The Outcome of LEGO therapy to improve social skills for the children with Autism Spectrum Disorders in Bangladesh

By

Umaya Sultana

April, 2019

This thesis is submitted in total fulfillment of the requirements for the subject RESEARCH 2 & 3 and partial fulfillment of the requirements for degree of B.Sc. in Occupational Therapy

Bachelor of Science in Occupational Therapy

Bangladesh Health Professions Institute (BHPI)

Faculty in Medicine University of Dhaka

Study completed by:

Umaya Sultana

4th year, B.Sc in Occupational Therapy

Bangladesh Health Professions Institute (BHPI)

Centre for the Rehabilitation of the Paralyzed (CRP)

Savar, Dhaka- 1343

_ _ _ _ _ _ _ _ _ _ _ _

Signature

Head of Department and Study Supervisor's name:

SK. Moniruzzaman

Associate professor & Head of the Department

Department of occupational Therapy

Bangladesh Health Professions Institute (BHPI)

Centre for the Rehabilitation of the Paralyzed (CRP)

Savar, Dhaka- 1343

_ _ _ _ _ _ _ _ _ _ _ _

Signature

Board of Examiners

SK. Moniruzzaman
Associate professor & Head of the Department
Department of occupational Therapy
Bangladesh Health Professions Institute (BHPI)
Centre for the Rehabilitation of the Paralyzed (CRP)
Savar, Dhaka- 1343

Signature

Md. Julker Nayan
Associate professor
Department of occupational Therapy
Bangladesh Health Professions Institute (BHPI)
Centre for the Rehabilitation of the Paralyzed (CRP)
Savar, Dhaka- 1343

Signature

Sumon Kanti Chowdhury
Senior Research Investigator
ICDDRB
Mohakhali, Dhaka- 1212

Signature

Statement of Authorship

Except where reference is made in the text of the thesis, this thesis contains materials published elsewhere or extracted in whole or in part from a thesis presented by me for any other degree or diploma or seminar.

No other persons work has been used without the acknowledgement in the main text of the thesis.

This thesis has not been submitted for the award of any degree or diploma or diploma in any other tertiary institution.

The ethical issue of the study has been strictly considered and protected. In case of dissemination of the findings of this project for future publication, it will be only acknowledgement as undergraduate thesis.

Signature: _____ Date: _____

Umaya Sultana

4th year, B.Sc. in Occupational Therapy

Bangladesh Health Professions Institute (BHPI)

Centre for the Rehabilitation of the Paralyzed (CRP)

Acknowledgements

At first I want to express my gratitude to the Almighty Allah who has given me enough ability, patience and intelligence for completion of this study successfully in time. I am grateful to my father Mir Mominul Islam and my mother Shana Parvin supporting and encouraging me in crucial time of the study.

I would like to thank my honorable and praiseworthy supervisor SK. Moniruzzaman for his excellent guidance, thoughtful suggestions and encouragement during conducting this project study. Due to her endless support during the crucial of the study it was possible for me to conduct the research from beginning to the ending. I also would like acknowledge the name of my honorable teachers Shamima Akter to help me by providing valuable guidelines.

I am thankful to the honorable principals of Society for the Welfare of Autistic Children who granted me to collect data from their school and I also would like acknowledge the name of occupational therapist Asif Iqbal to help me by valuable support.

I am very much thankful to all of my classmates and friends specially Humaira and Munni to help me learn SPSS and also Adiba, Sonia, Liza, to help me in my study.

Finally my endless thanks to all of the participants to participate in my project and made my research successful.

Dedication

Dedicated to my beloved parents, family members, teacher and friends

Who always support and inspired me.

List of Abbreviation

ADDM	Autism and Developmental Disabilities Monitoring Network
ASD	Autism Spectrum Disorder
ASC	Autism Spectrum Condition
CRP	Centre for the Rehabilitation of the Paralysed
CDC	Centers for Disease Control and Prevention
NOS	Not Otherwise Specified
PDD	Pervasive Developmental Disorders
SSC	Social Skill Checklist
SPSS	Statistical Package for Social Science
IRB	Institutional Review Board
WHO	World Health organization

Abstract

Purpose: The aim is to explore the outcome of LEGO therapy to improve social skills for the children with Autism Spectrum Disorders in Bangladesh.

Method: The investigator has chosen quantitative method in the form of quasi-experiment design and used a pre-test/post-test study. Here convenience sampling used for collecting sample from Society for the Welfare of Autistic Children. Social Skill Checklist (SSC) used for collecting data which is standardized social skills assessment tool.

Result: The investigator found in some improvement in subtests of play behavior and emotion of social skill that showed good result, but they showed little changes in self-regulation, flexibility, problem solving, conversational skills, non-conversational skill and compliment.

Conclusion: The results suggest that, there is few improvement in social skills of children with autism, so occupational therapist have a great chance to work on those areas to enhance their social skills.

Keywords: Autism Spectrum Disorder (ASD), LEGO therapy, Social Skill Checklist (SSC), Social skills.

Declaration

I am Umaya Sultana declare that, the study will not be harmful for the participatory schools. Then I would like to ensure that all the data and literature were stated correctly. In that case all discussion of this research project is mine and I am only responsible for any mistake in whole study.

Signature

……..……

Umaya Sultana

4th year, B. Sc. in Occupational Therapy

Table of Content

List of table

List of table: **Page no**

List of figure

List of figure: **Page no**

Appendix

List of appendix: **Page no**

Chapter 1: Introduction

1.1 Introduction:

Autism spectrum disorder (ASD) is a developmental disorder that affects communication and behaviour. Although autism can be diagnosed at any age. It is a developmental disorder" because symptom generally appear in the first two years of life (According to DSM-5).

The autism included five Pervasive Developmental Disorders (PDDs): Autistic Disorder, Asperger's Disorder, Rett's Disorder, Childhood Disintegrative Disorder and Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS).In the DSM-5, Autistic Disorder, Asperger's Disorder and PDD-NOS are replaced by the diagnosis of Autism Spectrum Disorder. Additionally, the DSM-5 also reduces social-related elements of autism into social communication impairment and repetitive/restricted behaviors, though the labels of Asperger's and PDD-NOS are still in common use (American Psychiatric Association, 2013).

Autism spectrum disorder is two core symptoms: a deficit in social communication and the presence of repetitive behaviors and/or restricted interests. Currently, there is no Food and Drug Administration-approved drug for these core symptoms. The social function deficit associated with autism spectrum disorder and the drug therapies with the potential to treat this deficit. The history of autism demonstrates that a deficit in social interaction has been the defining feature of the concept of autism from its conception. Abnormalities identified in early social skill development and an overview of the pathophysiology abnormalities associated with autism spectrum disorder are discussed as are the abnormalities in brain circuits associated with the social function deficit (Frye, 2018).

According to WHO, (2017), "1 in 160 children has an autism spectrum disorder (ASD) worldwide". In late April, the Centers for Disease Control and Prevention (CDC) released new data from the Autism and Developmental Disabilities Monitoring Network

(ADDM) on the prevalence of autism in the U.S. The network identified 1 in 59 children (1 in 37 boys and 1 in 151 girls) as having autism spectrum disorder (ASD), representing a 15 percent increase from previous estimates (Malaga et al, 2019).

Studies in Asia, Europe, and North America have identified individuals with ASD with an average prevalence of about 1%. A study in South Korea reported a prevalence of 2.6% (Kim et, al., 2011).ASD prevalence rates were higher in Denmark (68.5 per 10,000 children) compared with Western Australia (51.0 per 10,000 children) (Parner et, al., 2011).

Autism, a development disability, has a wide range of symptoms, including difficulty with social interaction and repetitive behavior. It is a lifelong condition. In 2013, Dhaka Shishu Hospital conducted a survey that reported autism prevalence to be 15 per 10,000 children aged below nine. In 2016, Institute of Pediatric Neuro-disorder and Autism (IPNA) at Bangabanbdhu Sheikh Mujib Medical University (BSMMU) rural survey reported a figure of 7.5 per 10,000 children aged between 18 and 36 months. (Molla, M.A.M., 2018).
LEGO therapy is an alternative intervention to help children with autism spectrum disorder (ASD) learn social skills and social competence through LEGO play. The developers of LEGO-Based Therapy believed that this intervention approach has long-term outcomes on the child's social skills, such as improvements in initiation of social contact with peers, duration of social interaction with peers, as well as reduction in stereotyped behaviors (LeGoff, 2004).

The Lego therapy sessions will conduct by the school. The sessions of 45 minutes duration each. The role was to prompt interaction among the children and help them come up with their own solutions. Lego therapy sessions consisted of two sections (LeGoff et al., 2014)

The duration is 30 minutes of collaborative Lego project and 15 minutes freestyle building. Lego therapy is delivered as an intervention for individuals or small groups (up to 3 people including supervisor). Activities involve collaborative building with one peer, and often require close adult supervision (Baron-Cohen, 2014).

This study is quantitative method approach to understand the outcome of 4-week Lego therapy group intervention for children with ASD to improve social skills. Bangladesh is a

large and heavily densely populated country in South Asia. Bangladesh has an estimated 2019 population of 168.07 million, up from the 2013 estimate of 156.5 million. This makes Bangladesh the 9th most populous country in the world. (World Population Review, 2018). Bangladesh is a developing nation and despite economic constraints, Bangladesh has a vision for all round growth and intends to enter the group of developing nations by the year 2020. To achieve these ambitious targets, all sections of society, not only disabled people, but also people with the autism spectrum disorder (ASD) have to be included in the process of developing the nation (Hasnain & Pioneer, 2014).

1.2 Justification/ Rationale:

Autism is one of the most common focusing disorders in developing country like Bangladesh. Already, some research has done related this title in abroad. Children with ASD have impairment in social communication and interaction, restricted and repetitive type of behavior. Parents of autism children also complain these issues with health professionals. Children with ASD have difficulty in social skills that create limitation in activities of daily living based. Social skill is an important issue for children with ASD and also for health professionals to improve social interaction of ASD children so that they can improve the treatment to get a better outcome. This study presents that the need of LEGO therapy intervention and also evidence based practice of health professionals to improve social skills.

This study is use 'Social Skill Checklist' scale which used previously to measure the outcome of LEGO therapy as social skill of children with ASD. So it will be very helpful for the health professionals who are involved in rehabilitation program for children with ASD, for parents and also for teachers. It will help to find out the specific social skill impairment for the children with ASD and based on the study findings it will be helpful to improve `social skill and design the LEGO intervention.

This study shows statistically demonstrable significant of the outcome of LEGO therapy. In Bangladesh, there is no study that measures the social skill. For a normal life, it is very important to improve social skills in home, school and community. But ASD children have

limitation in social interaction and parents are also worried about their children about interaction with other people. Although, LEGO based is use to improve cognitive skills. .But appropriate LEGO intervention is increase the social skills of the children with ASD.

1.3 Operational Definition

Autism: Autism spectrum disorder (ASD) is a developmental disorder that affects communication and behaviour. Although autism can be diagnosed at any age. It is a developmental disorder" because symptom generally appear in the first two years of life (According to DSM-5). Autism spectrum disorder (ASD) is a developmental disorder that affects communication and behavior. Although autism can be diagnosed at any age, it is said to be a "developmental disorder" because symptoms generally appear in the first two years of life (According to NIMH).Autism spectrum disorder (ASD) is a developmental disorder that affects communication and behavior. It refers to a range of conditions that is characterized by impaired social behavior, communication and language, and a narrow range of interests and activities that are both unique to the individual and carried out repetitively. (WHO, 2017). The effects of ASD and the severity of symptoms are different in each person. ASD begin in childhood and is tends to persist into adolescence and also in adulthood. But in most cases the conditions are present during the first 5 years of life of children. (WHO, 2017).

LEGO Therapy: Lego Therapy is an intervention designed for children with Autism Spectrum Conditions (ASC) to improve their social interaction and communication skills (Cheng, 2016). Lego Based Therapy is a child-led and peer based social skills group intervention that was initially developed for children with Autism Spectrum Disorder (LeGoff & Sherman 2006).

Social skills: Social skills are the skills we use every day to interact and communicate with others. They include verbal and non-verbal communication, such as speech, gesture, facial expression and body language. A person has strong social skills if they have the knowledge of how to behave in social situations and understand both written and implied rules when communicating with others. Social skills as socially acceptable learned behaviors that enable a person to interact with others in ways that elicit positive responses and assist in avoiding negative responses (Gresham & Elliott, 1984).

Autism LEGO therapy Protocol:

The Lego therapy sessions will conduct by the school. The sessions of 45 minutes duration each. The role was to prompt interaction among the children and help them come up with their own solutions. Lego therapy sessions consisted of two sections (LeGoff et al., 2014).

The duration of 30 minutes of collaborative Lego project and 15 minutes freestyle building. Lego therapy is delivered as an intervention for individuals or small groups (up to 3 people including supervisor). The role of the adult is to prompt children to generate their own solutions to any problems the group may encounter. Lego Therapy roles within a group of 2 children is build the Lego blocks according to design.

Activities involve collaborative building with one peer, and often require close adult supervision. It is often helpful, especially initially, to have a more advanced peer mentor (or a typically developing peer if utilized) as a Helper (Baron-Cohen,2014). This process of collaborative building with a peer is at the core of the LEGO Based Therapy process, and should be learned and perfected as a central skill-building strategy. All higher-level LEGO-Based Therapy activities are dependent on mastery of this initial collaborative task (LeGoff, 2004).

Chapter 2: Literature Review

2.1 Autism overview:

Autism is the most commonly found neurodevelopmental disorder characterized by core deficits in three domains: social interaction, communication, and repetitive or stereotypic behavior. There is no single specific form of autism rather various degrees of severity involved in this disorder. Therefore this condition is commonly referred to as autism spectrum disorder or ASD which include autism, Asperger's syndrome, pervasive developmental disorders not otherwise specified (PDD-NOS) and high-functioning autism (Gupta 2008). Autism spectrum disorder (ASD) is a developmental disorder that affects communication and behaviour. Although autism can be diagnosed at any age. It is a developmental disorder" because symptom generally appear in the first two years of life (According to DSM-5).

Autism is known as a "spectrum" disorder because there is wide variation in the type and severity of symptoms people experience. ASD occurs in all ethnic, racial, and economic groups. Although ASD can be a lifelong disorder, treatments and services can improve a person's symptoms and ability to function. (According to DSM-5). The etiology of autism is complex, and in most cases the underlying pathologic mechanisms are unknown. Genetic and environmental factors contribute to ASD etiology, which remains incompletely understood. Genetic studies have identified a number of rare de novo mutations and gained footing in the areas of polygenic risk, epigenetics, and gene-by-environment interaction. Epidemiologic investigations focused on non-genetic factors have established advanced parental age and preterm birth as ASD risk factors, indicated that prenatal exposure to air pollution and short inter-pregnancy interval are potential risk factors, and suggested the need for further exploration of certain prenatal nutrients, metabolic conditions, and exposure to endocrine-disrupting chemicals. (The Independent, April 7, 2018).

Persistent difficulties in social communication & social interaction: People with ASD have difficulty with social communication and interaction, restricted interests, and repetitive

behaviours. The list below gives some examples of the types of behaviours that are seen in people diagnosed with ASD. Not all people with ASD will show all but most will show several. Social communication / interaction behaviours problem such as making little or inconsistent eye contact, tending not to look at or listen to people, rarely sharing enjoyment of objects or activities by pointing or showing things to others, failing to, or being slow to, respond to someone calling their name or to other verbal attempts to gain attention, having difficulties with the back and forth of conversation, talking at length about a favourite subject without noticing that others are not interested or without giving others a chance to respond, having facial expressions, movements, and gestures that do not match what is being said, an unusual tone of voice that may sound sing-song or flat and robot-like and having trouble understanding another person's point of view or being unable to predict or understand other people's actions. (According to American Psychiatric Association).

Autism is characterized by a chronic impairment in social relations. Speaking autistic children are also impaired in the pragmatic aspects of their language (Baron-Cohen,2014). Outcome in classic cases of autism has been investigated in a number of studies in the past. The rate of poor or very poor psychological outcome (isolated life around 50%) (Cederlund et al., 2008). Pragmatic competence is known by many different names: communicative competence, social language use, socio-linguistic competence, conversational skills. It can be defined as the appropriate use of language in context (Bishop, 2000).

Cognitive and language functioning are depressed in 60% to 70% of individuals with autism spectrum disorders (ASD), approximately 20% of individuals with ASD function within the normal range on IQ testing (American Psychiatric Association, 1994).

Individuals often demonstrate significant and severe deficits in their ability to communicate and interact with others, which can limit their participation in mainstream academic settings and community activities (Klin, 2003). Though ASD is very common disorder at present but there is no known single cause for ASD. It is generally accepted that ASD is caused by some abnormalities in the structure brain or function. During brain scans, it shows the differences in the shape and structure of the brain in children with ASD which is compared to in neuro typical children. Even researchers do not know what the exact causes of ASD are but they are investigating a number of theories, including the links among heredity, genetics and medical problems. (Autism Society, 2016).

