HANDLE Institute (Holistic Approach To Neurological Development and Learning Efficiency), Integrated Play Therapy, Picture Exchange Communication Systems (PECS) and so on.

Keywords: *Life skill Development, Autistic Children, Education Therapy.*

Introduction

Autism Spectrum Disorder (ASD) is one of the rising public health concerns typically characterized with deficits in social and communication skills along with restricted and repetitive behaviors having negative impact in the quality of life of those affected including their families (Lord, Cook et al. 2000). In recent years Autism Spectrum Disorder (ASD) became a global concern. According to the report of WHO, one in every 160 persons is living with autism. A recent study in South Korea reported a prevalence of ASD to be 2.6% (Kim YS et al., 2011). It is also evident that Boys are 4.5 times more likely to be identified with ASD than girls (Surveill et al.,2012). The rate is 1 in 42 among boys and 1 in 189 among girls (Centers for Disease Control and Prevention –CDC,US, March- 27,2014). In Asia, studies conducted in China, Hong Kong and Japan reported that ASDs are almost 5 times more common-in boys (1 in 54) than in girls (1 in 252) (CDC-2012). A national survey conducted in Bangladesh reported that the prevalence of ASD is 1.55 per 1000 children and this rate is higher (30 per 1000 children) in urban Dhaka

In developing countries children with disabilities have very little access to basic education. Only 1-2% of such children have access to basic education and girls have even lesser access than boys (UNESCO). There are some government and nongovernment organizations that work for the education of children with disabilities. For example, the Ministry of Social Welfare, has been responsible for the education of children with disabilities since 1960 It was substantiated that ASD cannot be cured by conventional treatments rather a comprehensive package of intervention programs and therapies are required to minimize the deficits and maximize their functional abilities. (Myers and Johnson 2007, Rahman, Divan et al. 2016). Therefore, for providing a comprehensive life skill training to these children from special schools and governmental organizations is necessary.

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As these children will make the future generation, a study involving school teachers and parent's' perception to find out the educational level and assessment of skill development through vocational training will create a ground to understand the role of educational therapy in life skill development of ASD children. And this information may also help the researchers and teachers to identify the types and frequency of the treatments and therapies to be used for children with ASD. Therefore, better training programs can be prepared for educators of this growing population of students. Thus, the primary objective of this present study is to assess skill development of children with ASD following education therapy. To determine this, we conducted a cross sectional study among children with ASD between the age of 5-20 years. Specific research question of this study was: Does skill of ASD children develop following educational therapy?

Methods

Study design

The study was a cross sectional study on life skill development of children with ASD following therapy from the perspective of parents and teachers of specialized school. Ethical approval for the study was provided by the National Institute of Preventive and social medicine, Mohakhali, Dhaka.

Study period

This study was conducted from January 2016-December 2016. It–started with literature review, followed by protocol presentation, data collection in selected school for autistic children, data analysis and interpretation and finally report preparation and submission. After developing the questionnaire, a pretest was done. And after necessary modifications data were collected. Data processing and analysis was performed and report writing and interpretation was done subsequently.

Setting and sample

The study was conducted in **PROYASH special specialized school in Cantonment, Dhaka** where children diagnosed with ASD are admitted for intervention therapy as well as for formal education. The study population was children diagnosed with ASD aging between 5-20 years attending this specialized school. Respondents were children with autism, parents of children with autism, school teachers and teaching assistants. Purposive sampling method was used to select the study sample.

Exclusion and inclusion criteria

children with ASD aged between 5-20 years and willingly to participate were included in this study. Whereas, children aged below 5 and above 20 years and having other co-morbid condition were excluded. After considering the inclusion and exclusion criteria 158 participants were selected for the study.

Data collection instrument and procedure

Data was collected with a pre-tested structured questionnaire**,** School record review (IEP record) and Check list after the collection of verbal and written consent from legal guardian of autistic child. The method of collection was face to face interview and school record review. Data was collected, compiled and tabulated according to key variables. The analysis of different variables was done according to standard statistical analysis by using SPSS version 20.

