EFFECTIVENESS OF GROUP THERAPY AMONGY THE CHILDREN WITH AUTISM IN DHAKA CITY

A Randomized controlled trial (RCT)

Faculty of Medicine

University of Dhaka

BY

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Effectiveness of group therapy among the children with autism in Dhaka city
A Randomized Controlled Trial (RCT)

Submitted by **Md Hasan Tarek** for the partial fulfillment of the requirement for the degree of Bachelor of Science in Physiotherapy (B.Sc. PT).

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DECLARATION

This work has not previously been accepted in substance for any degree and isn't concurrently submitted in candidature for any degree. This dissertation is being submitted in partial fulfillment of the requirements for the degree of B.Sc. in Physiotherapy.

I confirm that if anything identified in my work that I have done plagiarism or any form of cheating that will directly awarded me fail and I am subject to disciplinary actions of authority. I confirm that the electronic copy is identical to the bound copy of Thesis.

In case of dissemination the finding of this project for future publication, research supervisor will highly concern, it will be duly acknowledged as graduate thesis and consent will be taken from the physiotherapy department of Saic College of medical science and technology (SCMST)

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DECLARATION

I declare that the work presented here is my own. All source used have been cited appropriately. Any mistakes or inaccuracies are my own. I also declare that for any publication, presentation, or dissemination of the study. I would be bound to take written consent from my supervisor.

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Synonym

ASD	Autism spectrum disorder
SAIC	Saic College of Medical Science and Technology
SPSS	Statistical Package for the Social Sciences
ADHD	Attention-Deficit / Hyperactivity Disorder
BMRC	Bangladesh Medical Research Council
ISAA	Indian Scale for Assessment of Autsim
NDD	Neuro-Developmental Disability Protection Trust
EBR	Ethical Review Board
ID	Intellectual Disability
UPT	Usual physiotherapy technique
BMI	Body mass index
Group	Group therapy, group physical exercise, group music& play

ABSTRACT

The objective of the study was to assess the effectiveness of group therapy on children with autism spectrum disorder (ASD) in Dhaka City. The sample size was 24. In experimental group 12 children were included. Similarly in control group it was 12 children. Indian Scale for Assessment of Autism (ISAA) was applied to determine the changes in autistic behavior before and after the intervention in both experimental and control group. About age distribution of the children, it was found that in experimental group 75% children belonged to the age group of 10 years or less. In case of control group, 91.7% children were in the age group of 10 years or less. The group therapy was found to be effective in the treatment of autism of children *(t* = 2.131, *df* = 22, p = 0.045). The difference of means between experimental and control group was found to be statistically highly significant (*t*= 2.99, *df* = 22*, p* = 0.031). It showed that group therapy was effective in the treatment of children with autism. It was found that there was significant change on ISAA score in experimental group (mean of ISAA was 5.483, sd = 3.988, t = 4.480, df =11, p = 0.001). In control group, the mean of ISAA was 5.417, sd = 4.981, df = 11, p = 0.003). It indicated that there was significant change on ISAA score of control group. The findings would contribute significantly in the treatment of autism by group therapy.

Key words: Autism, Social problem, Group therapy, behavioral problem, Children with autism

CHAPTER-I INTRODUCTION

Background

Autism is the neurodevelopmental disorder characteristic by social problem, communication problem, speech problem and also repetitive behavior's autism is one of the most common childhood neurological disorder. it is the greatest problem in the world. (sultana et al.,2019) many therapy programs occupied within autism. group therapy function also attention an eye contract development this treatment. children's with autism spectrum disorder (ASD) .group therapy includes music therapy ,play group therapy ,ABA therapy important for verbal non- verbal communication sensory ,motor .

According to world health organization (WHO) 10% total population in are disable .according to Bangladesh bureau of statistics 16.14 % of total disabilities are child disability due to birth injuries (khan & Ferdose,) all of the major condition resulting in neurodevelopmental disorder of disabilities are autism ,drown syndrome ,cerebral palsy ,intellectual disabilities his one.

Epidemiological studies have shown a rapid increase in the prevalence of autism spectrum disorders (ASD) 1, 2. Throughout the world, it is reported to be 1 in 150 children (See Centre for Research and Information site). According to estimates of the Centre for Disease Control and Prevention (CDC)'s Autism and Developmental Disease Monitoring (ADDM) Network, approximately 1 in 68 children aged 8 years are identified with ASD 3. California Department of Developmental Services (CDDS) and IDEA data sets are qualitatively consistent in suggesting a strong increase in autism prevalence over recent decades 4. Prevalence studies from European countries, with an age range of birth to adulthood, varied from 1.9/10000 to 72/10000 5. A systematic review article reported differences in prevalence of autism in South Asia. It ranged from 0.09% in India to 1.07% in Sri Lanka 6

The disease manifests at an early age in children, and is likely to last for life 7. ASD severely affects the social functioning of an individual and may have a negative impact on the entire family of the affected individual 1. The accuracy of the numbers regarding prevalence of ASD depends on diagnostic criteria, age and geographical location,

service availability and awareness of ASD 8. Advanced maternal and perinatal age is also a risk factor for ASD, with significantly increased risk with each 10-year increase in maternal age 9.

Average prevalence of ASD in Asia was 1.9/10000 before 1980, while it is 14.8/10000 from 1980 to present 10. The overall reported prevalence of ASD in recent studies was higher than previously reported in Asia.

In Bangladesh, it has been predicted that autism is an underestimated, yet significant health problem. In community studies done by Mullick and Rabbani in 2005 and 2009, autism was 0.2 and 0.84/1000 children respectively 11, 12. From a systematic review, the prevalence of ASD was found to be ranging from 0.15–0.8% in Bangladesh 6. Cambridge medical university's patient registration records showed an increased rate of autistic children seeking treatment, from 12 children in 2001 to 105 children in 2009 13. A national level study in Bangladesh in 2013 using a community level approach found prevalence of autism to be 0.15% amongst a population of 7200 in seven upazilas (Debhhata, Wazirpur, Pirgong, Godagari, Pekua, Madhupur and Kulaura and a city corporation ward of Dhaka city) 14. In another study by the ministry of Social Welfare, Bangladesh 2016, the proportion of autism was found to be 19% of total neurological disabilities recorded 15, 16.

It is essential to identify the cases of ASD as early as possible because educational planning and initiation of interventions results in better outcomes for these children 17–19. There are different methodologies applied in different studies to identify prevalence in Bangladesh. However, age specific prevalence of autism is not yet determined in Bangladesh. This study has explored the age specific (18–36 months) ASD prevalence among children from a rural community of Bangladesh.

Group therapy is very important for autism spectrum disorder (ASD) .it help to social interaction communication interesting perception sensory motor function as result autism children inter into main stream government to reached sustainable developmental goal (SDG) to reduce disability in our country.

JUSTIFICATION OF STUDY

Autism has no specific treatment. Autism is the greatest problem in world. I have studied some previous literature and found about less treatment, treatment barriers, treatment procedure, and home and school rehabilitation program with autism. But there is lack of research about studies in effectiveness of group therapy among children with autism in Dhaka city. It is an important problem of my country. The present study was carried out to assess the effectiveness of group therapy among children with autism.

the finding would be helpful in the management of children with autism. Also it would contribute substantially in the field of physiotherapy occupational therapy, speech therapy and language therapy, special education.

Research Question

Is group therapy effective in the treatment of children with autism?

Hypothesis of the study

Null hypothesis:

Group therapy is not effective for children with autism
Null hypothesis $H0 = \mu1 - \mu2 = 0$ or $\mu1 = \mu2$,

Alternative hypothesis:

Group therapy is effective for children s with autism

Alternative Hypothesis $H\alpha = \mu1 - \mu2 \neq 0$ or $\mu1 \neq \mu2$,

Objectives of the study

A) General object

To assess the effectiveness of group therapy in the treatment of children with Autism.

B) Specific objectives

1. To select children with autism as experimental group admitted into special school in Dhaka.
2. To select children with autism as control group admitted into special schools in Dhaka.
3. To collect information from both experimental and control group about disability, impairment of children with ASD before group therapy.
4. To collect information from both experimental and control group about disability, impairment of children with ASD after group therapy.
5. To compare the changes in social, communication, repetitive behavioral problem after intervention of the study subjects.