Difficulty with communication and interaction with other people, restricted interests and repetitive behaviours and symptoms that hurt the person's ability to function properly in school, work, and other areas of life.(According to American Psychiatric Association).

Children with autism spectrum disorders (ASD) show impairments in social reciprocity, eye contact, shared interests and enjoyment, and interpreting social cues (Weiss and Harris, 2001). These social impairments affect their interactions with other children. For example, during free play, they show more parallel play than collaborative play compared to typical developing children (Bauminger et al., 2008) and during games and social activities they show problems in initiating and maintaining interactions with peers (Bauminger et al., 2003).

Given these characteristics, interventions are needed to improve the collaborative skills of children with ASD and to practice working and negotiating with peers (Ben-Sasson et al., 2013). Restrictive / repetitive behaviours may include repeating certain behaviours or having unusual behaviours. For example, repeating words or phrases, a behaviour called *echolalia,* having a lasting intense interest in certain topics, such as numbers, details, or facts, having overly focused interests, such as with moving objects or parts of objects, getting upset by slight changes in a routine, being more or less sensitive than other people to sensory input, such as light, noise, clothing, or temperature, people with ASD may also experience sleep problems and irritability. Although people with ASD experience many challenges, they may also have many strengths, including: being able to learn things in detail and remember information for long periods of time, being strong visual and auditory learners, excelling in math, science, music, or art (According to American Psychiatric Association).

Cognitive theories underpinning the social interaction impairment of children with ASD: It is proposed that some individuals with Autism Spectrum Disorder (ASD) can 'compensate' for their underlying difficulties, thus demonstrating relatively few behavioral symptoms, despite continued core cognitive deficits. The mechanisms underpinning compensation are largely unexplored, as is its potential impact on mental health. This study aimed to estimate compensation patterns in ASD, by contrasting overt social behavior (Livingston et al., 2018).

The ability to understand the mental states (thoughts, emotions, beliefs and desires) of oneself and others. The basis of previous research on the theory-of-mind impairment in people with autism postulated a broad cognitive module whose function is to build representations of other individuals. The results are discussed in terms of autism can understanding the neuropsychology of social cognition and to current thinking about the purported modularity of the brain. (Karmil off-Smith et al, 1995). Bangladesh is a developing nation and despite economic constraints, Bangladesh has a vision for all round growth and intends to enter the group of developing nations by the year 2020. To achieve these ambitious targets, all sections of society, not only disabled people, but also people with the autism spectrum disorder (ASD) have to be included in the process of developing the nation. (Hasnain & Pioneer, 2014).

2.2 History of LEGO therapy:

History of LEGO Based Therapy is a social development program that has evolved over time as a consequence of ongoing attempts by the authors to provide an effective social development intervention for children with autism spectrum conditions (ASC) and other conditions affecting social competence. The strategies used in LEGO-Based Therapy reflect clinical observation, outcome research, and the influence of an inspiring and persuasive group of children. It was clear from the outset that the participants were enthusiastic and responded generally more positively to this approach than to other traditional forms of intervention, and there seemed to be a fairly noticeable improvement in social responsiveness and social adjustment in a relatively short period of time. These informal observations were subsequently examined more closely in a series of outcome studies, including one relatively short-term study (LeGoff, 2004), a longer term study (LeGoff and Sherman, 2006), and then an independent replication study (Owens et al., 2008).

The initial impetus for developing LEGO-Based Therapy was the result of the scarcity of social development programs with evidence of demonstrated effectiveness for improving social and communication skills for children with ASC and other conditions adversely affecting social development and communication. The term “evidence-based” is often used

to refer to treatments or interventions for which there is data-based, published research demonstrating that they are as effective for the problem and the target audience as the treatment approach claims. This is especially necessary for children or other populations of individuals who may have little means to report directly on the effectiveness of the intervention themselves. Detailed, objective, and replicable records of the successful implementation of a therapy, otherwise known as outcome studies, need to be available before a treatment should be considered evidence-based. These studies should be published in a refereed journal or other peer-refereed publication, which means that colleagues and experts in the field have reviewed the study and found it to be credible in demonstrating the effective outcomes that are claimed. More importantly, these publications can be read and judged by other researchers and clinicians, and can lead to independent replications of the original research, thereby verifying that the method and the outcomes were not specific to a single therapist or group of therapists, or to a specific group of participants. Self-published studies, or manuals which simply describe a therapy approach without outcome research, are often little more than advertising, and may describe interventions which could actually be harmful or, at best, useless. In the mid-1990s, when the LEGO Based Therapy model of intervention was first developed, there were very few published descriptions of effective interventions, and virtually none that had replicable outcome results. The second major reason for the development of this approach was the fact that the few therapy approaches in use at the time often seemed difficult, irrelevant, and unengaging for the children and adolescents involved. In other words, for most educational, behavioral, and mental health specialists working with children with social development deficits, the existing therapies were neither effective, nor fun. Although it is often noted that children with ASC tend to be uninterested in social learning opportunities, and have little intrinsic motivation to improve their social functioning (Semrud-Clikeman, 2007).

2.3 Previous outcome of LEGO therapy

There have been three outcome studies published on the efficacy of the “LEGO Club” social development approach. The first (LeGoff, 2004) utilized a waiting-list designed to provide a pre-treatment comparison with which to compare participants, both male and female, who were involved in weekly small groups using the LEGO Based Therapy

approach. The participants (N = 47) were all diagnosed with an ASC condition referred to in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) as Pervasive Developmental Disorders (PDD; APA 2000) and all had demonstrated difficulties with social interaction and communication with peers, social aloofness, as well as repetitive, persistent, or excessive interests and rigid adherence to non-functional rules or rituals.

All were referred for intervention by either their respective school district special services staff or by their parents. The participants whose treatment was deferred by the waiting list were assessed and their social functioning was compared later with measures of social competence after they had been actively receiving treatment. Some participants were on the waiting list for three months (N = 26), and It is important to understand how and why Lego therapy may help promote social interaction. Playing Lego collaboratively is the core component of Lego therapy, which can be separated into two subcomponents: collaborative play and the use of Lego as the medium. Theories listed below illustrate how these subcomponents may support the social interaction skills for children with ASC (Cheng, 2016).

The five studies used in this review show a unanimous consensus on the positive effects of LEGO therapy on improving social communication difficulties within children with ASD. There was promising evidence which suggested that LEGO therapy could be a better way to improve social communication difficulties, than compared to other interventions (Owens et al., 2008). However, this was only one study with one other comparison intervention, further research would be needed to support such a claim. It must be said that to generalize the effects of LEGO therapy based on the evidence in this review would not be strictly correct. The majority of the evidence was rated as an overall weight of 'medium' therefore it does not provide the concrete evidence required to make such generalizations. The review has highlighted that appropriate sample size to power the studies was a key weakness in two of the group comparison studies (LeGoff, 2004, Owens et al., 2008) one group comparison study was sufficiently powered (LeGoff and Sherman, 2006).

This would further suggest that the findings from those underpowered studies could not reflect the strength of effect that they were claiming. This would have consequences in attempting to generalize the effectiveness of the intervention. Finally, the gender disparity of the studies was significantly skewed towards males. To generalize these findings across genders could be inaccurate. The appeal of LEGO could be far less significant within female participants therefore effecting the role LEGO therapy would have on bringing about the positive social communication skills that it claims.(Lindsay et al., 2017)

2.4 Research Question:

What is the outcome of LEGO therapy intervention to improve social skills for the children with Autism Spectrum Disorders in Bangladesh?

2.5 Study aim and Specific objective

General objective:

The aim is to explore the outcome of LEGO therapy to improve social skills the children with Autism Spectrum Disorders in Bangladesh.

Specific objectives:

- To find out the importance of LEGO therapy intervention for children with ASD
- To investigate the result of social skill improvement of ASD
- To identify the socio-demographic factors

Chapter 3: Methodology

3.1 Conceptual frame work

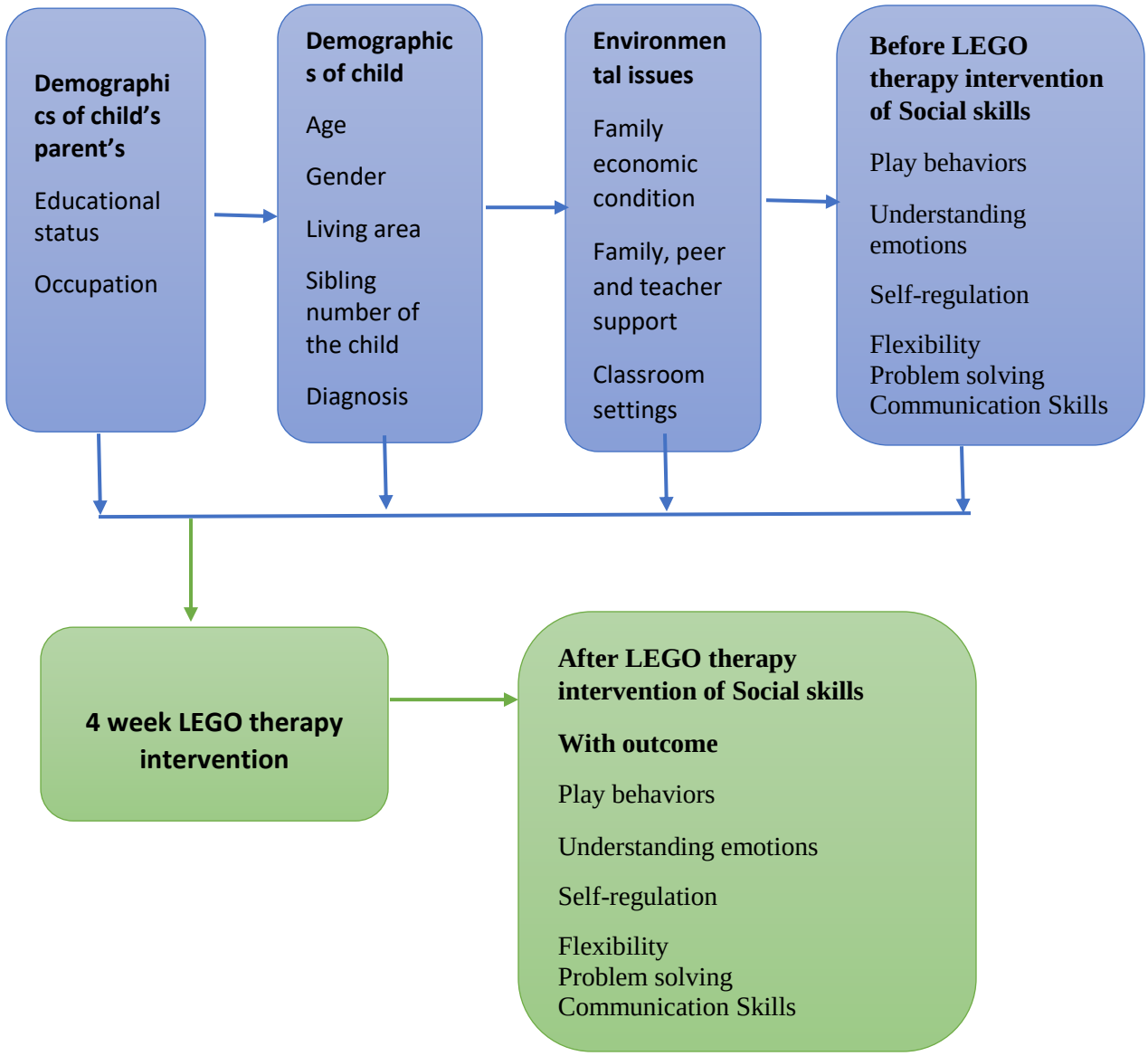

Figure I: Conceptual frame work of the study

3.2 Study design:

The investigator has chosen quantitative method in the form of quasi-experiment design to identify the outcome of LEGO therapy to improve social skills of autism spectrum disorder in Bangladesh. In this study, researcher used a pre-test/post-test study because in this way it is possible to identify a defined population at a particular point in time and to measure the social skill of ASD child.

3.3 Study population:

The study populations are those from whom information are obtained (Traskin & Small, 2011). The study population are school going children with autism of Bangladesh, Dhaka city. This population was selected from Society for the Welfare of Autistic Children, Shyamoli in Dhaka City. The study population for this study are consisted of teacher and occupational therapist or person who remains close to the child and knows well about the participation of their child so that they can answer properly of the research questions.

3.4 Study setting

Researcher has collect data from the special school at Dhaka city. By this way researcher was collected data easily and cheaply from his known place. From the school settings researcher has get children who are children with autism. The selected special school is Society for the Welfare of Autistic Children, Shyamoli in Dhaka City according to inclusion criteria and exclusion criteria for conducting the study.

3.5 Study period

The study was conducted as a part of academic curriculum of B.Sc. in Occupational Therapy. So the study period is short. The period of this study is from September 2018 to April 2019 including data collection, data analysis and discussion of this study.

3.6 Sample size:

A sample should be as large as the researcher obtains with a reasonable expenditure of time and energy. For conducting the study, investigator took sample according calculated numbers. Sample size could be large or small. Amount of sample size depends on study population and their participations (Bailey, 1997)

According to standard formula, sample size will be-

$$n = \frac{z^2 \times p.q}{r^2}$$

= 217

Here,

n = required sample size

z = confidence level at 95% (standard value of 1.96)

p = 0.17%

q = (1-p) = (1- 0.17) = 0.83

r = margin of error at 5% (standard value of 0.05)

Here sample size is 217. Although, the sample number is 217 but it is impossible for investigator to take all samples in the limited time frame as well as it depended on the availability of sample. That's why investigator took 30 samples.

3.7 Sample selection inclusion and exclusion criteria:

- **Inclusion criteria**

- Children with autism who are going. to school
- Both boy & girl child who are diagnosed as ASD.
- Children with ASD whose age between 6-17 years.

- **Exclusion criteria**

- Children who have other conditions with autism.
- Children with autism who are not going to school.

3.8 Sampling techniques

In this technique, in which researcher relies on his or her own judgment when choosing members of population to participate in the study. Convenience sampling is a non-probability sampling method and subjects are selected just because they are easiest to recruit for the study and the researcher did not consider selecting subjects that are representative of the entire population (Bowling, 2014). Pre-test/post-test study is an easy way to collect data and information about research questions among the participant. Data was collected from the participants to find out the response of social skill before and after of Lego therapy intervention. Here researcher had conducted convenience sampling survey. In all forms of research, it would be ideal to test the entire population, but in most cases, the population is just too large that it is impossible to include every individual. This is the reason why most researchers rely on sampling techniques like convenience sampling, the most common of all sampling techniques. Many researchers prefer this sampling technique because it is fast, inexpensive, easy and the subjects are readily available.

3.9 Data collection tools/ materials

- Interview- Researchers was asked the question.
- The researchers was organized the interview and transcribe the entire interview in bangle language.
- Information sheet and consent form
- Bangla socio-demographic questionnaire and standard Bangla questionnaire (Social Skill Checklist)
- Observation- The researchers will observe very carefully and get more in-dept. information
- Note book- Collected important information.
- Paper file, pen, pencil, and eraser.

Researcher will use structured method by face to face interview to collect information. Through the face to face interview the researcher can develop rapport with the person which will help to observe very carefully and get more in-dept. information. ‘Interview conducted face to face are more innovate allowing the interviewer to interact directly and develop rapport with the interviewer (Bailey,1997). A questionnaire is a set of

systematically structured questions used by a researcher to get needed information from respondents *(*Brace, 2008). Investigator did face to face interview during collecting data. In a face to face survey, an interviewer is physically present to ask the survey questions and to assist the respondent in answering them (Doyle, 2005).

3.10 Data collection methods

Children who diagnosed with autism and attend the autism LEGO therapy at Society for Welfare of Autistic Children (Shyamoli, Dhaka) during the period of December 2018 to January 2019 were included in this study. Convenience sampling technique method is used to data collection. Written semi-structure questionnaire both in English and Bengali is used to as a data collection tool. Responsible teacher give a semi-structured demographic questionnaire. The assessment is completed in two ways: 1) Before therapy and 2) after therapy. Between these two sessions, the children went through the LEGO therapy program for 4 weeks at Occupational therapy settings. The evidence drove data collection tool is very rare in Bangladesh to collect data about social skills of the children with ASD. The social skill checklist from Social Skills Rating System (SSRS) developed by Graham and Elliot (1990) used in this study. Behavior in the following three categories, beginning play behavior, intermediate play behavior and advanced play behavior. The emotional regulation section measures understanding emotions, self-regulation, flexibility, and problem solving. The communication skill section measures conversational skill, non-conversational skill and compliments. Scoring for each behavior is as follows 1= almost always, 2= Often, 3= sometimes and 4= almost never. Data is collect by Social Skills Checklist to evaluate the social impairment features in children with ASD after the Lego therapy intervention.