Results

Characteristics of respondents

The collected data were analyzed for specific categories of responses. Respondents' characteristics were analyzed for age, gender, numbers of siblings, position of autistic child, age of diagnosis, treatment of autism, duration of education and formal education of autistic child. Among 158 participants more than 50% belonged to 5-10 years of age group. Minimum and maximum ages were 5 and 20 years respectively and mean age was 1.53. Most of the respondents (67.09%) were male, remaining were female and 30 % children with ASD have no siblings, followed by 28.5% have 2 siblings, 19.6% have 1 and 13.9% have more than 2 siblings. The result also reveals that more than

40% were the 1st child, 14.6% were 2nd child, 9.5% were 3rd and 1.3% have other positions in family. In 31.6% cases, they were the only issue of their parents. Of the participants, 90% children were diagnosed with ASD within (2-3) years of age and the remaining 9.5% within (4-5) years of age. Among 158 cases, majority (99.4%) of the children with ASD received treatment for autism, while 0.6% child didn't receive any form of treatment. More than 60% autistic children received education for (1-5) years, followed by 38% for (6-10) years. 99.4% autistic children were subjected to formal education, only a very few 0.6% children were not.

Areas of development following education therapy

From the analysis of data, it was apparent that in most of the cases the performances of the children improved following the therapy. Table 1 shows the percentage of reported overall effect of the therapy in different domain.

Table 1. Improvement in different developmental domains

	After Therapy	Frequency (Percentage)	
1. Communication skills of autistic child (n=158)		Not able	Able
	Respond to give greetings	3 (1.9)	155 (98.1)
	Respond to greetings	44 (27.8)	114 (72.2)
	Respond to say bye	28 (17.7)	130 (82.3)
	Respond to say address	118 (74.7)	40 (25.3)
	Respond to say name of school	93 (58.9)	65 (41.1)
	Respond to say address of school	130 (82.3)	28 (17.7)
2. compliance skills of autistic child (n=158)	Respond on command to come	0 (0)	158 (100)
	Respond on command to sit	2 (1.3)	156 (98.7)
	Respond to give	45 (28.5)	113 (71.5)
	Respond to take	34 (21.5)	124 (78.5)
3. Receptive labeling skills of autistic child (n=158)	Identify glass	25 (15.8)	133 (84.2)
	Identify plate	47 (29.7)	111 (70.3)
	Identify spoon	26 (16.5)	132 (83.5)
	Identify book	34 (21.5)	124 (78.5)
	Identify dress	7 (4.4)	151 (95.6)
	Identify shoe	50 (31.6)	108 (68.4)
	Identify soap	75 (47.5)	83 (52.5)
	Identify tap	78 (49.4)	80 (50.6)
4. Nonverbal imitation skills of autistic child (n=158)	Close eye	3 (1.9)	155 (98.1)
	Open eye	32 (20.3)	126 (79.7)
	Sound over table	1 (0.6)	157 (99.4)
	Work instructionally	83 (52.5)	75 (47.5)
5.Motor skills of autistic child (n=158)	Stand up on one foot	71 (44.9)	87 (55.1)
	Able to jump	4 (2.5)	154 (97.5)
	Overcome obstacles	64 (40.5)	94 (59.5)
	Holds pen correctly	51 (32.3)	107 (67.7)
	Able to close lock	37 (23.4)	121 (76.6)
	Able to open lock	107 (67.7)	51 (32.3)
	Able to close pen	64 (40.5)	94 (59.5)
	Able to open pen	38 (24.1)	120 (75.9)
	Able to count coin	75 (47.5)	83 (52.5)
	Give whistle	0 (0)	158 (100)
	Move tongue	2 (1.3)	156 (98.7)
6. General knowledge skills of	Recognize own	86 (54.4)	72 (45.6)
	Able to say name of seven days	135 (23)	23 (14.6)