Operational definition

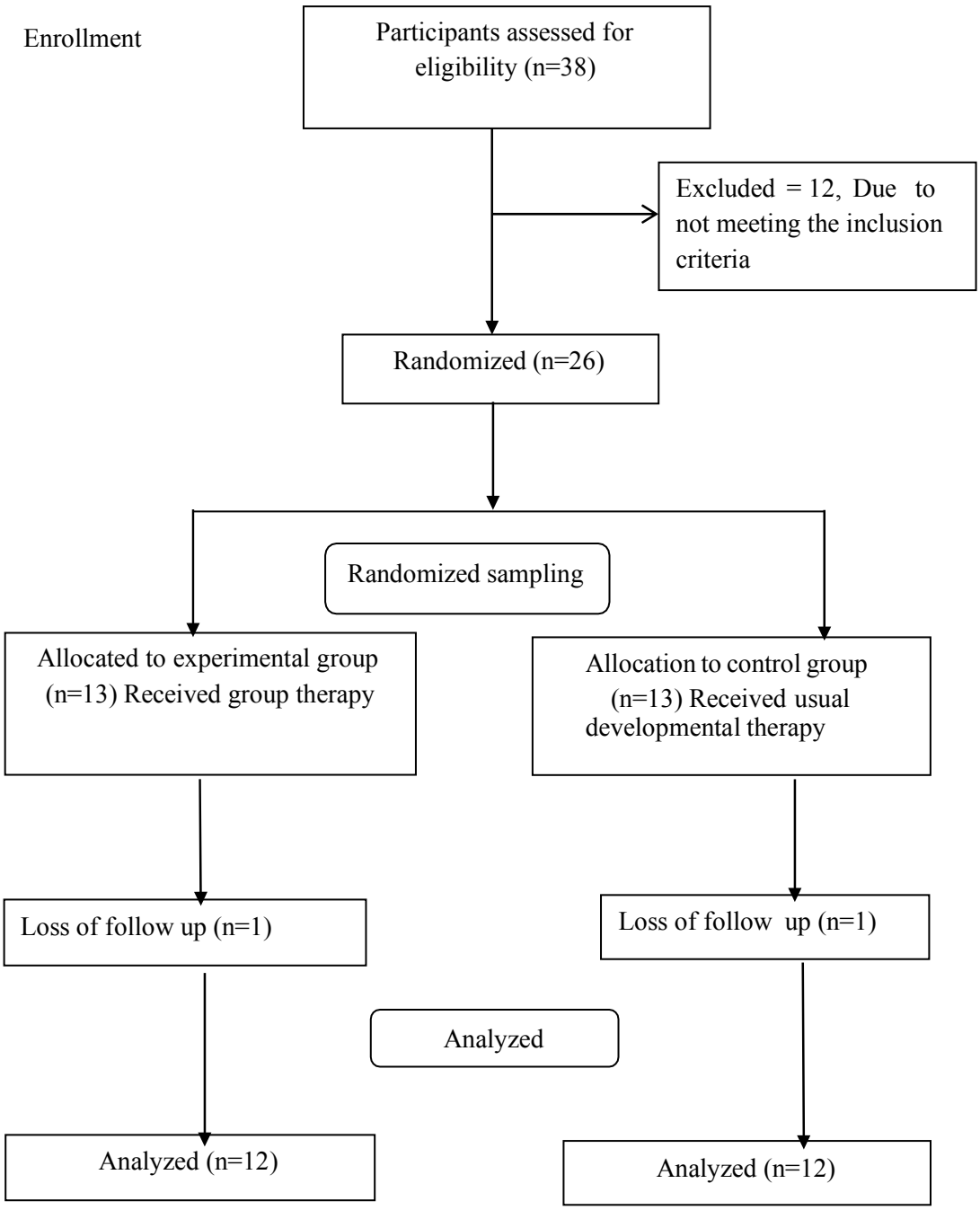
Autism

Autism spectrum disorder (ASD) is a heterogeneous neuro developmental condition characterized by atypical social communication and restrictive and repetitive behavior.

Group therapy

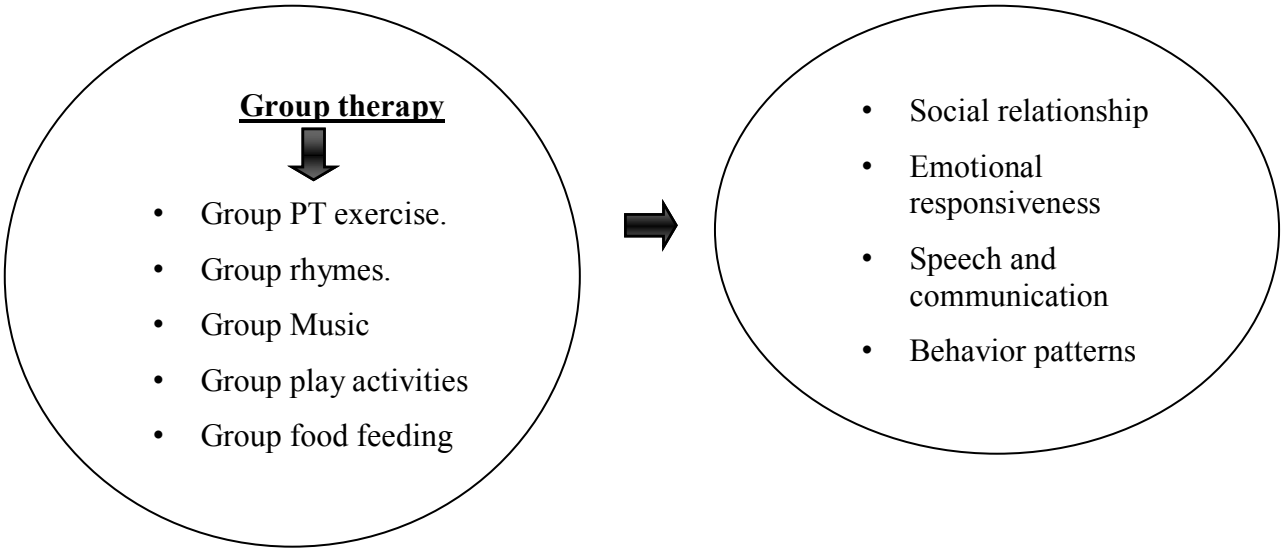
Group therapy is the treatment of multiple patients at once by one or more healthcare providers. It can be used to treat a variety of conditions including but not limited to emotional trauma, anxiety, depression, post-traumatic stress disorder (PTSD), and attention deficit hyperactivity disorder (ADHD)

Consort flow chart



CONCEPTUAL FRAME WORK:

Independent variable **Dependent variable**



2.1 Literature review

Autism

Autism spectrum disorders (ASD) are a group of complex disorders. Sensory dysfunction is common among children with autism. Thus they have difficulty in social interaction especially in communication language and repetitive behaviors. 20 Autism Spectrum Disorder (ASD) is a class of developmental disabilities which cause severe impairments to a child's communication, their social interactions, and in their play and behavior. This disorder presents itself differently in each child with respect to severity and symptoms (Law 2006). Children with Autism see the world in a different way. They may be extremely sensitive to some senses and find seemingly routine events fascinating - the patterns of light on a wall, or the rustling leaves in the wind. The autistic child may also be unresponsive to sensations that may cause harm, such as extreme heat, cold or pain. Children with evidence of sensory processing dysfunction, such as those with ASD, often have difficulty regulating response to sensation and specific stimuli and may use self-stimulation to compensate for limited sensory input or to avoid over stimulation (Pfeiffer et al. 2019).

Autism falls under "Pervasive Developmental Disorders". This is a complex bio neurological developmental disability which is diagnosed based on observation of the behavior in those affected by it. Pfeiffer et al. (2011, p.2) suggest that, 'Autism spectrum disorders (ASDs) represent an expansive class of conditions that manifest in a range of deficits.' Difficulties in sensory processing are very common among children with autism. Beside this sensory dysfunction is a vital characteristic of autism. According to the Texas Statewide Leadership for Autism Training 2009, "Although the diagnostic criteria for autism currently does include deficits or differences in sensory processing research suggest that sensory processing disabilities are prevalent in children with autism." Sensory processing disorders (SPD) are quite common among children with ASD with reports in the literature ranging from 42 % to 88 % (Pfeiffer et al. 2011, p.2).