3.11 Data management and analysis

Researcher use quantitative method to identify the effectiveness of LEGO therapy to improve social skills of children with Autism Spectrum Disorders in Bangladesh. Data analysis is to establish the study aims according to collected information from participants.

The appropriate analysis of data is give an accurate result for the study. Data analysis has done by SPSS version 20. Social skill checklist (Bengali and English) is to tool of data collection. To evaluate the outcome of LEGO therapy to improve social skill for the children with ASD. The researcher is use pre-test/post-test study because in this way it is possible to identify a defined population at a particular point in time. Through the pre-test/post-test study easily compares results among different ages, gender and ethnic.

Here investigator used SPSS software for analyzing data. Data analyzed by descriptive statistical techniques to find out (i.e. percentage, mean & frequency) "the percentages and means for all the characteristics under study so that the reader has a thorough understanding of the subjects and variables" (Bailey, 1997, p. 122).The presentation of data organized in SPSS and in Microsoft Office Word. All data were input within the variable of SPSS and analyzed data in SPSS. It is suitable for analysis the Quantitative data. Nominal, Ordinal, & Scale data can be input in SPSS and able to analysis those data in different way.

3.12 Quality control and quality assurance

A field test was conducted with four participants before collecting data among participants. Researcher collected data from these participants by using all mentioned data collection instruments and following whole data collection procedure. Before beginning data collection from participants, it is necessary to conduct a field test. It is helpful because by conducting field test, researcher can understand whether participants can properly understand the questions or any change that need to be done.

It is also helpful for the researcher to prove the validity of the questionnaire in this study. By conducting field test, researcher became aware about which part of the questionnaire finds difficult to understand. . By finding the difficulties of this questionnaires, the researcher had to check the questionnaire and change it to make it more understandable & clear for the participants to conduct the study. Before field test and collecting data, the English questionnaire was translated into Bangla. Then the translation copy was translated again Bangla to English. Then it was checked by the expertise person to correct the translation.

3.13 Ethical consideration

The researcher maintained ethical consideration in all aspects of the study to avoid ethical problem. At first, the researcher took permission from the supervisor and the Head of the Department of Occupational Therapy Department of Bangladesh Health Professions Institutes (BHPI) which is the academic institute of CRP. After getting the permission from IRB, researcher went to the In-charge of Society for Welfare of Autistic Children with an application letter from BHPI to conduct the data collection.

Then researcher got permission from the Principle of Society for Welfare of Autistic Children for data collection. The researcher provided information sheet and consent form to each participant. Researcher mentioned the title of the research, aim and objectives of the study by verbally. If any participant faced difficulty to understand the questions, researcher cleared about it. The researcher assured to all participants that confidentiality of all personal information will be maintained strictly in future. It was informed to all participants that there will be no risk or direct benefit to participate in this study. Researcher ensured to all participants that the service of the children will not be hampered during the data collection time. In the data collection time, researcher used code no instead of name of participants so that their identity will not be published.

The participants had the full right to withdraw their participant from this study at any time. Researcher had no right to force the participants to give information if they does not want to give. A written information sheet and consent form was signed by each participant who participated in this study.

All the information was gathered from the participants anonymously. There was no biasness by the researcher to take information form the participants. Information that was provided by each participant was being confidential only to the researcher & supervisor have access to them. The field test notes and answer sheet was not shared or even discussed with others.

Chapter 4: Result

This study provides statistical descriptive analysis in a systematic way and interpretation of analyzed findings with the aim and objectives of the study. This research study forms an intervention protocol and already draws out percentage of improvement of social skill who attend at LEGO group therapy in the Welfare of Autistic Children. The aim of the study is to find out the outcome of LEGO therapy to improve percentage of social skills for ASD children. The socio-demographic background of the participants in this study was also identified. Findings of the study are presented by table, bar chart and pie chart.

4.1: Socio-demographic characteristics of the children with ASD:

Table I: Demographic characteristics of the participants

Socio demographic characteristics of the respondents	**n=30**	
Age	**Frequency (n)**	**Percent (%)**
6-10	13	43.3
11-17	17	56.7
Mean ± SD	10.73±3.183	
Siblings of the Child		
No	5	16.7
1 number	21	70.0
Area		
Urban	30	100.0
Educational qualification of father		
Graduated	20	66.7
Post Graduated	10	33.3
Educational qualification of mother		
Higher secondary	5	16.7
Graduated	20	66.7

Post Graduated	5	16.7
Occupation of father		
Service holder	24	80.0
Businessman	6	20.0
Occupation of mother		
Housewife	23	76.7
Service holder	7	23.7
Income of parents		
30000-40000 taka	5	16.7
40000-50000 taka	10	33.3
More than 50,000 thousands	15	50.0
If Child has seizure after birth?		
Yes	5	16.7
No	25	83.3

In this study the researcher used many socio-demographic components these are age, child's number of siblings, educational status, living area, educational qualification of parents, occupation of parents, approximately income in each month, child's way of communication and medical information components diagnosis criteria, medication. The researcher categorized all the demographic characteristics. Among those 30 participants about 43.3% (n =13) of 6 to 10 age group, 56.7% (n=17) respondents were 11 to 17 age group and mean ± SD is 10.73±3.183. All of the participants lived in urban 100.0% (n=30). Among those 30 participants about sibling number (n=5) 16.7% had no siblings, (n=21) 70.0% of one number of two numbers of siblings. The 30 children with autism who made up by the study sample, 23 boys and 7 girls.

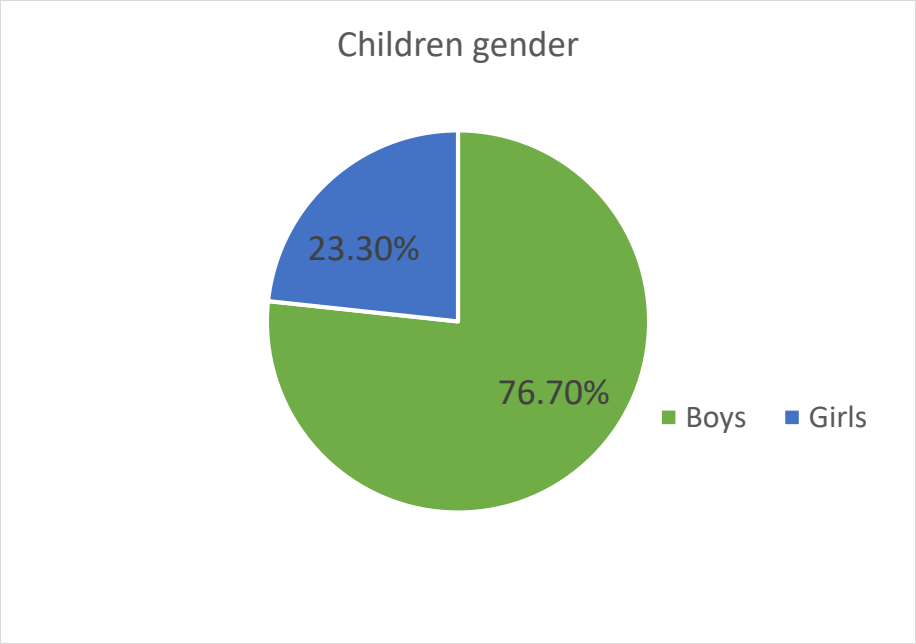

Figure II: Child's gender

For the 30 children with autism who participate in this study, pre-test and post-test received from 20 teacher of special school and posttest were received from those teacher who were participates in pretest of school. All children diagnosed according to DSM-IV.The educational qualification of father was 66.7% graduated and 33.3 % post graduated. The mother educational qualification was 10.0% of secondary 6.7% of higher secondary, 66.7% graduated and 16.7% was post graduated. The father occupation (n=24), 80.0% of service holder and (n=6), 20% of businessman. The occupation of mother (n=23), 76.7% was housewife and (n=7), 23.7% of service holder. The socioeconomic range of the children with autism was mainly middle to upper class.

4.2 The result of improvement to social skills before and after of LEGO therapy intervention.

Table: 1.2 Pretest and posttest scores on the Social Skills Checklist:

Behaviors	*M*	*SD*	*T*
SOCIAL PLAY & EMOTIONAL DEVELOPMENT			
1.1 Beginning Play Behaviors			25.945
Pre score	14.52	6.967	
Post score	11.53	5.285	
Mean difference	2.99		
1.2 Intermediate Play Behaviors			40.454
Pre score	22.24	9.120	
Post score	18.30	8.920	
Mean difference	3.94		
1.3 Advanced Play Behavior			32.34
Pre score	17.43	5.317	
Post score	14.97	5.788	
Mean difference	2.46		
2. EMOTIONAL REGULATION			
2.1 Understanding Emotions			56.468
Pre score	28.98	13.069	
Post score	27.60	12.325	
Mean difference	1.38		
2.2 Self-Regulation			62.30
Pre score	34.94	11.914	
Post score	33.09	10.595	
Mean difference	1.85		
2.3 Flexibility			32.216
Pre score	16.53	3.750	
Post score	15.73	2.097	
Mean difference	0.8		
2.4 Problem Solving			17.626
Pre score	8.96	5.311	
Post score	8.70	5.051	
Mean difference	0.26		
3.COMMUNICATION SKILLS			
3.1 Conversational Skills			51.086
Pre score	25.66	9.234	
Post score	25.50	9.525	
Mean difference	0.16		
3.2 Nonverbal Conversational Skills			25.759
Pre score	13.03	4.484	
Post score	12.76	3.493	
Mean difference	0.27		
3.3Compliments			25.059
Pre score	12.63	4.288	
Post score	12.46	4.262	
Mean difference	0.17		

Here, *M*= Mean, *SD*=Standard Deviation *and T*= t-test value

Table 1.2 shows that three categories of social play and emotional development, emotional regulation and communication skills showed change toward improvement of statistically significant. The social skills checklist measured, there was a statistically significant change in mean social play and emotional development scores between pretest and posttest by responsible teacher with a decrease in scores at posttest (14.52 and 11.53 ($p<0.05$), respectively).

The four aspects of emotional regulation measured, there was statistically significant mean changes between pretest and posttest by responsible teachers (28.98 and 27.60 ($p<0.05$), respectively). In addition there was a statistically significant change in the mean of communication skills between pretest and posttest (13.03 and 12.76 $p<0.05$), respectively), with a decrease scores at posttest by responsible teachers.

Chapter 5: Discussion and Conclusion

5.1 Discussion

This study begins with lack of knowledge about effectiveness of LEGO therapy intervention to improve social skills at special school of children with ASD. The LEGO therapy group was arranged in one month with 4 weeks treatment sessions follow up. The child's outcome measured by teacher observation and responsible therapist report. Overall, results presents the LEGO therapy intervention was superior on few outcomes and this LEGO therapy gains persisted follow up. The evaluation shows a statistically significant improvement in the category of social skills as social play behavior, emotion development, emotion regulation and communication skills scores decreased post-test scores than pre-test scores. All the included social skills also showed few improvement and this study measurements statistically significant. Those social skills improvement are particularly important to note with the population that suffers from delayed of social skills development.

Here in the Social Skill Checklist (SSC) instrument is used in a pre-test and post-test study and sub category questionnaire to find out the exact changes of social skills of children with autism. Under this there were 64 questions. In this questionnaire in every subtest there were some questions reflected the social skill of children and some questions reflected weakness and all were rated as Almost always, Often, Sometimes and Almost never. So in this study investigator got about the ability of social skills of children with autism according to their subscales.

Here first subtest is beginning play behaviors. In that cases, result show Q1 is maintain proximity to peers within 1 foot scored for 73.3% almost always is increased that means child are likely interest play with peer in closely and Q2 they are 66.7% able to observe peers in play vicinity within 3 feet with other children that means they are interested to interact with peer. Also 23.3% often and 10% sometimes because it depends on child's developmental level. Play behavior of autism child of before and after of Lego therapy intervention. Parallel play near peers using the same or similar materials score post-test 36.7% always almost that

represents that playing behavior are changed most of the autism children. Beginning paly behavior are physically imitates peer, verbally imitates peer that is few changed and take turns appropriately during simple games are better increased that means they are wait for turning. Intermediate play behaviors are shares toys and talks about the activity with peers, even though the play agenda of the other children is different score almost always is not changed but 36.7% often and 26.7% sometimes slightly increased, physically and verbally respond to interactions from peer score of 46.7% often children with autism are interacted with peer. Also return and initiate greetings with peers, know appropriate ways of joining in an activity with peer, invite others to play, take turns during structured activities that shows little change in play behavior but obeys game rules, requests toys, food, and materials from peers that presents good score in almost always that means this behavior helps to interact with other people. Here, advanced play behaviors that score of make comments about what he/she is playing to peer, organizes play, follow peers play plans, take turns during unstructured activities without a time limit, offer toys, food, and materials to peers that increased few percentage that means their behavior are little changed.

Understanding emotions score 23.3% of children sometimes identifies likes and dislikes, identifies emotions in self sore of often 16.7% and sometimes 26.7% that means few children is known self-emotion. The improvement of identifies emotions on others, justifies emotions once identified, demonstrates affection and empathy toward peers that are little increased but score of refrains from aggressive behaviors toward peers, refrains from aggressive behaviors toward self, dose not exhibit intense fears or phobias, interprets body language, uses different tones of voice to convey messages are few percent increase that means children are catch their emotion. Self-regulation that improved rather than pre-test score like self-regulate when energy level is high, deals with being left out of group, accepts not being first at a game or activity and accepts losing at a game without becoming upset/angry.

The emotions that under of four sub points like flexibility and problem solving. The child are few flexible such as accepts making mistakes without becoming upset/angry, accepts consequences of his/her behavior that presents little change in flexibility. The problem

solving sore of 43.3% almost always in carries out solutions by negotiating or compromising.

The scale shows three categories of social play and emotional development, emotional regulation and communication skills showed change toward improvement of statistically significant. The social skills checklist measured, there was a statistically significant change in mean social play and emotional development scores between pretest and posttest by responsible teacher with a decrease in scores at posttest (14.52 and 11.53 ($p<0.05$), respectively).

The four aspects of emotional regulation measured, there was statistically significant mean changes between pretest and posttest by responsible teachers (28.98 and 27.60 ($p<0.05$), respectively). In addition there was a statistically significant change in the mean of communication skills between pretest and posttest (13.03 and 12.76 $p<0.05$), respectively), with a decrease scores at posttest by responsible teachers.

Although the shorter 8 week intervention timescale might be provided insufficient time for sustained change to occur, the insignificant group effects might indicate that the intervention yielded no effect on the levels of frequency of social interaction. Although it appeared that LEGO therapy did not show statistical association with social interaction (Cheng, 82016).Social interactions were measured during lunch time in the playground. Although the frequency of high-level social behavior and initiation of interaction showed an increasing trend in the pure and mixed group while control group showed a decreasing trend on both scales, there was no statistically significant change found in the levels or frequency of social interaction of participants with ASC. The findings of the current study did not confirm those found by LeGoff (2004) and LeGoff and Sherman (2008).

The children are good conversation in make a variety of comments, related to the topic, during conversations, introduces him/herself to someone new, introduces people to each other. Also their non-conversational skills like maintain appropriate proximity to conversation partner, orient body to speaker, pays attention to a person's nonverbal language and understand what is being communicated not changed in almost always but waits to interject is increased 26.7% of almost always that means their non-verbal conversation improved that might help to communication with other peer. Complements such as apologizes independently score of 26.7% almost always but gives appropriate

compliments to peers, appropriately receives compliments, asks for a favor appropriately not improved because children did not able to shows that complements.

In this study researcher found that, all of the social were severe impaired. But in my study investigator found some different things. In case of play behavior rapport and understanding emotion. Most of the time they show positive intent. But literature doesn't support it. Researcher got all of the literature from several countries of the world, but in Bangladesh investigator didn't find any study related to social skills of LEGO based intervention of autism. This is the first study about social skill of based of LEGO therapy for children with autism in Bangladesh.

In, Bangladesh researcher got few improvement result in social skills. It may be depend on our environmental condition. In this research all of the sample collected from Society for the Welfare of Autistic Children, Shyamoli in Dhaka city and the teacher, parents and therapist all were so much co-operative and helpful for the child. The teacher conditions are so much supportive for the child which may help the child to improve his social skills. That's why researcher got some different result in case of some social area in children with autism.

5.2 Limitation

Every study has some limitations and this study also. There were some limitations during conducting the study project. These should be keeping in mind if anyone wants to continue the further study on this project. These limitations are….

- In this study the investigator considered that only one city selected for study sample. That's why it hampers the generalization of the study result.
- The limited time and resources had also a great effect on the study.
- According to age range, it was tough to collect maximum number of sample.
- During data collection parents were not available so investigator collected data from the class teachers and responsible therapist.

5.3 Conclusion

Autism is one of the most common focusing disorders in developing country like Bangladesh. Already, some research has done under this title in abroad, but not enough. This study provided information about effectiveness of LEGO therapy to improve social skills in children with autism and described about outcome of social skills. Though it has been established that, children with autism have definite problem in social skills but this study showed that there are few changes in social skills in children with autism. But they also showed little improvement in social skills.