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autistic child (n=158)	Differentiate up and down	1 (0.6)	157 (99.4)
	Differentiate big and small	3 (1.9)	155 (98.1)
	Give direction by mouth	42 (26.6)	116 (73.4)
	Able to color picture	2 (1.3)	156 (98.7)
	Build house by block	1 (0.6)	157 (99.4)
7. Life science skills of autistic child (n=158)	Identify hair	1 (0.6)	157 (99.4)
	Identify belly	18 (11.4)	140 (88.6)
	Identify finger	27 (17.1)	131 (82.9)
	Able to contact with teachers	86 (54.4)	72 (45.6)
	Able to eye contact with object	4 (2.5)	154 (97.5)
8. Vocal imitation skills of autistic child (n=158)	Able to say single word only	2 (1.3)	156 (98.7)
	Able to say two word	66 (41.8)	92 (58.2)
	Able to say three word	94 (59.5)	64 (40.5)
9. Daily living skills (n=158)	Wear dress	76 (48.1)	82 (51.9)
	Wear shoe	37 (23.4)	121 (76.6)
	Tied up shoe laces	120 (75.9)	38 (24.1)
	Take food	35 (22.2)	123 (77.8)
	Drink water	70 (44.3)	88 (55.7)
	Drink milk	82 (51.9)	76 (48.1)
	Able to do toilet own	82 (51.9)	76 (48.1)
	Able to wash hand	72 (45.6)	86 (54.4)
	Identify food	23 (14.6)	135 (85.4)
	Able to switch on light	16 (10.1)	142 (89.9)
	Able to switch off light	15 (9.5)	143 (90.5)
10. Academic skills (n=158)	Identify alphabet	50 (31.6)	108 (68.4)
	Able to count object	72 (45.6)	86 (54.4)
	Able to connect two dot	13 (8.2)	145 (91.8)
	Able to give attention on class	96 (60.8)	62 (39.2)
	Able to study routinely	87 (55.1)	71 (44.9)
11. Effect of therapy (n=158)	Able to give push	0 (0)	158 (100)
	Able to carry load	67 (42.4)	91 (57.6)

Distribution of skill development following therapy and their statistical significance by using chi-square test:

Data were analyzed by using Chi-square test to determine association between duration of education and development of daily living skill, age of autistic child and development of communication skill, duration of education and development of receptive labeling skill, treatment for autism and skill development after therapy. Table 2 outlines the relationship between duration of education and daily living skill development following therapy. The reported data indicates that daily living skills are better who got education for a longer period (6-10 yrs). In Chi-square test significant association was found between duration of education and development of daily living skills of child with ASD ($p<0.05$, df=2). When data were analyzed to see the association of age and development of communication skills, it was evident that, out of 86 respondents ageing between 5-10 years, 98.8% had average communication and 1.2% had poor communication level. Respondents ageing between 11-15 years old and 16-20 years old 100% had average communication level. Table 3 shows that, this test is not statistically significant (Chi-square 0.843, df=2 and p value 0.656). As P value is 0.656 so there is no significant association between age of child and development of communication skill following therapy. For correction, Fisher's exact test was also done (1.778). Table 4 shows the association between duration of education and development of receptive labeling skill after therapy. It showed, among the respondents ageing between 6-10 years, 98.3% had good receptive labeling skill and 1.7% had average receptive labeling skill following therapy. This test is statistically significant (Chi-square 73.197, df=1 and p value 0.000) proving a strong association between duration of

education and development of receptive labeling skill following therapy. Association between treatment for autism and skill development after therapy were presented in table 5. It indicates that, among the respondents receiving treatment for autism 58% showed good skill development and 42% had average skill development after therapy. Of the respondents receiving no treatment for autism 91% had good and 66% had average skill following therapy. This test is also not statistically significant (Chi-square 1.367, df=1 and p value 0.242). As P value is 0.242, it is evident that there is no significant association between treatment of autism and development of specific skill of children with ASD. For correction continuity, correction was done (0.024, df=1).