Definition of autism stated that it is a natural incapacity to establish normal, biologically dictated emotional interaction with others. Lack of social reciprocity is a key component of the diagnostic, and the importance of the social deficit is well acknowledged. Beyond that, the conceptualization of autism and related disorders has

undergone significant development over the past ten years, which has eventually been represented in the draft of the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5, www.dsm5.org). As a matter of fact, suggestedamendments to the previous edition of the manual (DSM IV-TR)1 call for the fusion ofvarious DSM-IV-TR diagnoses into a single, more general autism spectrum disorder (ASD) and the identification of two domains of impairment (social communication andinteraction, and restricted repetitive behavior) (Pauli et al,.2012)

Autism is a wide-spectrum disorder. This means that no two people with autism will have exactly the same symptoms. The term "spectrum" is used because, though all people with autism share three main areas of difficulty but the condition will affect them in very different ways. Children and adults with ASD usually have particular communication and social characteristics in common, but that the condition covers a wide spectrum e.g. severity- mild to severe, age, of onset, levels of functioning, and difficulties with social interaction (Autism Society Canada 2009).

The recurrence risk of pervasive developmental disorder in siblings of children with autism is 2% to 8%,4 and it rises to 12% to 20% if one takes into account the siblings showing impairment in one or two of the three domains impaired in autism respectively.5 Moreover, several twin studies have suggested that this aggregation within families is best explained by shared genes as opposed to shared environment.6-8 Interestingly, the variation of autistic traits in the general population has been shown to be highly heritable, at a similar level of genetic influence to autism itself, even though the results are heterogeneous (heritability 40% to 80%).9,10 These results have led to a huge effort in research to try to unravel the genetic factors underlying the disorder. However, two recent twin studies have provided intriguing results. One study showed that monozygotic twins had higher concordance rates than dizygotic twins for ASDs, attention deficit hyperactivity disorder (ADHD), developmental coordination disorder, and tic disorder with differences in cross-disorder effects between monozygotic and dizygotic twins, raising the question of the specificity of the underlying genetic factors.8Another study recently challenged the high heritability model of autism, estimating the heritability of autism to be 55%.3 This study generated considerable discussion, the main criticisms concerning the very large confidence interval of the odds ratio (9% to 81%) and the low participation rate. However, this study is the largest population-based twin study of autism that used (Chaste et al,.2016)

The hallmarks of autism spectrum disorder (ASD) include a severe impairment in social interaction, difficulties in verbal and nonverbal communication, and constrained and repetitive interests and behaviors (APA, 1994). These symptoms can be minor to severe and typically last a person their entire life. Although many people with ASD have intact or increased intellectual ability, non-social neurocognitive impairment has been seen in areas like processing speed, planning, and executive functioning (Mayes & Calhoun, 2007, Williams et al., 2006).

Despite having normal intellectual ability, high-functioning ASD patients have major limitations when it comes to adaptation and success in adult life. In addition, previous studies have shown that adults with high-functioning ASD have significant disadvantages in terms of employment, academic performance, social relationships, mental health, and quality of life (Howlin et al., 20014).

This is because they are more prone to a variety of psychiatric and neurological disorders, including depression, epilepsy, sleep disorders, anxiety disorders, and obsessive-compulsive disorders. Recent studies revealed that individuals with ASD have trouble understanding their own mental states, which might make it difficult for them to control their emotions. Additionally, this population has frequently reported either hyper- or hyposensitivity to pain, touch, movement, sound, scent, and light (Minshew & Hobson, 2016).

The study was conducted between April 2014 and March 2016. A single-group, pre-post intervention study design was implemented. The group therapy programs consisted of CBT and recreational activities (Table 1). Group therapy sessions were held biweekly for 6 months and facilitated by a clinical psychologist and a psychiatrist. Each CBT sessions, each session consisted of the following five components: 1) a warming up; 2) an introduction to the session's topic, in which the importance of the topic was disc (Yuko Furuhashi et al,.2016).

Group therapy

Group therapy is a powerful treatment media guided by therapist for autistic children who have sensory dysfunction. According to an overview by the DRB Alternatives, "The therapy has been widely used and has been a standard and effective treatment option for over 50 years." Group therapy, like individual therapy is a powerful venue for growth and change, and is intended to help people who would like to gain support, increase self-awareness, and learn new ways to cope with personal or interpersonal challenges. Group therapy offers the rare opportunity to explore and understand how individual relate to others and get specific feedback on how others react to individual. In group therapy, approximately 6-10 individuals meet face-to-face with a trained group therapist (Bellafiore 2014).

Group therapy & therapy At times therapy treatment objectives and goals are met more effectively through group settings as opposed to individualized treatment sessions. According to an overview by Cindytomac (2010) Groups are found to be effective in treating patients with either psychosocial or physical dysfunctions. The groups are designed by an occupational therapist to be specialized yet flexible enough to meet the changing needs of each patient. Cherry (2011) suggest groups often lead to improved functional outcomes related to O.T. goals. In other words, patients rehabilitate more quickly and successfully after undergoing group treatment. Also, groups allow the O.T. to use time more efficiently because several patients can be treated at once

The therapist or the certified therapist usually leads the group activities and reviews the topics ahead of time to plan the session so that all individuals can participate fully and reach the group's goals. When a parent hears that their child will need "occupational therapy" (OT), it might sound like their child needs help with "work skills." According to Meeting Street (2011 p.401) in reality occupational therapy is focused on skills that help children do well in their daily life. therapists help children of all different abilities improve their fine motor, sensory issues, coordination, hand writing, play, dressing and eating abilities. therapists are trained in many specialty areas to help improve school readiness and performance; self-help such as feeding, dressing and grooming; safety, focus and attention, play/social interaction, eye-hand coordination, self-calming, organization and more focused on skills that help children do well in their daily life.

Occupational therapists help children of all different abilities improve their fine motor, sensory issues, coordination, hand writing, play, dressing and eating abilities. Occu therapists are trained in many specialty areas to help improve school readiness and performance; self-help such as feeding, dressing and grooming; safety, focus and attention, play/social interaction, eye-hand coordination, self-calming, organization and more

Benefits of group therapy

Groups can be as small as three or four people, but group therapy sessions generally involve around seven to twelve individuals. The session might begin with each member of the group introducing themselves and sharing why they are in group therapy. The specific manner of the session depends largely on the goals of the group and the style of the therapist. There are many benefits of group therapy such as: the group can afford the opportunity to? Be real? with others in an environment of safety and respect. Members are able to try out new behaviors. The group can allow members the chance to explore and better understand themselves. In group, members can learn new social techniques, ways of relating, and how to better cope with difficulties (Cherry 2011)

CHAPTER- Ⅲ METHODOLOGY

Study design:

The study was a randomized controlled trial (RCT) design to assess the effectiveness of group therapy in the treatment of children with autism.

Study area:

Data were collected from the Autism Care Foundation Special School, Blessing Child Special School, Badda, Dhaka. Smiling Child Special School, Badda, Dhaka.

Study period:

The duration of the study was one year from July 2022 to August 2023.

Study population:

The patients with autism admitted into different special schools constituted the study population for the present study.

Sample Size:

The sample size was calculated by the following equation-

$$\mathbf{n} = \frac{\boldsymbol{2SD}\,(\frac{\boldsymbol{Za}}{\mathbf{2}} + \boldsymbol{Z}\mathrm{Q})^{\mathbf{2}}}{\boldsymbol{d}^{\mathbf{2}}}$$

$$\boldsymbol{n} = \frac{\mathbf{2 \times 13.6(1.96 + 0.84)^2}}{\mathbf{3^2}}$$

$$\boldsymbol{n} = \frac{\mathbf{2 \times 13.6(2.8)^2}}{\mathbf{9}}$$

$$\boldsymbol{n} = \frac{\mathbf{213.\ 248}}{\mathbf{9}}$$

$$\boldsymbol{n} = 23.69422$$

$$\boldsymbol{n} = 24$$

Sample size n = 24

Here,

From Z table at type 1 error of 5%, $\frac{Z\alpha}{2} = 1.96$

From Z table at 80% power, Zβ=0.84

Effect size- difference between mean values, d=3

standard deviation, SD=13.6 (Japanees University atl,.2016)

Sample size n=?

Sampling technique:

Purposive sampling technique was applied to select the children with autism from Autism Care Foundation Special School, Blessing Child Special School, Badda, Smiling Child Special School, Badda, Dhaka.

3.7. Inclusion criteria:

1. Autism children were included in this study.

2. Age limit was 3 to 18 years.

3. Participants who had neurodevelopment disorder.

Exclusion Criteria:

1. Participants who were not willing to participate in the study.

4. Children more than 20 years age were not included in the study.

Method of data collection:

Data was collected through a face-to-face interview using an internationally accepted questionnaire. The assessor was bilingual (Bengali and English), and the investigator did forward and backward translations of the questionnaire by different people and found the same meaning.