In Bangladesh there are several organizations, special schools, special care center are working children with autism. There are lots of professional such as therapist, teacher, social workers are working with them. So, this research will help them when they will work social skills. They will be able to know the strength and weakness of intervention for them and they can provide treatment according their plan.

Bangladesh is a developing country and in disability sector autism may be the most talked issue in our country now. Although, not so many research has done about autism. This type of study will help the professionals as well as general people to know about Autism. This study will help the professional to work about them. And finally we can hope that, we will get more study about social skills of autism or the studies related to autism.

5.4 Recommendation

If anyone wants to conduct study regarding the social skills children with autism in future, they can follow some mention recommendations. These are—

- Sample size should be larger that will represents validity of research.
- This study is conduct with quantitative method. In future researcher will conduct in qualitative method.
- Try to select not only Dhaka city but also other cities of the country as a place of study. Because, it will help to generalize the study result.
- Try to take long time to get overall data because long time process will help to gain better knowledge about the study.

- Merely this has considered one autism schools. So, for further study should consider more special schools for children with special needs because it will make the research broad and standard.
- Try to compare with another treatment protocol that will improve social skill.
- Researcher will use another social skill measurement scale.
- In this study there are 10 subtests of questionnaires, for future research investigator can conduct study into each subtests.
- If the age range increased, then the sample size will be bigger and the research will be more valid.

References (APA)

American Psychiatric Association (APA) (2000) Diagnostic and Statistical Manual Mental Disorders, Fourth Edition. Washington, DC: APA. American Psychiatric Association. Diagnostic and statistical manual of mental disorders.4. Washington, DC: Author; 1994. Neuropsychological, and neurobiological perspectives. *Journal of Child Psychology and Psychiatry*, *37*(1), 89-126.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*. American Psychiatric Pub.

American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5th ed.). Arlington, VA: American Psychiatric Publishing.

American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4.Washington, DC: Author; 1994.

Attwood, T. (1998) Asperger's Syndrome: A Guide for Parents and Professionals. London: Jessica Kingsley Publishers.

Autism Society (2016). Living with Autism. What is causes? Retrieved from http://www.autism-society.org/what-is/causes/

Autism spectrum disorder: WHO. Retrieved from https://www.who.int/news-room/fact-sheets/detail/autism-spectrum-disorders

Bangladesh-World Population Review (2008). World Population Review. Retrieved from http://worldpopulationreview.com/countries/bangladesh-population/

Bailey, D.M. (1997). *Research for health professional* (2nd ed). Philadelphia: F. A. Davis Company.

Baron-Cohen, S. (1988). Social and pragmatic deficits in autism: cognitive or affective?*Journal of autism and developmental disorders*, *18*(3), 379-402

Baron-Cohen, S., De La Cuesta, G. G., LeGoff, D. B., & Krauss, G. W. (2014). *LEGO®-Based Therapy: How to build social competence through LEGO®-Based Clubs for children with autism and related conditions*. Jessica Kingsley Publishers.

Bauminger, N., Shulman, C., & Agam, G. (2003). Peer interaction and loneliness in high-functioning children with autism. *Journal of autism and developmental disorders, 33*(5), 489-507 Black, K. (2009). *Business statistics: Contemporary decision making*. John Wiley & Sons.

Bauminger, N., Solomon, M., Aviezer, A., Heung, K., Gazit, L., Brown, J., & Rogers, S. J. (2008). Children with autism and their friends: A multidimensional study of friendship in high-functioning autism spectrum disorder. *Journal of abnormal child psychology*, *36*(2), 135-150

Ben-Sasson, A., Soto, T. W., Martínez-Pedraza, F., & Carter, A. S. (2013). Early sensory over-responsivity in toddlers with autism spectrum disorders as a predictor of family impairment and parenting stress. *Journal of Child Psychology and Psychiatry*, *54*(8), 846-853

Bishop, D. V. M., Chan, J., Adams, C., Hartley, J., & Weir, F. (2000). Conversational responsiveness in specific language impairment: Evidence of disproportionate pragmatic difficulties in a subset of children. Development and Psychopathology, 12, 177-199

Bishop, D. V., Maybery, M., Wong, D., Maley, A., & Hallmayer, J. (2006). Characteristics of the broader phenotype in autism: A study of siblings using the children's communication checklist-2. *American Journal of Medical Genetics Part B: Neuropsychiatric Genetics*, *141*(2), 117-122.

Bowling, A. (2014). *Research methods in health: investigating health and health services*. McGraw-hill education (UK).

Brace, I. (2008). Questionnaire design: How to plan, structure and write survey material for effective market research. Kogan Page Publishers.

Cederlund, M., Hagberg, B., Billstedt, E., Gillberg, I. C., & Gillberg, C. (2008). Asperger syndrome and autism: A comparative longitudinal follow-up study more than 5

years after original diagnosis. *Journal of autism and developmental disorders*, *38*(1), 72-85.

Cheng, Y. F. S. (2016). *The effectiveness of the Lego® therapy intervention in promoting the social interaction of children with Autism Spectrum Condition in the playground: An evaluation study* (Doctoral dissertation, UCL (University College London)).

Doyle, J. K. (2005). Face-to-Face Surveys. *Wiley StatsRef: Statistics Reference Online*.

DSM-5 Diagnostic Criteria. Retrieved from, https://www.autismspeaks.org/what-autism/diagnosis/dsm-5-diagnostic-criteria

Frye, R. E. (2018). Social Skills Deficits in Autism Spectrum Disorder: Potential Biological Origins and Progress in Developing Therapeutic Agents. *CNS drugs*, 1-22.

Gresham, F. M., & Elliott, S. N. (1984). Assessment and classification of children's social skills: A review of methods and issues. *School Psychology Review*.

Gupta, M. S. (2008). Neurodevelopmental Disorders in Children Autism and ADHD. *EnvironmentalChemistry. com. April*, *14*.

Hasnain, G., & Pioneer, B. J. (2014). The relation of Socio-economic Factors with Autism among Children: A study in an Urban Area of Bangladesh. *Med Sci*, *4*(1), 11-13.

Karmiloff-Smith, A., Klima, E., Bellugi, U., Grant, J., & Baron-Cohen, S. (1995). Is there a social module? Language, face processing, and theory of mind in individuals with Williams syndrome. *Journal of cognitive Neuroscience*, *7*(2), 196-208.

Kim, Y. S., Leventhal, B. L., Koh, Y. J., Fombonne, E., Laska, E., Lim, E. C., & Song, D. H.(2011). Prevalence of autism spectrum disorders in a total population sample. *American Journal of Psychiatry*.

Klin, A . Asperger syndrome: an update, New York: Guilford; 2000.World Health Organization. (2017). Autism Spectrum Disorders. Retrieved from https://www.who.int/news-room/fact-sheets/detail/autism-spectrum-disorders

Klin, A., and Volkmar, F.R. (1997) “Asperger’s Syndrome.” In D.J. Cohen and F.R. Volkmar (eds) Handbook of Autism and Pervasive Developmental Disorders. New

York, NY: John Wiley. Klin, A., and Volkmar, F.R. (2000) “Treatment and Intervention Guidelines for Individuals with Asperger Syndrome.” In A. Klin, F. Volkmar, and S.S. Sparrow (eds) Asperger Syndrome. New York, NY: Guilford.

LeGoff, D. B. (2004). Use of LEGO© as a therapeutic medium for improving social competence. *Journal of autism and developmental disorders*, *34*(5), 557-571.

Legoff, D. B., & Sherman, M. (2006). Long-term outcome of social skills intervention based on interactive LEGO© play. *Autism*, *10*(4), 317-329.

Legoff, D. B., & Sherman, M. (2006). Long-term outcome of social skills intervention based on interactive LEGO© play. *Autism*, *10*(4), 317-329.

LegoTherapy(n.d.).Retrievedfromhttp://www.copaspecialschool.com/_site/data/files/uses/template/local%20offer/EDDA7280E1BD667E57A6A59EA22786AF.pdf

Lindsay, S., Hounsell, K. G., & Cassiani, C. (2017). A scoping review of the role of LEGO® therapy for improving inclusion and social skills among children and youth with autism. *Disability and Health Journal*, *10*(2), 173-182.

Livingston, L. A., Colvert, E., Social Relationships Study Team, Bolton, P., & Happé, F. (2018). Good social skills despite poor theory of mind: exploring compensation in autism spectrum disorder. *Journal of Child Psychology and Psychiatry*.

Málaga, I., Blanco-Lago, R., Hedrera-Fernández, A., Álvarez-Alvarez, N., Oreña-Ansonera, V. A., & Baeza-Velasco, M. (2019). Prevalence of autism spectrum disorders in USA, Europe and Spain: coincidences and discrepancies. *Medicina*, *79*, 4-9.

Molla.M.A.M. (2018). Autism prevalence high in urban areas. The Daily Star. Retrieved from https://www.thedailystar.net/frontpage/autism-prevalence-high-urban-areas-1604551

Owens, G., Granader, Y., Humphrey, A., & Baron-Cohen, S. (2008). LEGO® therapy and the social use of language programme: An evaluation of two social skills

interventions for children with high functioning autism and Asperger syndrome. *Journal of autism and developmental disorders*, *38*(10), 1944.

Owens, G., Granader, Y., Humphrey, A., & Baron-Cohen, S. (2008). LEGO® therapy and the social use of language programme: An evaluation of two social skills interventions for children with high functioning autism and Asperger syndrome. *Journal of autism and developmental disorders*, *38*(10), 1944.

Parner, E. T., Thorsen, P., Dixon, G., de Klerk, N., Leonard, H., Nassar, N., ... & Glasson, E. J. (2011). A comparison of autism prevalence trends in Denmark and Western Australia. *Journal of autism and developmental disorders*, *41*(12), 1601-1608.

Pierce, K., & Schreibman, L. (1997). Multiple peer use of pivotal response training to increase social behaviors of classmates with autism: Results from trained and untrained peers. *Journal of applied Behavior analysis*, *30*(1), 157-160.

Semrud-Clikeman, M. (2007). Social Competence in Children with Autism Spectrum Disorders. In *Social Competence in Children* (pp. 107-129). Springer, Boston, MA.

Traskin, M., & Small, D. S. (2011). Defining the study population for an observational study to ensure sufficient overlap: a tree approach. *Statistics in Biosciences*, *3*(1), 94-118.

Weiss, M. J., & Harris, S. L. (2001). Teaching social skills to people with autism. *Behavior modification*, *25*(5), 785-802.

Appendix

Appendix 1

Approval latter IRB

06-October, 2018
The Chairman
Institutional Review Board (IRB)
Bangladesh Health Professions Institute (BHPI)
CRP- Chapain, Savar, Dhaka- 1343, Bangladesh

Subject: Application for review and ethical approval
Sir,
With due respect, I would like to draw your kind attention that I am a student of 4th year B. Sc. in Occupational Therapy course at Bangladesh Health Professions Institute. For the requirement of my course curriculum I have to conduct a research project. My research title is "The Effectiveness of LEGO Therapy to Improve Social Skills of the Children with Autism Spectrum Disorders in Bangladesh" that will be supervised by Sk. MoniruzzamanAssistant Professor, Department of Occupational Therapy, BHPI, CRP.The purpose of the study is to identify the effectiveness of LEGO therapy to improve social skills of the children with Autism Spectrum Disorders in Bangladesh.Social Skills checklist Structured Questionnaire will be used by face to face interview. Related information will be collected from the participant. The study will not be cause of any harm to the participant. Data collectors will receive informed consents from all participants as written or verbal record. Any kind of collected data will be kept confidential.

Therefore, I look forward to having your kind approval for the research proposal and to data collection. I also assure you that I will maintain all the requirements for study.

Sincerely yours,
Umaya Sultana
Umaya Sultana
Session: 2014-15
Student ID: 122140161
4th Year Student of B. Sc in Occupational Therapy,
BHPI, CRP, Savar, Dhaka- 1343, Bangladesh

Recommendation from the thesis supervisor:
Sk. Moniruzzaman
Assistant Professor
17/10/2018
Dept. of Occupational Therapy,
BHPI, CRP- Chapain, Savar, Dhaka- 1343

Appendix 2

Permission latter for conducing study

BANGLADESH HEALTH PROFESSIONS INSTITUTE

বাংলাদেশ হেল্‌থ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই)

Bangladesh Health Professions Institute (BHPI)

(The Academic Institute of CRP)

Ref CRP-BHPI/IRB/10/18/1241 Date: 17/10/2018

To
Umaya Sultana
B.Sc. in Occupational Therapy
Session: 2014-2015, Student ID: 122140161
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

Subject: Approval of the thesis proposal "The Effectiveness of LEGO Therapy to Improve Social Skills of the Children with Autism Spectrum Disorders in Bangladesh" by ethics committee.

Dear Umaya Sultana,
Congratulations,
The Institutional Review Board (IRB) of BHPI has reviewed and discussed your application to conduct the above-mentioned dissertation, with yourself, as the Principal investigator. The Following documents have been reviewed and approved:

Sr. No.	Name of the Documents
1	Dissertation Proposal
2	Questionnaire (English and Bengali version)
3	Information sheet & consent form.

The study involves **"Social skills checklist Questionnaire"**questionnaire that takes 30 minutes and have no likelihood of any harm to the participants. The investigator will have to ensure permission from the workplace authority if and when collection of data during office time. Congenial and secure place of interview will have to be ensured by the investigator. In addition, the investigator will ensure appropriate compensation and/or incentive as per the 30 minutes time from the participants, for example, water, soft drinks, snacks etc without affecting the participant's ability to reasonably decide to participate. The members of the Ethics committee have approved the study to be conducted in the presented form at the meeting held at 10 AM September 01, 2018 at BHPI.

The institutional Ethics committee expects to be informed about the progress of the study, any changes occurring in the course of the study, any revision in the protocol and patient information or informed consent and ask to be provided a copy of the final report. This Ethics committee is working accordance to Nuremberg Code, World Medical Association Declaration of Helsinki, 1964 - 2013 and other applicable regulation.

Best regards,

Millat Hossain

Muhammad Millat Hossain
Assistant Professor, Dept. of Rehabilitation Science
Member Secretary, Institutional Review Board (IRB)
BHPI, CRP, Savar, Dhaka-1343, Bangladesh

সিআরপি-চাপাইন, সাভার, ঢাকা-১৩৪৩, বাংলাদেশ, ফোন : ৭৭৪৫৪৬৪-৫, ৭৭৪১৪০৪ ফ্যাক্স : ৭৭৪৫০৬৯
CRP-Chapain, Savar, Dhaka-1343, Tel : 7745464-5, 7741404, Fax : 7745069, E-mail : contact@crp-bangladesh.org, www.crp-bangladesh.org

Appendix: 3

Permission latter for data collection

বাংলাদেশ হেল্‌থ প্রফেশন্স ইনষ্টিটিউট (বিএইচপিআই)
BANGLADESH HEALTH PROFESSIONS INSTITUTE (BHPI)
(The Academic Institute of CRP)
CRP-Chapain, Savar, Dhaka. Tel: 7715464-5, 7741404 , Fax: 7715069
BHPI-Mirpur Campus, Plot-A/5, Block-A, Section-14, Mirpur, Dhaka-1206. Tel: 8020178,8053662-3, Fax: 8053661

সিআরপি-বিএইচপিআই/১১/১৭/৬৭ তারিখ ঃ ৩০.১০.২০১৮

প্রতি
অধ্যক্ষ
সোসাইটি ফর দ্যা ওয়েলফেয়ার অব অটিস্টিক চিলড্রেন
শ্যামলী, ঢাকা।

বিষয় ঃ রিসার্চ প্রজেক্ট (dissertation) এর জন্য আপনার প্রতিষ্ঠান সফর ও তথ্য সংগ্রহ প্রসঙ্গে।

জনাব,
আপনার সদয় অবগতির জন্য জানাচ্ছি যে, পক্ষাঘাতগ্রস্তদের পুনর্বাসন কেন্দ্রে-সিআরপি'র শিক্ষা প্রতিষ্ঠান বাংলাদেশ হেলথ্ প্রফেশনস ইনষ্টিটিউট (বিএইচপিআই) ঢাকা বিশ্ববিদ্যালয় অনুমোদিত বিএসসি ইন অকুপেশনাল থেরাপি কোর্স পরিচালনা করে আসছে।

উক্ত কোর্সের ছাত্রছাত্রীদের কোর্স কারিকুলামের অংশ হিসাবে বিভিন্ন বিষয়ের উপর রিসার্চ ও কোর্সওয়ার্ক করা বাধ্যতামূলক।

বিএইচপিআই'র ৪র্থ বর্ষ বিএসসি ইন অকুপেশনাল থেরাপি কোর্সের ছাত্রী উমাইয়া সুলতানা তার রিসার্চ সংক্রান্ত কাজের জন্য আগামী ০১.১১.২০১৮ তারিখ থেকে ৩১.০১.২০১৯ তারিখ পর্যন্ত সময়ে আপনার প্রতিষ্ঠানে সফর করতে আগ্রহী।

তাই তাকে আপনার প্রতিষ্ঠান সফরে সার্বিক সহযোগীতা প্রদানের জন্য অনুরোধ করছি।

ধন্যবাদান্তে

30/10/2018

শেখ মনিরুজ্জামান
বিভাগীয় প্রধান
অকুপেশনাল থেরাপি, বিএইচপিআই।

Bangladesh Health Professions Institute (BHPI) CRP, Chapain, Savar, Dhaka-1343

Md. Mostafa Kamal
Deputy Director
Society for the Welfare of Autistic Children

Appendix: 4

Informed Consent Form for the Health Professions Students

Bangladesh Health Professions Institute (BHPI)

Centre for the Rehabilitation of the Paralyzed (CRP)

CRP. Savar, Dhaka- 1343

Title: The Effectiveness of LEGO Therapy to Improve Social Skills of the Children with Autism Spectrum Disorders in Bangladesh.