Table 2. Association between duration of education and daily living skill development following therapy

Duration of education	**Daily living skills**					
	Below average	Average	Good	Total	X^2	p-value
1-5 yrs	1(57.1%)	2(30.6%)	57(12.2%)	60(100%)	103.782 df=2	P<0.05
6-10 yrs	57(1.7%)	32(3.3%)	69(95%)	158(100%)		
Total	**36.1%**	**20.3%**	**43.7%**	**100%**		

Table 3. Association between age of autistic child and communication skill development following therapy

Age of child	**Communication skill**					
	Below average	Average	Good	Total	X^2	p-value
5-10yrs	0 (1.2%)	61 (98.8%)	61 (100%)	5-10yrs	0.843 df= 2	0.656
11-15yrs	0 (0.0%)	11 (100%)	11 (100%)	11-15yrs		
16-20 yrs	1 (0.0%)	157(100%)	158 (100%)	16-20 yrs		
Total	**0.6%**	**99.4%**	**100%**	**Total**		

Table 4. Association between duration of education and receptive labeling skill development following therapy

Duration of education	**Receptive labeling skill**				
	Average	Good	Total	X^2	p-value
1-5 yrs	1 (71.4%)	59 (28.6%)	60 (100%)	73.197 df=1	P<0.05
6-10 yrs	71 (1.7%)	87 (98.3%)	158 (100%)		
16-20 yrs	157(100%)	158 (100%)	16-20 yrs		
Total	**44.9%**	**55.1%**	**100%**		

Table 5. Association between treatment for autism and skill development following therapy

Treatment for autism	**Therapy related skill development**				
	Average	Good	Total	X^2	p-value
No	66 (100%)	91 (0.0%)	157 (100%)	1.367 df=1	0.242
Yes	67 (42.0%)	91 (58.0%)	158 (100%)		
16-20 yrs	157(100%)	158 (100%)	16-20 yrs		
Total	**42.4%**	**57.6%**	**100%**		

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Discussion

Results of the present study provide support to our Research question that the level of life skill of school aged children with ASD develops following educational therapy.

The study revealed male predominance of the disorder almost 70%. The greatest overall variation among demographic groups was related to child age. A study conducted by Limbers et. al., 2009, found that children who had developed symptoms of autism at an early age and was diagnosed early and received treatment for a longer period of time with proper therapy have good skill development and good cognitive functions (Limbers C A et al., 2009). From another study, it was apparent that children receiving treatment from an early age had better IQ and adaptive functioning skill (Eikeseth et al, 2007). Results from the study of Laugeson et.al 2014 , suggest that the *PEERS ® Curriculum for School-Based Professionals* as a teacher-facilitated school-based social skills program is effective in improving the social functioning of high-functioning middle school adolescents with ASD. According to our study educational therapy and it's duration in specialized school had a significant association with development of daily living skills of ASD children. But our study could not find any significant association between age and development of skills of children with ASD.

In our study 99.4% children received treatment for autism. Children who got the treatment showed better skill development as well as good physical, emotional, social, school and cognitive functioning (Autism overview, International Centre for Autism Research and Education). The duration of treatment and therapy also had a strong association with skill development of autistic child.

In Japan and Australia, the core objective of their research was to assess cognitive function, social skills, adaptive behavior and to give behavioral intervention such as social skills training (SST) that can improve social skills, enhance social reciprocity and overall daily living skills (Kayoko et al., 2013), (ReinieCordier et al., 2015).

The sample data provides statistically significant association of duration of education with skill development and proper treatment shows significant improvement in therapy level of autistic child. The study identified the apparent situation of skills and relationship among variables and daily living skills could be improved by intervention therapies.

Limitation of our study was that it could not establish any statistical significance between age of child and development of communication skill following therapy. Another limitation was, the relation between treatment of autism and development of specific skill of children with ASD was not established from the study.

Conclusion

It is noteworthy to remember that autism is a relatively new area of importance in Bangladesh and around the globe and advancement in education and treatment are being made on a regular basis. It is important to know the life skill development of children with autism following therapy and its association with variables as this affects from individual to family, community and nation.

Despite of some limitations, this study is one of the first to examine the life skill development of children with ASD following therapy in specialized school. The current findings also have implications related to child age and related variables.

Our results lastly suggest that life skills are associated with a variety of behavioral challenges associated with ASD. Interventions targeted at improving these aspects of ASD likely have the potential to make the greatest improvement in skill development. Efforts should be taken to increase awareness of both in school and parents regarding the usefulness of therapies for ASD.

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