Instrument and Measurement tools of data collection:

A questionnaire was prepared according to the objectives and variables of the present study. The questionnaire contained both open-ended and closed-ended questions. The questionnaire has two parts. The first part contained questions on socio-demographic information (a structural questionnaire was used for socio-demographic information). The second part included questions about Indian assessment scale for autism.

Procedure of data collection:

Patients were coming in for Autism Care Foundation Special School, Blessing Child Special School, Badda, and Dhaka. Smiling Child Special School, Badda, Dhaka. Then autism child were randomized by the lottery method. Then pre-test data was collected before treatment, and post-test data was collected after 12 sessions of treatment.

Intervention protocol:

Experimental Group (30-35 minutes)	Control Group(30-35minutes)
• Group excise	• physiotherapy
• Group PT exercise. • Group rhymes. • Group Music • Group play activities • Group food feeding	• Occupational physiotherapy • Speech therapy. • Special Education. • ABA Therapy

Data management:

At the end of each day, the collected questionnaires were checked for any errors or inconsistencies. The necessary corrections were made. The recorded data were coded accordingly and entered into the SPSS-25 version of the program.

Analysis of data:

Data were analyzed by SPSS version 25 using descriptive analysis for socio-demographic variables. A paired t-test was used to assess the pre-test and post-test interventions within the group, and an independent t-test was used to assess the differences between the groups pre- and post-intervention. Microsoft Excel 2019 was used for the bar diagram and chart.

Ethical consideration:

The investigator followed the guidelines of the World Health Organization (WHO) and the Bangladesh Medical Research Council (BMRC).

Approval was received from the ERB of SCMST.

Data collection permission was obtained from the head of the physiotherapy department at SCMST. Confidentiality is maintained strictly. Informed consent was obtained from every participant**.**

Limitations of the study:

The present study was conducted among the children with autism & AHDD. Children with Down syndrome, intellectual disability and children with cerebral palsy could be included in this study.

No follow-up study was done. It is quite important to take a follow-up session of the study subjects.

The researcher collected data from only four rehabilitation centers, but it would be better if samples be collected from different Special schools.

The present research was conducted in Dhaka city only. For generalization of the findings participants from other districts should be included.

The researcher is a student of 4th year B.Sc. in Physiotherapy. This thesis is his first time research work. So, a number of shortcomings are present in this thesis.

CHAPTER-Ⅳ RESULTS

The objective of study was to assess the effectiveness of group therapy among the children with autism (ASD) in Dhaka city. Data were collected before and after intervention from experimental and control group by using Indian scale for assessment of autism (ISSA). The collected data were analyzed by SPPS program and the findings of the trial have been presented by tables and graphs, charts and description in the following section.

Age of the participants.

Table no. 1. Frequency distribution of the participants by age.

Date	**Experimental group**		**Control group**	
Age	N	%	N	%
Less than 10 years	9	75.0	11	91.7
10 - 15 year	2	16.7	1	8.3
More than 15 year	1	8.3	0	0
Total	12	100.0	12	100.0
Mean ± SD	9.00±3.742		8.08±2.778	

Regarding frequency distribution of the participants by age, it was found that in experimental group 9 (75.0%) children belonged to the age group of 10 years or less. In control group 11 (91.7%) children were 10 years or less. The mean and SD of age of the children of experimental group was 9.00±3.742 and of children of control group was 8.08±2.778 (Table no.1).

2. Gender of the participants

Table no. 2. Frequency distribution of the participants by gender.

Date	Experimental group		Control group	
	N	%	N	%
Male	7	58.3	8	66.7
Female	5	41.7	4	33.3
Total	12	100.0	12	100.0

It was found that in experimental group, 7 (58.3%) children were male and 5 (41.7%) children were female. In control group, 8 (66.7%) children were male 4 (33.3%) children were female (Table no.2).

3. Monthly income of the family of the participants.

Table no: 3. Frequency distribution of the participants by monthly family income.

Monthly income in Taka	Experimental group		Control group	
	N	%	N	%
Taka 100000 or less	3	25.0	9	75.7
Taka 100000 - 200000	9	75.0	1	8.3
Taka 200000 or more			2	16.7
Total	12	100.0	12	100.0

It was found that in the experimental group, 9 (75%) children's family had monthly income of Taka 100000 - 200000. In case of control group, 9 (75%) children's family had monthly income of Taka 100000 or less (Table no. 3).

4. Religion of the participants

Table no: 4. Frequency distribution of the participants by religion

Religion	**Experimental group**		**Control group**	
	N	%	N	%
Islam	12	100.0	9	75.0
Hindu			2	16.7
Christian			1	8.3
Total	12	100.0	12	100.0

The study showed that in experimental group, 12 (100%) participants were Muslim. In the control group 9 (75%) participants were Muslim, 2 (16.7%) participants were Hindu, 1 (8.3%) participants were Christian (Table no. 2).

5. Between groups different of Indian scale for assessment of autism:

Pre-test ISAA between two groups

Table no: 5. Mean score assessed by ISAA (pre-test) on autism between experimental and control groups.

Group of study	Sample	Mean± SD
Experimental	12	92.7+11.530
Control	12	80.92±15.400

Independent sample T-test between groups for Pre-Test ISAA

Table no: 6. Independent sample t test on pre-test Indian scale for assessment of autism: Between two groups

Variables	t	df	95% CI		Sig value, (p)
			Lower	Upper	
ISAA	2.131	22	.316	23.351	.045

Mean ISAA score before group therapy of experimental group was 92.7 and control group was 80.92. Independent sample-t test was done to determine the statistical significant of the difference of means between two groups. The difference of means was found statistically significant before intervention ($t = 2.131$, $df = 22$, $p = 0.045$).

6. Independent sample T-test between groups for Post- Test ISAA

Table no. 7: Post-test autism improvement between two groups.

Group of study	Sample (n)	Mean± SD
Experimental	12	87.17+12.134
Control	12	75.50±12.724

Table no: 8. Post test score of experimental and control group

Variables	t	df	95% CI		Sig value, (p)
			Lower	Upper	
ISAA	2.99	22	1.140	22.193	0.003

The mean ISAA score of experimental group was after intervention 87.17 and control group was 75.50. The difference of means between experimental and control group was found to be statistically highly significant *(t= 2.99, d=22, p=0.031)*. It indicated group therapy was effective in the treatment of children with autism (Table no.8).

7. Indian scale for assessment of autism (ISSA) pre and post assessment within group

Table no: 9 ISAA (pre and post assessment: paired *t* test)

	Means	N	SD	Standard error	*t*	*df*	*P*
Experimental group	5.483	12	3.988	1.151	4.850	11	0.001
Control group	5.417	12	4.981	1.438	3.767	11	0.003

Paired '*t*' test was done to assess the effectiveness of group therapy on experimental group. It was found that there was significant change on ISSA score in experimental group (mean of ISAA was 5.483, *SD* = 3.988, *t* = 4.480, *df* = 11, *p* = 0.001*)*.
In control group, the mean of ISAA was 5.417, *SD* = 4.981, *t= 3.767, df= 11, p = 0.003*. It indicated that there was significant change on ISSA sore of control group (Table no.9).

CHAPTER- V DISSCUSSION

The purpose of this study was to evaluate the impact of group therapy on children with autism spectrum disorder (ASD) in Dhaka City. The study employed the Indian Scale for Assessment of Autism (ISSA) to measure changes in autism severity before and after the intervention for both experimental and control groups. The findings, conveyed through tables, graphs, charts, and descriptions, shed light on the effectiveness of group therapy in alleviating symptoms of autism among children in the city.

About frequency distribution of the participants by age, it was found that in experimental group 75.0% children belonged to the age group of 10 years or less. In control group 91.7% children were 10 years or less. The mean age of the children of experimental group was 9.00 years and 8.08 years for the children of control group (Table no.1).The finding of present study regarding age were similar to a study conducted by (Helen, et al.2015,) and Eleanor showed that age of the mean of experimental group was 11.7 years. In control group the mean age was 11.8 years. (Eleanor et al 2017).

Regarding gender of the participants, it was found that in experimental group 58.3% children were male and 41.7% children were female .In control group 66.7% children were male 33.3% children were female (Table no.2). The findings of present study regarding gender were similar to a study conducted by Rahat Khan et al.(Rahat Khan et al, 2021).