Investigator: Umaya Sultana, Student of B.Sc. in Occupational Therapy, Bangladesh Health Professions Institute (BHPI), CRP- Savar, Dhaka- 1343

Place: Society for the Welfare of Autistic Children, 70/Ka, Pisciculture, Shyamoli Dhaka, Bangladesh 1207

Part I: Information Sheet Introduction:

I am Umaya Sultana, B.Sc. in Occupational Therapy student of Bangladesh Health Professions Institute (BHPI), have to conduct a thesis as a part of this Bachelor course, under thesis supervisor Sk.Moniruzzaman. You are going to have details information about the study purpose, data collection process, ethical issues. You do not have to decide today whether or not you will participate in the research. Before you decide, you can talk to anyone you feel comfortable with about the research. If this consent form contains some words that you do not understand, please ask me to stop. I will take time to explain.

Background and Purpose of the study:

You are being invited to be a part of this research because LEGO Therapy is essential for autism spectrum children to improve their social skill. LEGO based therapy is used to improve cognitive skills. But appropriate LEGO intervention increases the social skills of the children with ASD. Your information is highly required to evaluate the level of social skills among ASD children. Your valuable information will help the professionals as well as general people to know about Autism and level of social skills practice. We also want to learn what the understanding for the effectiveness of LEGO Therapy are and how to improve social skills. This study also aims to find out the effectiveness of LEGO therapy to improve social skills of the children with Autism Spectrum Disorders in Bangladesh.

Research related information:

The research related information will be discussed with you throughout the information sheet before taking your signature on consent form. After that participants will be asked to complete a structured questionnaire which may need half an hour to fill. In this questionnaire there will be questions on socio-demographic factors (for example: Age, sex, experience). It will also contain questions of Social Skill checklist. Particularly, in this research we have selected the teacher or caregiver as they know their autism child specific social skills. The data collection period will be one month followed by the date of approval. During that time, the questionnaire will be distributed among you to self-administer. Investigator will give you a reminder at day three/five and finally will come to collect data during sixth working day. The survey questionnaire will be distributed and collected by Umaya Sultana. If you do not wish the questions included in the survey, you may skip them and move on to the next question. The information recorded is confidential, your name is not being included on the forms, only a number will identify you, and no one else except Sk. Moniruzzaman, Supervisor of the study will have access to this survey.

Voluntary Participation:

The choice that you make will have no effect on your job or on any work-related evaluation or reports. You can change your mind at any time of the data collection process even throughout the study period. You have also right to refuse your participation even if you agreed earlier.

Right to Refuse or Withdraw:

I will give you an opportunity at the end of the interview to review your remarks, and you can ask to modify or remove portions of those, if you do not agree with my notes or if I did not understand you correctly.

Risks and benefits:

We are asking to share some personal and confidential information, and you may feel uncomfortable talking about some of the topics. You do not need to answer any question or take part in the discussion interview/survey if you don't wish to do so, and that is also okay. You do not have to give us any reason for not responding to any question, or for refusing to take part in the interview. On the other hand, you may not have any direct benefit by participating in this research, but your valuable participation is likely to help us find out the Effectiveness of LEGO therapy to improve social skills the children with Autism Spectrum Disorders in Bangladesh.

Confidentiality:

Information about you will not be shared to anyone outside of the research team. The information that we collect from this research project will be kept private. Any information about you will have a number on it instead of your name. Only the researchers will know what your number is and we will lock that information up with a lock and key. It will not be shared with or given to anyone except Sk. Moniruzzaman study supervisor.

Sharing the Results:

Nothing that you tell us today will be shared with anybody outside the research team, and nothing will be attributed to you by name. The knowledge that we get from this research will be shared with you before it is made widely available to the public. Each participant will receive a summary of the results. There will also be small presentation and these will be announced. Following the presentations, we will publish the results so that other interested people may learn from the research.

Who to Contact:

If you have any questions, you can ask me now or later. If you wish to ask questions later, you may contact any of the following: Umaya Sultana, Bachelor science in Occupational Therapy, Department of Occupational Therapy, e-mail: umaya.ot18.edu@gmail.com, Cell phone- 01868724895.This proposal has been reviewed and approved by Institutional Review Board (IRB), Bangladesh Health Professions Institute (BHPI), CRP-Savar, Dhaka-1343, Bangladesh, which is a committee whose task it is to make sure that research participants are protected from harm. If you wish to find about more about the IRB, contact Bangladesh Health Professions Institute (BHPI), CRP-Savar , Dhaka-1343, Bangladesh. You can ask me any more questions about any part of the research study, if you wish to. Do you have any questions?

Can you withdraw from this study?

You can cancel any information collected for this research project at any time.After the cancellation, we expect permission from the information whether it can be used or not.

Withdrawal Form

Participants Name: ……

ID number: …….....

Reason of Withdraw: ……
……...

Participants Name: ……

Participants Signature: ……..

Day/Month/Year: ……

Part II: Certificate of Consent

Statement by Participants:

I have been invited to participate in research titled the effectiveness of LEGO therapy to improve social skills of the children with Autism Spectrum Disorders in Bangladesh I have read the foregoing information, or it has been read to me. I have had the opportunity to ask

questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study.

Name of Participant_____

Signature of Participant _____

Date _____

Statement by the researcher taking consent:

I have accurately read out the information sheet to the potential participant, and to the best of my ability made sure that the participant understands that the following will be done:

1.

2.

3.

I confirm that the participant was given an opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

A copy of this ICF has been provided to the participant.

Name of Researcher taking the consent_____

Signature of Researcher taking the consent_____

Date _____

Appendix: 5

Informed Consent Form's Bengali

BANGLADESH HEALTH PROFESSIONS INSTITUTE

বাংলাদেশ হেল্‌থ প্রফেশন্স ইনষ্টিটিউট (বিএইচপিআই)

অকুপেশনাল থেরাপি বিভাগ

সিআরপি– চাপাইন, সাভার, ঢাকা–১৩৪৩. টেলি: *০২-৭৭৪৫৪৬৪–৫, ৭৭৪১৪০৪, ফ্যাক্স:0৭৭৪৫০৬*

<u>অংশগ্রহনকারীদের তথ্যও সম্মতিপত্র</u>

<u>শিরোনাম:</u>

বাংলাদেশে অটিজম স্পেকট্রাম ডিসঅর্ডার শিশুদের সামাজিক দক্ষতা উন্নত করতে লেগো থেরাপির কার্যকারিতা।

<u>তদন্তকারী:</u>
উমাইয়া সুলতানা, বি এস সি ইন অকুপেশনাল থেরাপীর ছাত্রী, বাংলাদেশ হেলথ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই), সিআরপি-সাভার, ঢাকা- ১৩৪৩

<u>তত্ত্বাবধায়ক:</u> সুপার ভাইজার এস, কে মনিরুজ্জামান, অকুপেশনাল থেরাপি বিভাগ, বাংলাদেশ হেলথ প্রফেশন্স ইনস্টিটিউট (বিএইচপিআই)

<u>স্থান:</u> অটিস্টিক শিশু কল্যাণ সোসাইটি, ৭০/ক, পিসিকালচার, শ্যামলীঢাকা, বাংলাদেশ 1207

<u>পর্ব-১ তথ্যপত্রঃ</u>

<u>ভুমিকাঃ</u>

আমি উমাইয়া সুলতানা, বি.এস সি ইন অকুপেশনাল থেরাপি বিভাগের শিক্ষার্থী।বাংলাদেশ হেলথ প্রফেশন্স ইন্সটিটিউট (বিএইচপিআই) এর থিসিস সুপারভাইজার এ্যাস,কে, মনিরুজ্জামান স্যারের অধীনে এই ব্যাচেলর কোর্সের অংশ হিসাবে থিসিসে অংশগ্রহণ করতে হবে। অংশগ্রহণকারী তথ্যপত্রের মাধ্যমে গবেষণা প্রকল্পটির উদ্দেশ্য, উপাত্ত সংগ্রহের প্রণালী ও গবেষণাটির সাথে সংশ্লিষ্ট বিষয় কীভাবে রক্ষিত হবে তাবিস্তারিত ভাবে আপনার কাছে উপস্থাপন করা হবে। যদি এই গবেষণায় অংশ গ্রহণ করতে ইচ্ছুক থাকেন, সেক্ষেত্রে এই গবেষণার সম্পৃক্ত বিষয় সম্পর্কে স্বচ্ছধার না থাকলে সিদ্ধান্ত গ্রহণ সহজতর হবে। অবশ্য এখন আপনার অংশগ্রহন আমাদের নিশ্চিত করতে হবেনা। যেকোন সিদ্ধান্ত গ্রহনের পূর্বে যদি চান তাহলে আপনার আত্মীয়, সহকর্মী, কর্মকর্তার সাথে এই বেপারে আলোচনা করতে পারেন।এবংএইতথ্য পত্রটির আরও কিছু আপনার জানার থাকলে, নির্দ্বিধায় প্রশ্ন করতে পারেন।

<u>গবেষণার প্রেক্ষাপট ও উদ্দেশ্য</u>

আপনাকে এই গবেষণার অংশ হিসাবে আমন্ত্রণ জানানো হচ্ছে কারণ লেগো থেরাপি অটিজম স্পেকট্রামে আক্রান্ত শিশুদেরকে তাদের সামাজিকতার সম্পর্কে আরও দক্ষ করতে সহায়তা করে।লেগো ভিত্তিক থেরাপি বুদ্ধিগত ও মানসিক দক্ষতা বৃদ্ধি করতে ব্যবহৃত হয়। লেগো থেরাপীর উপযুক্ত ব্যবহার এ এসডি সহ এ জাতীয় শিশুদের সামাজিক দক্ষতা বৃদ্ধি করে। আপনার তথ্যটি এ এসডি শিশুদের মধ্যে সামাজিক দক্ষতার স্তরের মূল্যায়ন করার জন্য অত্যন্ত প্রয়োজন। আপনার মূল্যবান তথ্যটি পেশাদার দের পাশাপাশি সাধারণ মানুষকে অটিজম এবং সামাজিক দক্ষতা অনুশীলনের স্তর সম্পর্কে জানতে সহায়তা করবে। আমরা লেগো থেরাপির কার্যকারিতা এবং কীভাবে সামাজিক দক্ষতা উন্নত করতে পারি

তা জানতে চাই। বাংলাদেশে এই অটিজম স্পেকট্রাম ডিসঅর্ডার গুলির শিশুদের সামাজিক দক্ষতা উন্নত করতে লেগো থেরাপির কার্যকারিতা খুঁজে বের করার লক্ষ্যে এই গবেষণার পদক্ষেপ নেয়া হয়েছে।

এখন গবেষণা কমিটিতে অংশগ্রহণের সাথে সম্পৃক্ত বিষয় সমূহ কি সে সম্পর্কে জানা যাকঃ

সম্মতির সাথে আপনার স্বাক্ষর গ্রহণ করার আগে তথ্য সম্পর্কিত শীট নিয়ে গবেষণা সংক্রান্ত ব্যাপারে আপনার সাথে আলোচনা করা হবে। যে অংশগ্রহণকারীদের একটি কাঠামোগত প্রশ্নাবলী সম্পন্ন করার জন্য বলা হবে তা পূরণ করতে ২৫-৩০ মিনিট প্রয়োজন হতে পারে। এই প্রশ্নাবলীতে সামাজিক-জনসংখ্যা তাত্ত্বিক বিষয় সংক্রান্ত প্রশ্ন থাকবে (উদাহরণস্বরূপ: বয়স, লিঙ্গ,অভিজ্ঞতা)। এতে সামাজিক দক্ষতা নির্নয়ের প্রশ্ন থাকবে। বিশেষ করে, এই গবেষণায় আমরা শিক্ষক বা তত্ত্বাবধায়ক নির্বাচন করেছি কারণ তারা তাদের অটিজম আক্রান্ত শিশুর সামাজিক দক্ষতা গুলি সম্প্ররকে অবগত। তথ্য সংগ্রহের সময় একমাস পর অনুমোদনের তারিখ হবে। সেই সময়, প্রশ্ন পত্রে আপনার কাছে বিবেচনা সাপেক্ষে বিতরণ করা হবে। তদন্তকারী আপনাকে তিন / পাঁচ দিনের মধ্যে একটি অনুস্মারক দেবে এবং অবশেষে ষষ্ঠ কর্ম দিবসের দিন তথ্য সংগ্রহ করা হবে। জরিপের প্রশ্ন পত্র উমাইয়া সুলতানার দ্বারা বিতরণ ও সংগ্রহ করা হবে। যদি আপনি সমীক্ষায় অন্তর্ভুক্ত প্রশ্ন গুলি না চান তবে আপনি তাদের ছেড়ে দিতে পারেন এবং পরবর্তী প্রশ্নে চলে যেতে পারেন। রেকর্ড করা তথ্যটি গোপনীয়, আপনার নাম ফর্মগুলিতে অন্তর্ভুক্ত করা হচ্ছে না, শুধুমাত্র একটিন স্বর আপনাকে সনাক্ত করবে এবং এ্স, কে মনিরুজ্জামান ছাড়া অন্য কেউ নেই এবং সমষ্টি গত সার্বিক তত্ত্বাবধানে এই জরিপের সুযোগ থাকবে।

স্বেচ্ছা সেবী অংশগ্রহণ:

আপনি যা পছন্দ করেন তা আপনার কাজের উপর বা কোন কাজের সম্পর্কিত মূল্যায়ন বা রিপোর্ট গুলিতে কোন প্রভাব ফেলবে না। এমন কি আপনি অধ্যয়নের সময় বা তথ্য সংগ্রহ প্রক্রিয়ার যে কোনো সময় আপনার মত বা সিদ্ধান্ত পরিবর্তন করতে পারেন। আপনি যদি আগে সম্মত হন তবে ও আপনার অংশ গ্রহণকে প্রত্যাখ্যান করার অধিকার আপনার রয়েছে।

প্রত্যাখ্যান বা প্রত্যাহার করার অধিকার:

আপনার মন্তব্য পর্যালোচনা করার জন্য আমি আপনাকে সাক্ষাত্কারের শেষে সুযোগ দেব এবং যদি আপনি আমার নোটগুলির সাথে একমত না হন বা যদি আমি সঠিক ভাবে বুঝতে না পারি তবে তার অংশগুলি সংশোধন বা অপসারণের জন্য আপনাকে অনুরোধ করতে পারি।

অংশগ্রহণের সুবিধা ও ঝুঁকি সমূহ

আমরা কিছু ব্যক্তিগত এবং গোপনীয় তথ্য ভাগা ভাগি করতে বলছি, এবং আপনি কিছু বিষয় সম্পর্কে অস্বস্তিকর কথা বলতে পারেন। যদি আপনি এটি না করতে চান তবে কোন ও প্রশ্নের উত্তর দিতে বা আলোচনা ইন্টারভিউ / জরিপে অংশ নিতে হবে না এবং এটি গ্রহণযোগ্য। কোন ও প্রশ্নের উত্তর দেওয়ার জন্য , অথবা সাক্ষাত্কারে অংশ নিতে অস্বীকার করার জন্য আপনাকে আমাদের কোন ও কারণ দেখাতে হবে না। অন্যদিকে, এই গবেষণায় অংশগ্রহণের দ্বারা আপনার কোন সরাসরি সুবিধা নেই, তবে বাংলাদেশে আপনার অটিজম স্পেকট্রাম ডিসঅর্ডার গুলির শিশুদের সামাজিক দক্ষতা উন্নত করার জন্য আপনার মূল্যবান অংশগ্রহণ লেগো থেরাপির কার্যকারিতা খুঁজে পেতে সহায়তা করবে।

তথ্য এর গোপনীয়তা কি রক্ষা হবে?