The study showed that in experimental group, 100% participants were Muslim. In the control group 75% participants were Muslim, 16.7% participants were Hindu, 8.3% participants were Christian (Table no. 2). A study showed that in experimental group 80% participants were Christian, 14% participants were Hindu. In control group 82% participants were Christian, 11% participant were Hindu (Yuko furuhashi et al, 2019).

It was found that in the experimental group 75% children's family had monthly income of Taka 100000 - 200000. In case of control group 75% children's family hadmonthly income of Taka 100000 or less. (Table no. 3).

The difference of means between experimental and control group was found statistically significant ($t = 2.131$, $df = 22$, $p = 0.045$). So the group therapy was found to be effective in the treatment of autism of children.

The mean ISAA score of experimental group was after intervention 87.17 and control group was 75.50. The difference of means between experimental and control group was found to be statistically highly significant *(t= 2.99, d=22, p=0.031)*. It indicated group therapy was effective in the treatment of children with autism (Table no.8).

Paired '*t*' test was done to assess the effectiveness of group therapy on experimental group. It was found that there was significant change on ISSA score in experimental group (mean of ISAA was *5.483, SD= 3.988, t= 4.480, df= 11, p = 0.001).*

In control group, the mean of ISAA was 5.417*, SD*= 4.981*, t= 3.767, df= 11, p = 0.003*. It indicated that there was significant change on ISSA sore of control group (Table no.9).

Conclusion

The objective of the study was to assess the effectiveness of group therapy on children with autism spectrum disorder (ASD) in Dhaka City. The study employed the Indian Scale for Assessment of Autism (ISSA) to determine the changes in autistic behaviour before and after the intervention for both experimental and control groups. The findings had been presented with through tables, graphs, charts, and descriptions.

Regarding age distribution, it was found that in experimental group 75.0% children belonged to the age group of 10 years or less. In control group 91.7% children were 10 years or less. The mean age of the children of experimental group was 9.00 years and 8.08 years for the children of control group. About gender of the participants, in experimental group 58.3% children were male and 41.7% children were female .In control group66.7% children were male 33.3% children were female. The study showed that in experimental group, 100% participants were Muslim. In thecontrol group 75% participants were Muslim, 16.7% participants were Hindu, 8.3% participants were Christian. It was found that in the experimental group 75% children's family had monthly income of Taka 100000 - 200000. In case of control group 75% children's family had monthly income of Taka 100000 or less

The group therapy was found to be effective in the treatment of autism of children (t = 2.131, df = 22, p = 0.045). The difference of means between experimental and control group was found to be statistically highly significant *(t= 2.99, d=22, p=0.031)*. It indicated grouptherapy was effective in the treatment of children with autism. It was found that there was significant change on ISSA score in experimental group (mean of ISAA was *5.483, SD= 3.988, t= 4.480, df= 11, p = 0.001).*

In control group, the mean of ISAA was 5.417*, SD*= 4.981*, t= 3.767, df= 11, p = 0.003*. It indicated that there was significant change on ISSA sore of control group.

However, the study's empirical findings contribute significantly to the understanding of effective interventions for children with ASD, particularly in the context of Dhaka City. The demonstrated efficacy of group therapy in reducing autism severity has substantial implications for the development and implementation of interventions tailored to the unique needs of this population. By adding to the growing body of knowledge on effective strategies for enhancing communication skills and overall well-being in children with autism, this study provides a foundation for further research and informs practical approaches to support children with ASD in diverse contexts.

Recommendation:

1. Based on the positive outcomes observed in this study, it is recommended that group therapy be considered as an effective intervention for children with autism spectrum disorder (ASD) in Dhaka City.
2. The findings highlight the potential benefits of group therapy in alleviating symptoms and reducing autism severity, emphasizing its relevance across various age groups, genders, economic backgrounds, and religious affiliations.
3. To further enhance the impact and applicability of group therapy, it is suggested that future research endeavors focus on addressing the study's limitations.
4. Increasing the sample size and considering a more diverse participant pool would contribute to the generalizability of the findings and provide a more comprehensive understanding of the effectiveness of group therapy in diverse contexts.
5. Additionally, professionals working with children with ASD, including therapists, educators, and healthcare providers, should be encouraged to explore and incorporate group therapy into their intervention strategies. Training programs and workshops canbe organized to equip these professionals with the necessary skills and knowledge to implement group therapy effectively.
6. Furthermore, policymakers and stakeholders in the field of child development and autism intervention should consider integrating group therapy programs into existing support services. This could involve collaboration between healthcare institutions, educational facilities, and community organizations to ensure that group therapy becomes a accessible and widely available option for children with ASD in Dhaka City.
7. In summary, the positive outcomes of this study underscore the potential of group therapy as a valuable intervention for children with ASD. By implementing the recommendations mentioned, we can contribute to the development of more inclusive and effective strategies to support the unique needs of children with autism in Dhaka City.

CHAPTER-ⅤⅠⅠ References

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Appendix -A

CONSENT FORM

Dear Participant,

I am Md Hasan Tarek, a student of Bachelor of Physiotherapy program in Department of Physiotherapy at "SAIC College of Medical Science and Technology (SCMST)" approved by Dhaka university. I am doing a research for partial fulfillment of my bachelor degree. The title of my research is **"Effectiveness of Group Therapy among the Children with Autism".** I would like to know some information related to my study. This will take approximately 25-30 minutes. I need to meet you just two time to collect entire information.

I would like to inform you that this is a purely academic study and obtain information will not be used for any other purpose. All information provided by you will be kept confidential and also source of information will remain anonymous, your participation in this study voluntarily and also the right not to answer a particular question that you don't like or do not want to answer during interview.

Do you have any question before I start?

So, may I have your consent to proceed with the interview?

Yes ☐ No ☐

Signature of the Participant……. Date……

Signature of the Researcher……. Date……

Mobile Number……... ID No…….

Address…….

EFFECTIVENESS OF GROUP THERAPY AMONG THE CHILDRENS WITH AUTISM

A. Socio-demographic information:

Sl No	Question	Response	Code
1.	Age	.....year	
2.	Gender	1. Male 2. Female 3. Others	
3.	Living area	1. Rural 2. Urban 3. Semi rural 4. Others	
4.	Monthly Family income		
5.	Religion	1. Islam 2. Hindu 3. Buddhism 4. Christian 5. Others	

According to Indian Scale for Assessment of Autism :

(B) Group Therapy Related Question

Item		Rarely Up to 20% Score1	Sometimes 21-40% Score 2	Frequently 41-60% Score 3	Mostly 64-80% Score 4	Always 81–100% Score 5
I. SOCIAL RELATIONSHIP AND RECIPROCITY						
1.	Has poor eye contact					
2.	Lacks social smile					
3.	Remains aloof					
4.	Does not reach out to others					
5.	Unable to relate to people					
6.	Unable to respond to social/environmental cues					
7.	Engages in solitary and repetitive play activities					
8.	Unable to take turns in social interaction					
9.	Does no maintain peer relationships					
II. II. EMOTIONAL RESPONSIVENESS						
10.	Shows inappropriate emotional response					
11.	Shows exaggerated emotions					
12.	Engages in self-stimulating emotions					
13.	Lacks fear of danger					
14.	Excited or agitated for no apparent reason					
III. SPEECH-LANGUAGE AND COMMUNICATION						

15.	Acquired speech and lost it					
16.	Has difficulty in using non-verbal language or gestures to communicate					
17.	Engages in stereotyped and repetitive use of language					
18.	Engages in echolalic speech					
19.	Produces infantile squeals/unusual noises					
20.	Unable to initiate or sustain conversation with other					
21.	Uses jargon or meaningless words					
22.	Uses pronoun reversals					
23.	Unable to grasp pragmatics of communication (real meaning)					
IV. BEHAVIOUR PATTERNS						
24.	Engages in stereotyped and repetitive motor mannerism					
25.	Shows attachment to inanimate objects					
26.	Shows hyperactivity/restlessness					
27.	Exhibits aggressive behavior					
28.	Throws temper tantrums					

29.	Engages in self-injurious behavior					
30.	Insist on sameness					
V. SENSORY ASPECTS						
31.	Unusually sensitive to sensory stimuli					
32.	Stares into space for long periods of time					
33.	Has difficulty in tracking objects					
34.	Has unusual vision					
35.	Insensitive to pain					
36.	Responds to objects /people unusually by smelling, touching or tasting.					
VI. COGNITIVE COMPONENT						
37.	Inconsistent attention and concentration					
38.	Shows delay in responding					
39.	Has unusual memory of some kind					
40.	Has ‘savant’ ability					

সম্মতিপত্র

প্রিয় অংশগ্রহণকারী,

আমি মোঃ হাসান তারেক, ঢাকা বিশ্বদ্যিালয় দ্বারা অনুমোদিত "সাইক কলেজ অফ মেডিকেল সায়েন্স এন্ড টেকনোলজি" (এস সি এম এস টি) ফিজিওথেরাপি বিভাগে ব্যাচেলর অফ ফিজিওথেরাপি প্রোগ্রামের ছাত্র। আমার ব্যাচেলর ডিগ্রীর আংশিক পূর্ণতার জন্য একটি গবেষণা করছি। আমার গবেষণার শিরোনামটি হলো-**" ঢাকা শহরের অটিজম বাচ্চাদের গ্রুপ থেরাপির কার্যকারিতা।"** আমি আমার অধ্যয়ন সম্পর্কিত কিছু তথ্য জানতে চাই। এটি প্রায় ২৫-৩০ মিনিট সময় নেবে। সম্পূর্ণ তথ্য সংগ্রহ করার জন্য আমাকে ০২ (দুইবার) আপনার সাথে দেখা করতে হবে। আমি আপনাকে জানাতে চাই যে এটি একটি সম্পূর্ণ একাডেমিক অধ্যয়ন এবং তথ্য প্রাপ্ত করা অন্য কোন উদ্দেশ্য ব্যবহার করা হবে না। আপনার দ্বারা প্রদত্ত সমস্ত তথ্য গোপন রাখা হবে এবং তথ্যের উৎসও বেনামী থাকবে, এই গবেষণায় আপনার অংশগ্রহণ স্বেচ্ছায় এবং সেই সাথে ইন্টারভিউ চলাকালীন আপনি পছন্দ করেন না বা উত্তর দিতে চান না এমন একটি নির্দিষ্ট প্রশ্নের উত্তর না দেওয়ার অধিকার আপনার রয়েছে।

আমি শুরু করার আগে আপনার কোন প্রশ্ন আছে ?

তাহলে, সাক্ষাৎকার নিয়ে এগিয়ে যেতে আমি কি আপনার সম্মতি পেতে পারি

- হ্যা
- না

অভিভাবকের স্বাক্ষর: তারিখ:

গবেষকের স্বাক্ষর: তারিখ:

ঠিকানা: মোবাইল:

(ক) সামাজিক জনতাত্ত্বিক তথ্যঃ

ক্রঃ নং	প্রশ্ন	প্রতিক্রিয়	কোড
১.	বয়স	.....বছর	
২.	লিঙ্গ	১। পুরুষ ২। মহিলা ৩। অন্যান্য	
৩.	বসবাসের এলাকা	১। গ্রাম ২। শহর ৩। আধা শহর ৪। অন্যান্য	
৪.	পরিবারের মাসিক আয়		
৫.	ধর্ম	১। ইসলাম ২। হি ৩। খ্রিষ্টান ৪। বৌদ্ধ ৫। অন্যান্য	

খ) গ্রুপ থেরাপির কার্যকারিতা ঃ
অটিজম আক্রান্ত শিশুদের মধ্যে গ্রুপ থেরাপির কার্যকারিতা ঃ

ক্রঃ নং	আইটেম	খুব কমই ২৯% স্কোর ১	কখনও কখনও ২১-৪০% স্কোর ২	প্রায়শই ৪১-৬০% স্কোর-৩	বেশিরভাগ ক্ষেত্রে ৬১-৮০% স্কোর-৪	সর্বদা ৮১-১০০% স্কোর-৫
বিভাগ ঃ ২। সামাজিক ও পাম্পরিক সম্পর্ক						
১.	চোখের যোগাযোগ খুবই দূর্বল					
২.	সামাজিক হাসির অভাব					
৩.	দূরে থেকে যায়					
৪.	অন্যের কাছে পৌছায় না					
৫.	মানুষের সাথে সম্পর্ক রাখতে অক্ষম					
৬.	সামাজিক পরিবেশগত সংকেতগুলিতে সাড়া দিতে অক্ষম					
৭.	একাকী এবং পুনরাবৃত্তিমূলক খেলার ক্রিয়াকলাপে জড়িত					
৮.	সামাজিক মিথষ্ক্রিয়ায়					
৯.	সামাজিক সম্পর্ক বজায় রাখেনা					
বিভাগ ঃ ২। আবেগপূর্ণ প্রতিক্রিয়াশীলতা						
১০.	অনুপযুক্ত মানসিক প্রতিক্রিয়া দেখায়					
১১.	অতিরঞ্জিত আবেগ দেখায়					
১২.	আত্ম-উদ্দীপক আবেগ জড়িত					
১৩.	বিপদের আশঙ্কা নেই					
১৪.	কোন আপাত কারণ ছাড়াই উত্তেজিত					
বিভাগ ঃ ৩। বর্ক্তৃতা ভাষা এবং যোগাযোগ						
১৫.	বর্ক্তৃতা অর্জন করে হারিয়ে ফেলে					
১৬.	যোগাযোগের জন্য অ-মৌখিক ভাষা বা অঙ্গভঙ্গি ব্যবহার করতে অসুবিধা হয়।					
১৭.	এর স্টিরিওটাইপড এবং পুনরাবৃত্তিমূলক ব্যবহারে জড়িত ভাষা					

১৮.	ইকোলালিক বক্তৃতায় জড়িত					
১৯.	শিশুর চিৎকার/অস্বাভাবিক শব্দ উৎপন্ন করে					
২০.	অন্যান্যদের সাথে কথোপকথন বজায় রাখতে অক্ষম					
২১.	পরিভাষা বা অর্থহীন শব্দ ব্যবহার করে					
২২.	সর্বনাম বিপরীত ব্যবহার করে					
২৩.	যোগাযোগের বাস্তবতা উপলব্ধি করতে অক্ষম (আসল অর্থে)					
বিভাগ ঃ ৪। বর্জ্তা ভাষা এবং যোগাযোগ						
২৪.	স্টেরিওটাইপড এবং পুনরাবৃত্ত মোটরের সাথে জড়িত আচরণ					
২৫.	জড় বস্তুর সাথে সংযুক্তি দেখায়					
২৬.	অতিসক্রিয়তা/অস্থিরতা দেখায়					
২৭.	আক্রমণাত্মক আচরণ প্রদর্শন করে					
২৮.	মেজাজ ক্ষেপে যায়					
২৯.	আত্মঘাতীমূলক আচরণে জড়িত					
৩০.	সমতার উপরে জোর দেয়					
বিভাগ ঃ ৪। সংবেদনশীল দিক						
৩১.	সংবেদনশীল উদ্দীপনার প্রতি অস্বাভাবিকভাবে সংবেদনশীল					
৩২.	দীর্ঘ সময় ধরে মহাকাশে তাকিয়ে থাকে					
৩৩.	বস্তুর অনুকরণে অসুবিধা					
৩৪.	অস্বাভাবিক দৃষ্টি আছে					
৩৫.	ব্যথার প্রতি সংবেদনশীল নয়					
৩৬.	সাধারণত গন্ধ, স্পর্শ বা স্বাদ গ্রহণ করে বস্তুর লোকেদের প্রতিক্রিয়া জানায়					
বিভাগ ঃ ৫। জ্ঞানীয় বিকাশ						
৩৭.	অসংলগ্ন মনোযোগ এবং একাগ্রতা					
৩৮.	উত্তর দিতে বিলম্ব দেখায়					
৩৯.	কোনো ধরনের অস্বাভাবিক স্মৃতি আছে					
৪০.	জ্ঞানীয় দক্ষতা আছে					

Indian Scale for Assessment of Autism

Scoring System

ISAA should be scored as per the scoring system given below.

Each of the 40 test items is to be rated on 5 categories, out of which one is to be checked. These are further quantified by providing percentages to indicate the frequency, degree and intensity of behavioral characteristics that are observed. The categories along with the percentages assigned are as follows:

Rarely (Up to 20%) indicates that the person exhibits this behavior pattern for up to 20% of the time. This score is normal for their age and socio-educational background - Score 1.

Sometimes (21 – 40 %) indicates that the person exhibits this behavior pattern for 21%-40 % of the time. Some of these behaviors may be a cause for attention and concern, but by and large they may be considered within normal limits for their age and socio-educational background.

Person is completely independent in activities of daily life - **Score 2.**

Frequently (41 – 60%) indicates that the person exhibits this behavior pattern for 41% - 60% of the time. These behaviors occur with such frequency and regularity that they interfere with the persons' functioning in daily life. Behavior at this level will be definitely disabling.