আপনার সম্পর্কে তথ্য গবেষণা দলের বাইরে কাউকে জানানো হবে না। আমরা এই গবেষণা প্রকল্প থেকে সংগ্রহ করা তথ্য ব্যক্তিগত রাখবো। আপনার সম্পর্কে কোন তথ্য আপনার নাম পরিবর্তে একটি সাংকেতিক সংখ্যা থাকবে। কেবল মাত্র গবেষকরা আপনার নম্বরটি জানবে এবং আমরা সেই তথ্যটিকে লক এবং কী দিয়ে তালা বদ্ধ করব। এটি অধ্যয়ন সুপার ভাইজার এ্স,কে মনিরুজ্জামান ছাড়া অন্যকারো সাথে ভাগ করা বা দেওয়া হবে না।

গবেষণা সম্পর্কে জানতে কোথায় যোগাযোগ করতে হবে?

যদি আপনার কোন প্রশ্ন থাকে, আপনি এখন বা পরে আমাকে জিজ্ঞাসা করতে পারেন। আপনি যদি পরে প্রশ্ন জিজ্ঞাসা করতে চান তবে আপনি নিম্নলিখিত ব্যাক্তিবর্গের সাথে যোগাযোগ করতে পারেন: উমাইয়া সুলতানা, অকুপেশনাল

থেরাপি বিভাগের বি,এস,সি কোর্সের ছাত্রী, ই :মেইল-umaya.ot18.edu@gmail.com,সেলফোন -01868724895।এই প্রস্তাবটি পর্যালোচনা করা হয়েছে এবং ইনস্টিটিউশন রিভিউ বোর্ড (আইআরবি), বাংলাদেশ হেলথ প্রোফেসন্স ইনস্টিটিউট , সি আর পি সাভার, ঢাকা -১৩৪৩, বাংলাদেশ দ্বারা অনুমোদিত হয়েছে, যার একটি কমিটি রয়েছে, যার কাজটি নিশ্চিত করা যে গবেষণা অংশগ্রহণকারীরা ক্ষতি থেকে সুরক্ষিত। আপনি যদি আই আর বি সম্পর্কে আরো জানতে চান তবে বাংলাদেশ হেলথ প্রোফেশন্স ইনস্টিটিউট (বিএইচপিআই), সি আর পি সাভার, ঢাকা -১৩৪৩, বাংলাদেশ এ যোগাযোগ করুন। আপনি যদি চান তবে গবেষণার যে কোন ও অংশ সম্পর্কে আমাকে আর ও প্রশ্ন করতে পারেন। আপনি কি কিছু জানতে চান?

গবেষণায় নিজেকে প্রত্যাহার করা যাবে কি?

এই গবেষণায় সংগৃহীত তথ্য আপনি যে কোনো সময় বাতিল করতে পারেন। বাতিল করার পর তথ্য গুল কি ব্যবহার করা যাবে না কি যাবে না তার অনুমতি প্রত্যাশা করছি।

প্রত্যাহার পত্র

অংশগ্রহণকারীর নামঃ.....

পরিচয় পত্রের নাম্বারঃ.....

প্রত্যাহার করার কারনঃ.....

অংশগ্রহণকারীর নাম.....

অংশগ্রহণকারীর স্বাক্ষর.....

পর্ব -২ সম্মতিপত্র

অংশগ্রহণকারীর নাম.....

অংশগ্রহণকারীর স্বাক্ষর.....তারিখঃ.....

দিন/ মাস/ বছর.....

গবেষক/ সম্মতি গ্রহণকারীর বিবৃতি

আমি বাংলাদেশে এই অটিজম স্পেকট্রাম ডিসঅর্ডার গুলির শিশুদের সামাজিক দক্ষতা উন্নত করতে লেগো থেরাপির কার্যকারিতা খুঁজে বের করার লক্ষ্যে এই গবেষণার ফলাফল মূল্যায়ন করার শিরোনামযুক্ত গবেষণায় অংশগ্রহণের জন্য আমন্ত্রিত হয়েছি। আমার পূর্ববর্তী তথ্য পড়া আছে, অথবা এটা আমার পড়া হয়েছে। আমার কাছে এটি সম্পর্কে প্রশ্ন জিজ্ঞাসা করার সুযোগ ছিল এবং আমার যেকোনো প্রশ্নের উত্তর আমি নির্দিধায় দিয়েছি। আমি স্বেচ্ছায় এইগবেষণায় অংশগ্রহণকারী হতে সম্মত।

গবেষকের নামঃ.....

গবেষকের স্বাক্ষরঃ.....তারিখঃ.....

দিন/ মাস/ বছর.....

Appendix: 6

Questionaries' Bengali

পর্ব-৩ঃ প্রশ্নাবলী

তারিখঃ কোড নংঃ

ঠিকানাঃ

যেটি আপনার শিশুটির জন্য সর্বোত্তম যোগ্য দয়া করে সেটিতে টিক চিহ্ন দিনঃ

প্রশ্নসমূহ	উত্তর
আথ সামাজিক –বৈষয়িক তথ্যাবলী	
১। শিশুর বয়স	
২। শিশুর লিঙ্গ	ছেলে= ১ ☐ মেয়ে= ২☐
৩। শিশুর সহদর কয়জন?	নেই=১ ☐ ১জন=২ ☐২জন=৩ ☐৩জন =৪ ☐৪জন= ৫☐
৪। বসবসরত এলাকা	শহর=১☐গ্রাম=২☐
৫। বাবার শিক্ষাগত যোগ্যতা	প্রাথমিক=১☐মাধ্যমিক=২☐উচ্চমাধ্যমিক=৩☐স্নাতক=৪☐ স্নাতকউত্তর=৫☐
৬। মায়ের শিক্ষাগত যোগ্যতা	প্রাথমিক=১☐মাধ্যমিক=২☐উচ্চমাধ্যমিক=৩☐স্নাতক=৪☐ স্নাতকউত্তর=৫☐
৭। বাবার পেশা	কৃষি=১☐চাকুরী=২☐ব্যবসা=৩☐চিকিৎসা=৪☐শিক্ষকতা=৫☐
৮। মায়ের পেশা	গৃহিনী=১☐চাকুরী=২☐ব্যবসা=৩☐চিকিৎসা=৪☐শিক্ষকতা=৫☐
৯। পিতা-মাতার মাসিক আয় (টাকা)	১-৫০০০টাকা=১☐ ৫-১০,০০০টাকা=২☐ ১০,০০০-২০,০০০ টাকা=৩ ☐ ২০,০০০-৩০,০০০টাকা=৪☐৩০,০০০-৫০,০০০টাকা=৫☐ ৫০,০০০টাকা-উর্দ্ধে=৬☐
চিকিৎসা সংক্রান্ত তথ্যাবলী	
১০। শিশুর রোগ নির্নয় হয়েছে?	ডিএসএম ৪ অনুযায়ী=১ ☐ ডিএসএম ৫অনুযায়ী=২☐
১৩। জন্মের পরে শিশুটির কি খিচুনি ছিল?	হ্যাঁ=১☐ না=২☐
১৪। এই সমস্যার কারণে শিশুটি কি কখনো পথ্য নিয়েছে?	হ্যাঁ=১☐ না=২☐
১৫। আপনার সন্তান কিভাবে যোগাযোগ করে?	কান্নার মাধ্যমে=১ ☐ মুখভঙ্গির মাধ্যমে = ২☐ অঙ্গ ভঙ্গির মাধ্যমে=৩ ☐ ধ্বনির তৈরির মাধ্যমে=৪☐ শব্দ তৈরির মাধ্যমে=৫☐ বাক্য বলার মাধ্যমে=৬☐

অটিজমে আক্রান্ত শিশুদের সামাজিক দক্ষতার নিরীক্ষণের তালিকা

অটিজম লেগোথেরাপীতে অংশগ্রহনকারী শিশুদের জন্য

নির্দেশনা সমূহঃ প্রতিটি প্রশ্নের ক্ষেত্রে লক্ষ রাখুন সামাজিক দক্ষতার কাজগুলো করতে পারে সর্বদাই, মাঝে মধ্যেই, কিছু কিছু সময়ে বা কখনো না।

পরিমাপক স্কেল
১= সর্বদাই করতে পারে- বাচ্চাটি সামাজিক দক্ষতার এই দক্ষতাটি অনায়াসে সর্বদাই সব পরিবেশে সকলের সামনে দেখাতে পারে।
২= মাঝে মধ্যেই করতে পারে- বাচ্চাটি সামাজিক দক্ষতার এই দক্ষতাটি কতিপয় মানুষের বিশেষ পরিবেশে দেখাতে পারে।
৩= কিছু কিছু সময় করতে পারে- বাচ্চাটি সামাজিক দক্ষতার এই দক্ষতাটি কিছু কিছু সময় অনিয়মিত ভাবে দেখাতে পারে।
৪= কখনো না- বাচ্চাটি সামাজিক দক্ষতার এই দক্ষতাটি দেখাতে পারে না। দৈনন্দিন কাজে কখনোই দেখা যায় না।

শিশুটির অটিজম গ্রুপ থেরাপীতে অংশগ্রহন করার যোগাযোগের দক্ষতা	পর্ব-৪০: (পূর্বে) ১	২	৩	৪	পর্ব-৫০: (পরে) ১	২	৩	৪
১.১ প্রারম্ভিক খেলাধূলায় আচরণ সমূহ								
১। বাচ্চাটি ১ ফুট দূরত্বে অন্য বাচ্চাদের সাথে খেলা করে।	☐	☐	☐	☐	☐	☐	☐	☐
২। বাচ্চাটি ৩ ফুট দূরত্বে অন্য বাচ্চাদের সাথে খেলা করে।	☐	☐	☐	☐	☐	☐	☐	☐
৩। সামাজিকভাবে বাচ্চাটি অন্য বাচ্চাদের সাথে একই খেলনা দিয়ে খেলা করতে পারে।	☐	☐	☐	☐	☐	☐	☐	☐
৪। শারীরিক অঙ্গভঙ্গি অনুকরন করতে পারা।	☐	☐	☐	☐	☐	☐	☐	☐
৫। বাচণ ভঙ্গির অনুকরন করতে পার।	☐	☐	☐	☐	☐	☐	☐	☐
৬। সাধারন নিয়মে সঠিকভাবে খেলাধূলা করতে পারা।	☐	☐	☐	☐	☐	☐	☐	☐
১.২ মধ্যবর্তীকালীন খেলাধূলায় আচরণ সমূহ								
১। বাচ্চাটি অন্য বাচ্চাদের সাথে ভাদের খেলনা দিয়ে খেলা করে ও খেলা বিষয়ে কথা বলে যদিও তাদের খেলাগুলো ভিন্ন।	☐	☐	☐	☐	☐	☐	☐	☐
২। শারীরিক ও বাচন ভঙ্গির মাধ্যমে ভাবের আদান-প্রদান করা (খেলনা নেয়া, প্রশ্নোত্তর দেয়া) ।	☐	☐	☐	☐	☐	☐	☐	☐
৩। নিজ উদ্যোগে কুশলাদি বিনিময় করা।	☐	☐	☐	☐	☐	☐	☐	☐
৪। বাচ্চাটি অন্য বাচ্চাদের সাথে খেলা করার সময় খেলার সঠিক নিয়ম মেনে চলে।	☐	☐	☐	☐	☐	☐	☐	☐
৫। বাচ্চাটি অন্য বাচ্চাদের খেলার জন্য ডাকে।	☐	☐	☐	☐	☐	☐	☐	☐
৬। গঠনমূলক খেলায় সঠিকভাবে অংশগ্রহন করে।	☐	☐	☐	☐	☐	☐	☐	☐
৭। খেলার নিয়ম কানুন মানতে পারে।	☐	☐	☐	☐	☐	☐	☐	☐
৮। বাচ্চাটি অন্য বাচ্চাদের কাছে খেলনা, খাবার জিনিস, বা অন্যান্য জিনিস চেয়ে নেয়।	☐	☐	☐	☐	☐	☐	☐	☐
১.৩ অগ্রসরকালীন খেলাধূলায় আচরণসমূহ								
১। মেকি খেলায় বচ্চাটি অন্য বাচ্চাটির সাথে একত্রে খেলতে পারে।	☐	☐	☐	☐	☐	☐	☐	☐
২। নিজের খেলা সম্পর্কে বাচ্চাটি অন্য বাচ্চাদের কাছে বলতে	☐	☐	☐	☐	☐	☐	☐	☐

১০।সুন্দর করে " আমি জানি না" বলতে পারা।	☐	☐	☐	☐	☐	☐	☐	☐
১১।কথোপকথনের পরিসমাপ্তি ঘটাতে পারা।	☐	☐	☐	☐	☐	☐	☐	☐
২.৩নমনীয়তা								
১।ভুল গুলো রাগ না করে মেনে নেওয়া।		☐	☐	☐	☐	☐	☐	☐
২।আচার আচরণের ধারাবাহিকতা মানতে পারা।	☐	☐	☐	☐	☐	☐	☐	☐
৩।অস্বাভাবিক পরিবর্তেনের সাথে খাপ খাওয়ানো।	☐	☐	☐	☐	☐	☐	☐	☐
৪।কঠিন কোন কিছুর জন্য বারবার চেষ্টা করা।	☐	☐	☐	☐	☐	☐	☐	☐
৫।যখন প্রয়োজন পরিস্থিতি বা মানুষদের এড়িয়ে চলতে পারে।	☐	☐	☐	☐	☐	☐	☐	☐
২.৪সমস্যার সমাধান								
১।সমস্যাগুলো সনাক্ত করতে পারা।	☐	☐	☐	☐	☐	☐	☐	☐
২।সমস্যাগুলোর সমাধান খুজতে পারা।	☐	☐	☐	☐	☐	☐	☐	☐
৩। আলোচনার মাধ্যমে সমাধানের দিকে এগিয়ে যাওয়া।	☐	☐	☐	☐	☐	☐	☐	☐
৪। সমবয়সীদের উপরে তার আচার আচরণের প্রভাব বুঝতে পারা।	☐	☐	☐	☐	☐	☐	☐	☐

শিশুটির অটিজম গ্রস থেরাপীতে অংশগ্রহন করার	পর্ব-৪০: (পূর্বে)				পর্ব-৫০: (পরে)			
যোগাযোগের দক্ষতা	১	২	৩	৪	১	২	৩	৪
৩.১ কথোপকথনের দক্ষতা								
১। কথোপকথনের জন্য নেয়া যখন প্রয়োজন।	☐	☐	☐	☐	☐	☐	☐	☐
২। নির্দিষ্ট বিষয়ে কথোপকথনে উদ্যেগ নেয়া।	☐	☐	☐	☐	☐	☐	☐	☐
৩। "কি" প্রশ্ন জানতে চাওয়া।	☐	☐	☐	☐	☐	☐	☐	☐
৪। "কি" প্রশ্নের উত্তর জানতে চাওয়া।	☐	☐	☐	☐	☐	☐	☐	☐
৫। নির্দিষ্ট বিষয়ে কথোপকথনের সঠিক মন্তব্য করা।	☐	☐	☐	☐	☐	☐	☐	☐
৬। নতুন কারোর সাথে পরিচিত হওয়া।	☐	☐	☐	☐	☐	☐	☐	☐
৭। একে অপরের সাথে পরিচিত হওয়া।	☐	☐	☐	☐	☐	☐	☐	☐
৮। কথকথোকথনের সঠিক পরিসমাপ্তি ঘটাতে পারা।	☐	☐	☐	☐	☐	☐	☐	☐
৩.২ অবচনিক কথোপকথনের দক্ষতা								
১। কথোপকথনের সঙ্গির সাথে সামঞ্জস্যতা বজায় রাখা।	☐	☐	☐	☐	☐	☐	☐	☐
২। কথোপকথনের সঙ্গির দিকে শরীর ধরে রাখা।	☐	☐	☐	☐	☐	☐	☐	☐
৩। অবচনিক কথোপকথনের সঙ্গির শারীরিক অঙ্গভঙ্গি বুঝতে পারা।	☐	☐	☐	☐	☐	☐	☐	☐
৪। নিজের পালার জন্য অপেক্ষা করা।	☐	☐	☐	☐	☐	☐	☐	☐
৩.৩ সাধুবাদ বিনিময়ের দক্ষতা								
১। সমবয়সীদের সাথে সঠিকভাবে সাধুবাদ বিনিময় করা।	☐	☐	☐	☐	☐	☐	☐	☐
২। সাধুবাদ গ্রহনে সঠিকতা বজায় রাখা।	☐	☐	☐	☐	☐	☐	☐	☐
৩। নিজের পক্ষে মত চাওয়ার সঠিকতা।	☐	☐	☐	☐	☐	☐	☐	☐
৪। স্বাধীনভাবে ক্ষমা প্রার্থনা করতে পারা।	☐	☐	☐	☐	☐	☐	☐	☐