Person may be able to perform activities of daily life with minimum assistance - **Score 3.**

Mostly (61– 80 %) indicates that the person exhibits this behavior pattern for 61% - 80 % of the time. The given behavior may occur without any discernible stimulus. The behavior under consideration occurs so regularly that it significantly hampers the person in performing daily activities.

Person needs assistance in activities of daily life - **Score 4.**

Always (81% - 100 %) indicates that the person exhibits this behavior pattern almost all the time, so much so that it would be considered a major handicap. The behavior shown is seldom appropriate to the given situation.

Person is completely dependent on activities of daily life - **Score 5. The minimum score that can be obtained is 40.**

The maximum score that can be obtained is 200.

Indian Scale for Assessment of Autism

I SOCIAL RELATIONSHIPAND RECIPROCITY

1. Poor eye contact

Individuals with autism avoid looking people in the eye. They are unable to maintain eye contact as expected for a given age or required of social norms. Eye contact may be unusual such as gazing for too long on one spot or looking sideways.

2. Lack social smile

Individuals with autism do not smile when meeting people or in reciprocation. A smile that reflects social response and recognition cannot be elicited from such persons.

When the child enters see how he/she reacts to strangers. Whether smiles or not. How he responds to friendly overtures such as a smile or a handshake.

3. Remain aloof

Individuals with autism may remain aloof, self-absorbed, withdrawn, and not responsive to people or environment. They seem to be preoccupied with their self and be away from the social world around. They hardly respond to, or initiate contact with

others. There is lack of age appropriate pretend play.

Ask the child if he has friends, whom he likes at home or what he likes to eat etc. Observe how responsive the child is to you when you interact.

4. **Do not reach out to other persons**

Individuals with autism do not interact with other people and remain socially unresponsive. They do not initiate, seek, or respond to social interactions. They may not respond to their name, and even if they do, it may not be appropriate.

Check if the child/individual takes any initiative to elicit a response or reaction from others. Does he respond to his name or not and how he reacts when you try to engage him in a social interaction.

5. **Inability to relate to people**

Individuals with autism do not initiate contact with others and may not relate to people as expected of their age. Reminders are required to attune the individuals with autism to the presence of people and social situations. Persistent effort is required to get their attention. They seem to be indifferent and impersonal in their interactions with others, if at all contact is established.

6. **Inability to respond to social / environmental cues**

Individuals with autism are not responsive to social and environmental demands or expectations. They show behavior which is not synchronous with the demands/ requirements of the social environment.

Ask if the child behaves appropriately or not in keeping with what is expected in a given social situation and also find out whether the child behaves appropriately when parents take him/her to visit friends or relatives, or behaves properly in a market.

7. **Engage in solitary and repetitive play activities**

Individuals with autism play alone most of the time or prefer solitary activities. They avoid playing with others and may not engage in group oriented activities or tasks at all.

Ask if the child plays in a group with other children or he plays alone with some object or material repetitively.

8. **Inability to take turns in social interaction**

Individuals with autism do not comprehend the significance of taking turns in reciprocal interaction with others. They do not wait until their turn comes or the others' turn ends.

Check if the child can play with a ball by taking turns with someone or can he play bat and ball with someone which requires turn taking and whether he waits for his turns when talking to others.

9. **Do not maintain peer relationships**

Individuals with autism do not develop age appropriate friendships. They may not engage in age appropriate peer interactions or maintain peer relationships as is socially expected. Autistic persons appear to find it difficult to understand social rules and to conform to social boundaries.

Ask if the child plays with children of his age, what he plays with them, and how well he mixes with them or bonds with them.

II EMOTIONAL RESPONSIVENESS

10. Inappropriate emotional response

Persons with autism do not show the expected feeling in a social situation. They express inappropriate emotional responses like laughing when scolded or spanked and inappropriate degree of response like excessive crying or laughing that is unwarranted. Emotional reactions are unrelated to the event or situation around the individual. They may show unpredictable shift in emotions, that is, they may become excited, agitated or distressed for no apparent reason.

11. Show exaggerated emotions

Persons with autism may show anxiety or fear which is excessive in nature and which may be triggered off without an apparent reason. At times, it may be exaggerated or atypical. The autistic individual may show extreme fear of innocuous objects or events leading to uncontrolled behavior.

12. Engage in self-stimulating emotions

Individuals with autism may engage in self talk that is inappropriate for their age. The autistic individual may smile to self without any apparent reason. Check if the child talks to self or laughs or smiles or whines for no apparent reason.

13. Lack fear of danger

Persons with autism may not show fear of hazards or dangers which others of the same age would show or know.

14. Excited or agitated for no apparent reason

Persons with autism may show excitement, over activity or agitation that is both excessive and unwarranted. Theautisticchildmovesaroundwithbriskenergyand may be difficult to control.

III SPEECH-LANGUAGE AND COMMUNICATION

15. Acquired speech and lost it

Speech development is not age-appropriate. The autistic individual may have developed speech, but lost it subsequently. 50% of autistic may be mute.

16. Difficulty in using non-verbal language or gestures to communicate

Persons with autism find it difficult to express their needs non-verbally and may also have difficulty in understanding the non-verbal language of others. Instead of gesturing or pointing, they may lead others to the desired object by dragging or pulling the latter's hand.

Arrange Cup, Doll, Car, Spoon, and Key in a row and ask the child to point to one of the objects. Keep two or three objects at a time to check if the child can point to objects.

17. Engage in stereotyped and repetitive use of language

Persons with autism may repeat a word, phrase or sentence out of context. They repeat the same statement many times.

18. Engage in echolalic speech

Persons with autism may repeat or echo questions or statements made by other people. They may not understand that they have to answer the questions.

Observe if the child is repeating what you said either the whole or a part of what you said.

19. Produce infantile squeals or unusual noises

Persons with autism may squeal, make bizarre noises and produce unintelligible speech like sounds. They may produce speech like sounds which lack meaning.

20. Unable to initiate or sustain conversation with others

Persons with autism may not be able to initiate or sustain conversation with others.Check if the child can meaningfully respond to a series of questions or maintain a dialogue for adequate time.

21. Use jargon or meaningless words

Persons with autism may use strange or meaningless words which convey no meaning.

22. Uses pronoun reversals

Persons with autism may show difficulty in the use of pronouns. They frequently reverse pronouns such as “I” for “You”.

23. Unable to grasp pragmatics of communication (real meaning)

Persons with autism have difficulty in understanding the true intent of speech of others. They may not understand the pragmatics of speech communication. For example, When somebody asks them “Can you tell the time?, they may say 'Yes” and stop. Check if the person understands humor and sarcasm.

IV BEHAVIOR PATTERNS

24. Engage in stereotyped and repetitive motor manners

Persons with autism may engage in self-stimulatory behavior in the form of flapping of hands or fingers, body rocking or using an object for this purpose.

25. Show attachment to inanimate objects

Individuals with autism may be staunchly attached to certain inanimate objects which they insist on keeping with themselves such as string, rock, pen, stick, toy, bottle and the like.

Keep all the objects and check if the child shows attachment to inanimate object/s. This can be seen if he likes to play with one object consistently and seems very much attached to it and shows resistance and temper tantrums when that object is taken away.

26. Show hyperactivity / restlessness

Individuals with autism may be restless with boundless energy which makes it difficult for others to control them. The hyperactivity interferes with their learning and performance of tasks.

27. Exhibit aggressive behavior

Persons with autism may show unprovoked aggression and socially inappropriate behavior such as hitting, kicking and pinching.

28. Throw temper tantrums

Individuals with autism may show temper tantrums in the form of head banging, screaming, and yelling etc. Such behaviors are emitted when frustrated.

29. Engage in self-injurious behavior

Persons with autism may indulge in self-injurious behaviors like biting, hitting or mutilating self. Such individuals have to be constantly supervised to prevent them injuring themselves.

30. Insist on sameness

Persons with autism may resist change in their routine and insist that things be the same as they were. Such individuals may insist on continuing the same activity and it would be very difficult to distract them from such repetitive activities. Any change in the schedule leads to frustration and temper tantrums. Thus, persons with autism show a degree of rigidity in their adherence to routine and accustomed ways.

Check if the child wants to sit at the same place, reads the same stories, prefers the same route, wants things to be kept in the same place, and wants the same schedule of

activities in a prescribed sequence always.

V SENSORYASPECTS

31. Unusually sensitive to sensory stimuli

Persons with autism may react strongly to certain sounds, light, touch or tastes by closing their ears, eyes or refusing to eat food of certain consistency. They may actively avoid certain sensory stimuli.