পারে।								
৩। খেলার আয়োজন করতে পারে (বাচ্চাটি অন্য বাচ্চাদেরকে খেলা সম্পর্কে ধারনা দিতে পারে।	☐	☐	☐	☐	☐	☐	☐	☐
৪।বাচ্চাটি অন্য বাচ্চাদের খেলার পরিকল্পনা অনুসারে খেলতে পারে।	☐	☐	☐	☐	☐	☐	☐	☐
৫। এলোমেলো খেলায় হুট করেই অংশগ্রহন করতে পারে।	☐	☐	☐	☐	☐	☐	☐	☐
৬।বাচ্চাটি অন্য বাচ্চাদের খেলনা, খাবার, ও অন্যান্য জিনিস দেয়।	☐	☐	☐	☐	☐	☐	☐	☐

শিশুটির অটিজম গ্রস্ত খেলাধীতে অংশগ্রহন করার	পর্ব-৪০: (পূর্বে)				পর্ব-৫০: (পরে)			
আবেগ অনুভূতির সমন্বয়	১	২	৩	৪	১	২	৩	৪
২.১ আবেগ সমূহ বুঝতে পারা								
১। পছন্দ বা অপছন্দ সনাক্ত করতে পারে	☐	☐	☐	☐	☐	☐	☐	☐
২। নিজের আবেগসমূহ সনাক্ত করতে পারে।	☐	☐	☐	☐	☐	☐	☐	☐
৩। অন্যদের আবেগসমূহ সনাক্ত করতে পারে।	☐	☐	☐	☐	☐	☐	☐	☐
৪। আবেগ সনাক্ত করে তা যাচাই করতে পারে (আমি খুশীর্ত তাই খাদ্বি)।	☐	☐	☐	☐	☐	☐	☐	☐
৫। সমবয়সীদের প্রতি ভাব আবেগ ও সমবেদনা দেখাতে পারে।	☐	☐	☐	☐	☐	☐	☐	☐
৬। সমবয়সীদের প্রতি রাগান্বিত মনোভাব থেকে বেরিয়ে আসতে পারে।	☐	☐	☐	☐	☐	☐	☐	☐
৭। নিজের প্রতি রাগান্বিত মনোভাব থেকে বেরিয়ে আসতে পারা।	☐	☐	☐	☐	☐	☐	☐	☐
৮। ভয়ভীতি না দেখানো।	☐	☐	☐	☐	☐	☐	☐	☐
৯। শারীরিক অঙ্গভঙ্গি বুঝে কাজ করতে পারা।	☐	☐	☐	☐	☐	☐	☐	☐
১০। ভাবের আদানপ্রদান ভিন্ন বাচন ভঙ্গি ব্যবহার করতে পারা।		☐	☐	☐	☐	☐	☐	☐
২.২ স্বনিয়ন্ত্রন								
১। বিষন্নতার সময়ে অন্যদের কে সাহায্য করার সুযোগ দেয়া	☐	☐	☐	☐	☐	☐	☐	☐
২। বিষন্নতার সময় নিজেকে নিয়ন্ত্রন করা	☐	☐	☐	☐	☐	☐	☐	☐
৩। নিজেকে নিজের রাগ কে নিয়ত্রন করতেপারা।	☐	☐	☐	☐	☐	☐	☐	☐
৪।গ্রহন যোগ্য উপায়ে হাসি তামাশা করতে দেয়া।	☐	☐	☐	☐	☐	☐	☐	☐
৫।দলগত কাজ বা খেলা থেকে বহিষ্কার হয়েও নিজেকে নিজে নিয়ত্রন করতে পারা।	☐	☐	☐	☐	☐	☐	☐	☐
৬।খেলায় প্রথম না হওয়া বা সাফল্য না আসা মেনে নেওয়া।	☐	☐	☐	☐	☐	☐	☐	☐
৭।না রেগে খেলায় হার জিত মেনে নেওয়া।	☐	☐	☐	☐	☐	☐	☐	☐
৮।গ্রহন যোগ্য উপায়ে অপছন্দের ব্যাপারে না বলতে পারা।	☐	☐	☐	☐	☐	☐	☐	☐
৯।না বোধক উত্তরে রাগ দমিয়ে রাখা।	☐	☐	☐	☐	☐	☐	☐	☐

উপরোউক্ত সামাজিক দক্ষতার লিরীক্ষনের তালিকার সারমর্ম

	% শতকরায় সর্বদাই করতে পারে	% শতকরায় মাঝে মাঝে করতে পারে	% শতকরায় কিছু কিছু সময়ে করতে পারে	% শতকরায় কখনই করতে পারে না
১.১ প্রারম্ভিক খেলাধুলায় আচরণ সমূহ				
১.২ মধ্যবর্তীকালীন খেলাধুলায় আচরণ সমূহ				
১.৩ অগ্রসরকালীন খেলাধুলায় আচরণ সমূহ				
২.১ আবেগসমূহ বুঝতে পারা				
২.২ স্বনিয়ন্ত্রন				
২.৩ নমনীয়তা				
২.৪ সমস্যার সমাধান				
৩.১ কথোপকথানের দক্ষতা				
৩.২ অবচনিক কথোপকথানের দক্ষতা				
৩.৩ সাধুবাদ বিনিময়ের দক্ষতা				

গাণিতিক হিসাবঃ প্রতিটি পর্যায়ে, প্রশ্নউত্তরের % শতকরায় সর্বদাই করতে পারে, মাঝে মাজে করতে পারে, কিছু কিছু সময়ে করতে পারে, কখনো করতে পারে না হিসাব করে। প্রতিটি পর্যায়ের সর্বমোট প্রশ্নের মান ঐ নির্দিষ্ট পর্যায়ের সর্বমোট প্রশ্নের সংখ্যা দিয়ে ভাগ করে প্রাপ্ত মানকে ১০০ দিয়ে গুন করতে হবে।

Appendix: 7

Social Skills Checklist

Name of Child: _____

Date Completed: _____

Birth date: _____

Teacher or Family Member Completing Form: _____

Instructions: For each question, check if that particular social skill occurs almost always , often , sometimes, or almost never.

RATING SCALE
1=Almost always- The student consistently displays this skill in many settings and with a variety of people.
2=Often- The student displays this skill on a few occasions, settings and with a few people.
3=Sometimes- The student seldom displays this kill but may demonstrate it on infrequent occasions.
4= Almost Never- The student never or rarely exhibits this skill. It is uncommon to see this in their daily routine.

The score of the children with autism who attends group therapy.	**Before**				**After**			
SOCIAL PLAY & EMOTIONAL DEVELOPMENT	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
1.1 Beginning Play Behaviors.								
1. Maintain proximity to peers within 1 foot.								
2. Observe peers in play vicinity within 3 feet.								
3. Parallel play near peers using the same or similar materials.								
4. Physically Imitates peer.								
5. Verbally Imitates peer.								
6. Take turns appropriately during simple games.								
1.2 Intermediate Play Behaviors								

1. Shares toys and talks about the activity with peers, even though the play agenda of the other children is different.								
2. Physically and verbally respond to interactions from peers (accepts toy from peer, answer questions)								
3. Return and initiate greetings with peers								
4. Know appropriate ways of joining in an activity with peer.								
5. Invite others to play.								
6. Take turns during structured activities 7. Obeys game rules.								
8. Requests toys, food, and materials from peers.								
1.3 Advanced Play Behavior								
1. Play cooperatively with peers during imaginative play.								
2. Make comments about what he/she is playing to peer.								
3. Organizes play (suggests ideas to peers on how to play)								
4. Follow peers play plans.								
5. Take turns during unstructured activities without a time limit.								
6. Offer toys, food, and materials to peers.								
The score of the children with autism who attends group therapy.	**Before**				**After**			
2. EMOTIONAL REGULATION	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
2.1 Understanding Emotions								
1. Identifies likes and dislikes.								
2. Identifies emotions in self.								
3. Identifies emotions on others.								
4. Justifies emotions once identified (eating because I'm hungry)								
5. Demonstrates affection and empathy toward peers.								
6. Refrains from aggressive behaviors toward peers.								
7. Refrains from aggressive behaviors toward self.								
8. Dose not exhibit intense fears or phobias.								
9.Interprets body language								
10. Uses different tones of voice to convey messages.								

2.2 Self-Regulation								
1. Allow others to comfort him/her if upset or agitated to do.								
2. Self regulates when tense or upset.								
3. Self-regulate when energy level is high.								
4. Deals with being teased in acceptable ways.								
5. Deals with being left out of group.								
6. Accepts not being first at a game or activity								
7. Accepts losing at a game without becoming upset/angry								
8. Say “no” in an acceptable way to things s/he doesn’t want.								
9. Accept being told “no” without becoming upset/ angry.								
10. Able to say "I don't know."								
11. Able to end conversations appropriately.								
2.3 Flexibility								
1. Accepts making mistakes without becoming upset/angry								
2. Accepts consequences of his/her behavior.								
3. Accepts unexpected changes.								
4. Continues to try when something is difficult.								
5. Ignores others or situations when it is desirable to do so.								
2.4 Problem Solving								
1. Identifies /defines problems.								
2. Generates solutions to problems.								
3. Carries out solutions by negotiating or compromising.								
4. Ignores others or situations when it is desirable to do so.								
3. Communication Skills								
3.1 Conversational Skills								
1. Initiate conversations when it is appropriate to do so.								
2. Initiates conversation around specified topic.								
3. Ask “Why” questions.								
4. Respond to “Why” questions.								

5. Make a variety of comments, related to the topic, during conversations.								
6. Introduces him/herself to someone new.								
7. Introduces people to each other.								
8. Ends conversations appropriately.								
3.2 Nonverbal Conversational Skills								
1. Maintain appropriate proximity to conversation partner.								
2. Orient body to speaker.								
3. Pays attention to a person's nonverbal language and understand what is being communicated.								
4. Waits to interject.								
3.3Compliments								
1. Gives appropriate compliments to peers.								
2. Appropriately receives compliments.								
3. Asks for a favor appropriately.								
4. Apologizes independently								

SUMMARY OF SOCIAL SKILLS CHECKLIST

	Total % Marked as Almost Always	**Total % Marked as Often**	**Total % Marked as Some times**	**Total % Marked as Almost Never**
1.1 Beginning Play Behaviors.				
1.2 Intermediate Play Behaviors				
1.3 Advanced Play Behavior.				
2.1 Understanding Emotions				
2.2 Self-Regulation				
2.4 Flexibility				
2.4 Problem solving				
3.1 Conversational Skills				
3.2 Nonverbal Conversational Skills				
3.3 Compliments				

Appendix: 08

Protocol of Lego therapy intervention

What is Lego Therapy?

Lego Therapy is a social development program for children with ASD. Lego therapy is a collaborative play therapy, children working together to build Lego models, joint attention, shared goals, verbal communication and mutual purpose, one of the very few strategies where research proved significant improvements in 'social competence' at the end of the intervention as well as at later follow up.

Social competence was measured through 3 components:

1) Motivation to initiate social contact with peers
2) Ability to sustain social contact with peers for a period of time
3) Overcoming aloofness and rigidity

Emphasis is on social identity development – a common purpose and shared interest in Lego play. Socially isolated children feel part of a group having fun!

Why does it work?

- It uses a medium which is 'inherently interesting' to children with autism.
- It utilizes what the child with autism is good at (systemizing/detail focus) to develop the things the child with autism struggles with (empathizing/theory of mind/resilience/central coherence/executive functioning)

It develops:

- Joint attention
- Collaboration
- Sharing
- Turn taking
- Joint problem-solving skills
- Taking account of other's ideas
- Compromising
- Showing and explaining to others
- Thinking about the good points of other people's designs
- Dealing with competition

Pre-Building Skills:

In order to prepare a child for collaborative building in groups, they need to develop basic motor and cognitive skills, including piece sorting, piece assembly, matching, and imitating. This can be done with freestyle pieces easily, and children can be rewarded for completing the activities with access to a preferred set or pieces of the set. As mentioned above, activities should include:

- Sorting by color, shape, and size (e.g. "Put the red ones in here, the blue ones here")
- Matching three-dimensional pieces (i.e. "Find another one like this")
- Matching two-dimensional images (from instructions) with actual pieces ("We need one like this, look in the picture")
- Piece assembly (i.e. "Put this one on top, press hard")
- Imitation (i.e. "Can you make yours look like mine?")
- Turn-taking (i.e. "Ok, you do the next one")
- Simple collaborative building (i.e. "What should we build? What next? Show me")

Lego rules were shown and referred to them throughout sessions. The Lego rules were:

1. Build things together.
2. If it gets broken, fix it or ask for help.
3. If someone else is using a piece, ask first (don't take it).
4. Use indoor voices.
5. Use polite words.
6. Sit nicely (keep your hands and feet to yourself)
7. Tidy up and put things back where they came from
8. Do not put Lego bricks in your mouth.

Level 2 - Collaborative Building with one peer:

- Still requires close adult supervision
- Helpful to have a good role model as a partner
- Start with set building, not freestyle
- Easy to finish sets, increase complexity as and when children can build reciprocally without too much adult help.

Overall structure and features

The Lego therapy sessions will conduct by the school. The sessions of 45 minutes duration each. The role was to prompt interaction among the children and help them come up with their own solutions. Lego therapy sessions consisted of two sections (LeGoff et al., 2014); 30 minutes of collaborative Lego project and 15 minutes freestyle building.

Lego therapy is delivered as an intervention for individuals or small groups (up to 3 people including supervisor). The role of the adult is to prompt children to generate their own solutions to any problems the group may encounter.

Lego Therapy roles within a group of 2 children:

- 2 peers will build the Lego blocks according to design.

Mode 2: Collaborative Building with One Peer:

Activities involve collaborative building with one peer, and often require close adult supervision. It is often helpful, especially initially, to have a more advanced peer mentor (or a typically developing peer if utilized) as a Helper (Pierce and Schreibman 1997).

Collaborative Set-Building:

With pairs, it is often helpful to start off with sets that are within reach of the child who is being helped. As the pair demonstrates reciprocal building (e.g. they are able to complete a small set independently, with minimal adult intervention), the level of complexity of sets can be increased. The helping child may need to be given additional support and rewards for being patient and supportive at this stage, with access to preferred sets or magazines, for example, or by earning new sets or desired pieces. Typically, Helpers have difficulty allowing the less-skilled Builder to fully participate, and will tend to take over the task completely. For this reason, the adult should strictly regulate the activity by assigning specific tasks as follows:

- The child just starting Mode 2 will be the Parts Supplier. Their job is to find the correct LEGO pieces and give them to the child who they are working with.
- The more advanced member of the pair will be the Builder. Their job is to put the pieces together according to the instructions. (Care should be taken not to assign the role of Parts Supplier to a participant who is already capable of building.)
- The Parts Supplier should be encouraged and prompted primarily by the Builder, not the adult supervisor. For example, the Builder should prompt the Parts Supplier when they have finished one step and need the next piece.

The Builder should be instructed to follow a hierarchy of requests or prompts. First, the Builder will ask for specific parts needed to complete the set by verbally describing the pieces (e.g. “Please can I have a black two by two brick?”). Second, if the Parts Supplier gives the wrong piece or doesn’t respond, the Builder should point to the item in the instructions, again giving the verbal label. Finally, if the Parts Supplier has not yet given the correct piece, the Builder should point to the actual piece, and again verbally label it.

The Builder should not take pieces from the Parts Supplier, or take the Parts Supplier's hand to guide a response. Only when there is a clear failure of verbal and nonverbal requests should the adult give direct assistance by pointing or handover-hand prompting. The adult should also repeat the verbal prompt, and, if necessary, place the piece in the Parts Supplier's hand, and then prompt him or her to give the piece to the Builder.

This process of collaborative building with a peer is at the core of the LEGO ®-Based Therapy process, and should be learned and perfected as a central skill-building strategy. All higher-level LEGO-Based Therapy activities are dependent on mastery of this initial collaborative task.

Once a Parts Supplier has shown some mastery of this task, that is, the child spontaneously gives parts and needs fewer nonverbal prompts, then turn-taking should be introduced. In this situation, the set is either divided according to number of steps (e.g. one child is Builder for the first 20 of 40 steps and the second child is Builder for the final 20 steps), or by functional design characteristics of the set (e.g. building different parts, or sections of a set). On larger sets, with pairs collaborating, it may be necessary to switch more than once during the completion (e.g. switching every ten steps). Alternatively, turn-taking can be determined by time, for example swap roles every five or ten minutes.

Effective Strategies in LEGO Based Therapy:

- Siblings attending groups as Helpers (though they must be prepared and attend regularly).
- Including therapeutic aides, graduate students, or other trained helpers (but not parents).
- Allowing group members free-play time to be creative and participate in role-based fantasy play with the figures and sets, rather than just building, leads to increased spontaneous interaction among group members.
- Encouraging female group members to join—this is especially helpful in older groups in which adolescent developmental issues are discussed.
- Allowing group members to join each other and family members for meals or snacks prior to groups, either at an agreed-upon location, home or in the waiting room, especially during special occasions e.g. Christmas, birthdays, bar-mitzvahs etc.
- Having a 10–15 minute "check-in" time in which members are asked to give a verbal account of personal experiences or to share views.
- Children with a range of development and behavioral issues can be included, but those whose primary issues behaviorally and socially are impulsive, should be pre-screened referred to other modes of intervention. These members can be re-screened at a later date, once the behavioral issues have been addressed to determine if underlying social development issues persist and still need to be remediated.