Ring the bell or any sound making object to see how the child reacts. Check if he is finding the sound aversive or distressing or if he closes his ears. This is for auditory stimuli. Check how the child reacts to your touch. Observe how the child reacts to bright illumination or darkness.

32. Stare into space for long periods of time

Persons with autism may stare at some distant spot or space for long periods of time. They seem to be unaware of surroundings when thus occupied.

33. Difficulty in tracking objects

Persons with autism may have difficulty in tracking objects or persons in motion. They are unable to follow or fix their gaze on moving objects or persons for the required period of time.

Throw the ball or rattle and see if the child tracks it or not. Veer a car and move it around or spin the top and check if the child is looking at it as it twirls and moves away or not.

34. Has unusual vision

Persons with autism may be able to observe tiny details which may not be apparent to others. Such individuals focus their attention on some insignificant part of an object that is generally ignored by others.

Check if the child is looking at some miniscule part of the object or toy or

watching from the corners of his eyes or brings objects very close to the eyes and stares.

35. Insensitive to pain

Persons with autism may hardly react to pain. They seem not to be distressed or cry when hurt. They seem to have high thresholds for pain.

36. Respond to objects unusually by smelling, touching or tasting

Individuals with autism may go around exploring their environment by smelling, touching or tasting objects. Some of them maynot show appropriate use of objects or toys.

Keep all the objects and observe if the child is smelling, touching or tasting the objects or if he is using the objects appropriately.

VI COGNITIVE COMPONENT

37. Inconsistent attention and concentration

It is difficult to arouse the attention of individuals with autism. They do not concentrate, and if they do, then it may not be on relevant aspects of the object or event. As a result of this, they may be inconsistent in their response.

Ask the child to put the pegs on the board or sort the pieces and put them in their right places on the sorting board or fill the bottle with the beads or string the beads in a twine. Check if the child can attend and concentrate on the task.

38. Delayed response time

Persons with autism do not respond to instructions promptly or respond after a considerable delay. Quick response to instructions is hardly ever to be expected.Show picture books/blocks and ask the child to show some object in a picture book. Observe if the child is responding after a delay or with repeated instructions. Ask for the name of things or objects or its uses or differences between objects depending on the age of the

child.

39. Unusual memory

Persons with autism may show memory for things which most of the individuals would have long forgotten. Some of them have exceptional ability to remember things from the distant past. Check if the child recognizes people he met long time back or remembers the routines taken or places visited or dates or time or locations or names of things to an extraordinary extent.

40. Savant ability

Persons with autism may have special or unusual ability in some areas like reading early, mathematical feats or artistic talent. Some of them may show superior ability, but in a restricted field of interest.

VII Standardization of the Tool

Validity: Validity of ISAA test items was determined by correlating the individual item scores with the total scores, all the items of the scale were significantly correlated with total scores at 0.001 level, except one item (A40), namely 'savant ability' which was significant at 0.5 level.

Internal consistency reliability: Internal consistency reliability of ISAA was computed using Cronbach alpha. The alpha coefficient obtained was 0.93 ($p<0.001$) for autism group indicating high degree of internal consistency.

Inter-rater reliability : Inter rater reliability of ISAA was obtained using Pearson Product Moment Correlation between two raters who independently administered and scored ISAA on 67 randomly selected children (about 17% of the sample). Correlations between raters varied from 0.62 to 0.81 in different

domains which are equivalent to those found in standard tool, namely, CARS.

Test-Retest Reliability: In order to assess the Test retest reliability of ISAA, 120 subjects (30% of sample) from autism group were retested after three months. Correlations ranged from 0.60 to 0.85 in various domains and for the total score it was 0.83 ($p<0.001$). These results indicate that test-retest reliability of ISAA is good.

Sensitivity and Specificity: Sensitivity and Specificity of ISAA was computed for investigating its effectiveness in discriminating autistic and non autistic children as compared to CARS. Further, Receiver Operating Characteristic (ROC) curve analysis was carried out to assess the discriminant power of ISAA, using these sensitivity and specificity levels at different cut offs. The ROC analysis also confirmed the discriminant ability of ISAA, AUC = 0.931 with SE=0.009 at cut off 70.

Based on the ROC cut off score of 70, a diagnostic categorization of ISAA has been established which aids in the interpretation of total ISAA scores. Using this cut off level, individuals falling below the score of 70 are categorized as non autistic while those with score of 70 and above are categorized as autistic.

Norms

To arrive at the taxonomy of ISAA, the scores of 376 children who scored 70 and above from autism group were analyzed. The mean score was found to be 106.09, range being 70.0 to 181.0 as given below.

Scores ranging from cut off score to mean score (70 to 106) has been classified as mild autism, scores

	N	Minimum	Maximum	Mean	S.D
ISAA Total	376	70.0	181.0	106.09	23.5

from mean to Mean+ 2SD (106 to 153) as moderate autism and scores above mean + 2SD (> 153) as severe autism, as indicated below.

Norms of ISAA for Diagnosis of Autism

ISAA Scores	Degree of Autism
< 70	Normal
70 to 106	Mild Autism
107 to 153	Moderate Autism
> 153	Severe Autism

Percentage of Disability as per the score

Score	Percentage (%)
70	40
71-88	50
89-105	60
106-123	70
124-140	80
141-158	90
Above 158	100

Conclusion:

Indian Scale for Identification of Autism (ISAA) is a standardized tool with good psychometric properties. It is a reliable and valid tool for making diagnosis of persons with Autism.

Appendix - B

SAIC COLLEGE OF MEDICAL SCIENCE AND TECHNOLOGY

Approved by Ministry of Health and Family Welfare
Affiliated with Dhaka University

Ref : *Date :* .....

Ref.No: *SCMST/PT/ERB-2017-18/1-2023/36*

3rd January'2023

To

Md. Hasan Tarek

4th Professional B.Sc. in Physiotherapy

Saic College of Medical Science and Technology (SCMST)

Mirpur-14, Dhaka-1216.

Sub: Permission to collect data

Dear Tarek,

Ethical review board (ERB) of SCMST pleased to inform you that your proposal has been reviewed by ERB of SCMST and we are giving you the permission to conduct study entitled "Effectiveness of group therapy among children with Autism in Dhaka city" and for successful completion of this study you can start data collection from now.

Wishing you all the best.

Thanking You,

11.01.23

Head of ERB
Ethical Review Board
Saic College of Medical Science and Technology

11.01.23

Principal
Saic College of Medical Science and Technology
Mirpur-14, Dhaka-1216

Address: Saic Tower, M-1/6, Mirpur-14, Dhaka-1216.Mobile:01936005804
E-mail: simt140@gmail.com, Web:www.saicmedical.edu.bd

Appendix-C

SAIC COLLEGE OF MEDICAL SCIENCE AND TECHNOLOGY

Approved by Ministry of Health and Family Welfare
Affiliated with Dhaka University

Ref : *Date :* .....

Ref.No: *SCMST/PT/ERB-2017-18/1-2023/36*

16th February'2023

To

Principal

Smiling Children Special School

Aftab Nagar, Badda, Dhaka.

Sub: Permission to collect data.

Dear Sir/Mam,

Ethical review board (ERB) of SCMST pleased to inform you that Md. Hasan Tarek of final year B.Sc. in Physiotherapy student from Saic College of Medical Science and Technology doing a thesis entitle of "Effectiveness of group therapy among children with Autism in Dhaka city" which has been reviewed by ERB of SCMST and we are giving permission to him to conduct this study. His data collection area is autism school, so he wants to take data from your organization.

I hope you will give kind permission to collect data to complete his study successfully and oblige thereby.

Thanking You,

16.02.23

Head of ERB
Ethical Review Board
Saic College of Medical Science and Technology

16.02.23

Principal
Saic College of Medical Science and Technology
Mirpur-14, Dhaka-1216

Address: Saic Tower, M-1/6, Mirpur-14, Dhaka-1206. Mobile: 01936005804
E-mail: simt140@gmail.com, Web:www.saicmedical.edu.bd

Appendix -D

Appendix - E

Gant Chart

Activities/ Month	July 22	Aug 22	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23	Mar 23	Apr 23	May 23	Jun 23
Proposal Presentation												
Introduction												
Literature Review												
Methodology												
Data Collection												
Data Analysis												
Result												
1st Progress Presentation												
Discussion												
Conclusion And Recommendation												
2nd Progress Presentation												
Communication with supervisor												
Final Submission												