- Group members making joint decisions about issues that affect the group, for example, choosing new LEGO, activities for the day, and promotions of members.
- Assigning mentors for newer group members, and encouraging pro-social helpful and teaching.
- Encouraging families to develop a support and activity network outside of LEGO-Based Therapy.
- Including children with anxiety conditions, especially social phobia, depression, or adjustment difficulties, manifesting as depression or anxiety, in the group. Many of them continue to attend as Helper log after their presenting problems are resolve.

LEGO- Based Therapy Log and session plan

Group members:

Therapist(s):

Location:

Session number:

Plan:

Activities for this session (e.g. introduce, rules, brick, description build a particular model, certificates etc.)

……

……

Targets for this session (e.g. children to work together, practice turn – taking, any behaviors you want to work all.)

……..

Other Comments and Observations:

……

……

Appendix: 09

Lego therapy improvement of pretest and posttest score of social skill checklist:

Maintain proximity to peers within 1 foot:

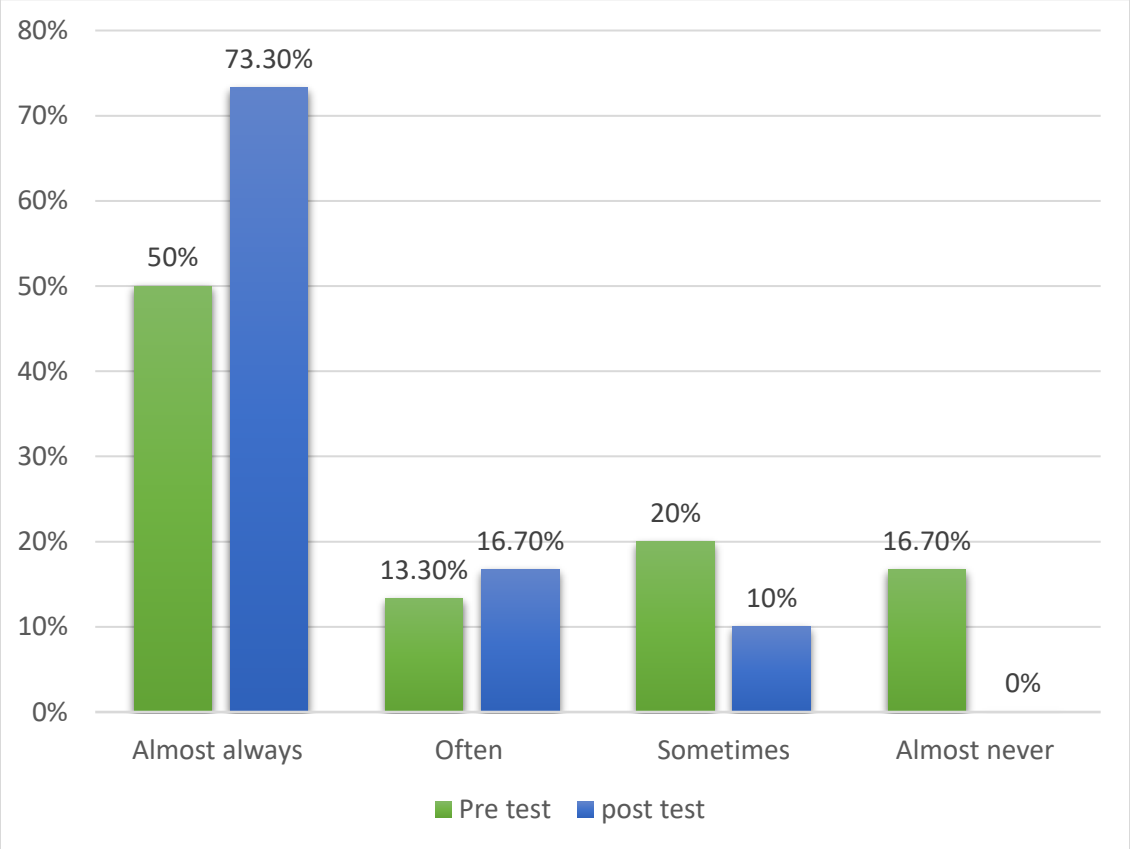

Figure III: Maintain proximity to peers within 1 foot

Here in this research figure III shows that in case of Q1 was maintain proximity to peers within 1 foot scored for 73.3% almost always is increased that means child are likely interest play with peer in closely.

Observe peers in play vicinity within 3 feet:

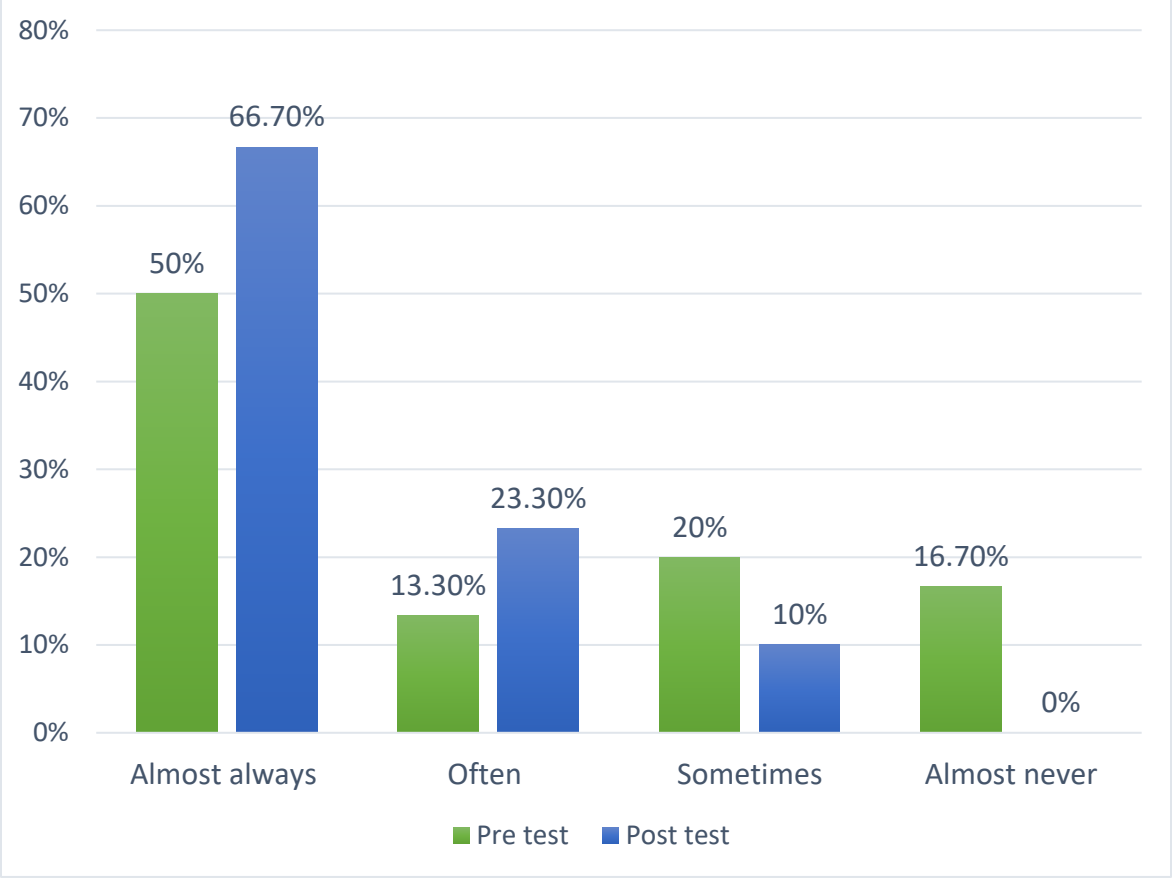

Figure IV: Observe peers in play vicinity within 3 feet

In case of Q2 they are 66.7% able to observe peers in play vicinity within 3 feet with other children that means they are interested to interact with peer. Also 23.3% often and 10% sometimes because it depends on child's developmental level.

Play cooperatively with peers during imaginative play:

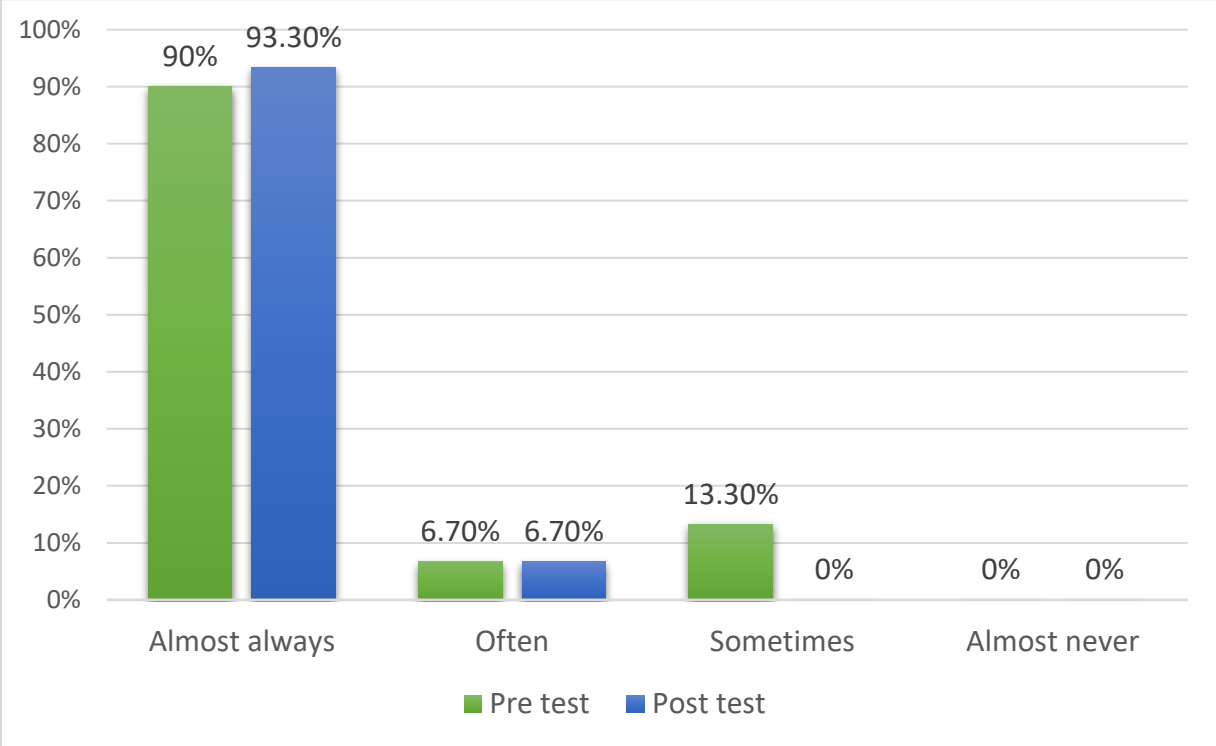

Figure V: Play cooperatively with peers during imaginative play.

For this figure IV shows that children with autism they are 93.3% able to play cooperatively with peers during imaginative play with other children and 0% almost never.

Table II: Play Behaviors

Variable	**Almost always**		**Often**		**Sometimes**		**Almost never**	
1.1 Beginning Play Behaviors	Pre	Post	Pre	Post	Pre	Post	Pre	Post
3. Parallel play near peers using the same or similar materials.	7 23.3%	11 36.7%	4 13.3%	8 26.7%	7 23.3 %	10 33.3%	12 40%	0

4. Physically Imitates peer.	6 20.0%	6 20.0%	**7** 23.3%	12 40%	10 33.3 %	8 26.7%	7 23.3%	4 13.3%
5. Verbally Imitates peer.	8 26.7%	8 26.7%	6 20.0%	**7** 23.3%	8 26.7 %	11 36.7%	8 26.7%	4 13.3%
6. Take turns appropriately during simple games.	9 30%	11 36.7%	3 10%	4 13.3%	6 20.0 %	4 13.3%	12 40%	11 36.7%
1.2 Intermediate Play Behaviors	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1. Shares toys and talks about the activity with peers, even though the play agenda of the other children is different.	5 16.7%	5 16.7%	6 20%	11 36.7%	**7** 23.3 %	8 26.7%	12 40%	6 20%
2. Physically and verbally respond to interactions from peers (accepts toy from peer, answer questions)	5 16.7%	5 16.7%	8 26.7%	14 46.7%	9 30%	6 20%	8 26.7%	5 16.7%
3. Return and initiate greetings with peers	9 30%	11 36.7%	3 10%	4 13.3%	6 20%	4 13.3%	12 40%	11 36.7%
4. Know appropriate ways of joining in an activity with peer.	11 36.7%	11 36.7%	3 10%	6 20%	8 26.7 %	8 26.7%	8 26.7%	5 16.7%
5. Invite others to play.	**7** 23.3%	10 33.3%	3 10%	4 13.3%	8 26.7 %	**7** 23.3%	12 40%	9 30%
6. Take turns during structured activities	4 13.3%	9 30%	**7** 23.3	14 46.7%	11 36.7 %	4 13.3%	8 26.7%	3 10%
7. Obeys game rules.	6 20%	13 43.3%	3 10%	10 33.3%	13 43.3 %	4 13.3%	8 26.7%	3 10%
8. Requests toys, food, and materials from peers.	5 16.7%	13 43.3%	0	4 13.3%	9 30%	5 16.7%	16 53.3%	8 26.7%
1.3 Advanced Play Behavior.	Pre	Post	Pre	Post	Pre	Post	Pre	Post
2. Make comments about what he/she is playing to peer.	**7** 23.3%	9 30%	2 6.7%	3 10%	6 20%	3 10%	15 50.0%	15 50.0%
3. Organizes play (suggests ideas to peers on how to play)	2 6.7%	5 16.7%	**7** 23.3%	6 20%	5 16.7 %	5 16.7%	16 53.3%	14 46.7%
4. Follow peers play plans.	1 3.3%	3 10%	3 10%	5 16.7%	6 20%	11 36.7%	20 66.7%	11 36.7%

5. Take turns during unstructured activities without a time limit.	1 3.3%	2 6.7%	2 6.7%	13 43.3%	11 36.7 %	4 13.3%	23 76.7%	11 36.7%
6. Offer toys, food, and materials to peers.	4 13.3%	6 20%	3 10%	12 40%	11 36.7 %	**7** 23.3%	12 40%	5 16.7%

Table II showed that play behavior of autism child of before and after of Lego therapy intervention. Parallel play near peers using the same or similar materials score post-test 36.7% always almost that represents that playing behavior are changed most of the autism children. Beginning paly behavior are physically imitates peer, verbally imitates peer that is few changed and take turns appropriately during simple games are better increased that means they are wait for turning. Intermediate play behaviors are shares toys and talks about the activity with peers, even though the play agenda of the other children is different score almost always is not changed but 36.7% often and 26.7% sometimes slightly increased, physically and verbally respond to interactions from peer score of 46.7% often children with autism are interacted with peer. Also return and initiate greetings with peers, know appropriate ways of joining in an activity with peer, invite others to play, take turns during structured activities that shows little change in play behavior but obeys game rules, requests toys, food, and materials from peers that presents good score in almost always that means this behavior helps to interact with other people. Here, advanced play behaviors that score of make comments about what he/she is playing to peer, organizes play, follow peers play plans, take turns during unstructured activities without a time limit, offer toys, food, and materials to peers that increased few percentage that means their behavior are little changed.

Table III: Understanding emotions and self-regulation

Variable	**Almost always**		**Often**		**Sometimes**		**Almost never**	
2.3 Understanding Emotions	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1. Identifies likes and dislikes.	15 50.0%	15 50.0%	2 6.7%	2 6.7 %	0	**7** 23.3%	13 43.3%	6 20%
2. Identifies emotions in self.	8 26.7%	**7** 23.3%	3 10%	5 16.7 %	4 13.3%	8 26.7%	15 50.0%	10 33.3%

3. Identifies emotions on others.	3 10%	3 10%	5 16.7%	**7** 23.3 %	5 16.7%	3 10%	17 56.7%	17 56.7%
4. Justifies emotions once identified (eating because I'm hungry)	9 30%	9 30%	3 10%	3 10%	2 6.7%	3 10%	16 53.3%	15 50.0%
5. Demonstrates affection and empathy toward peers.	6 20%	6 20%	4 13.3%	5 16.7 %	3 10%	2 6.7%	17 56.7%	17 56.7%
6. Refrains from aggressive behaviors toward peers.	12 40%	9 30%	5 16.7%	4 13.3 %	2 6.7%	8 26.7%	11 36.7%	9 30%
7. Refrains from aggressive behaviors toward self.	10 33.3%	13 43.3%	8 26.7%	**7** 23.3 %	3 10%	1 3.3%	9 30%	9 30%
8. Dose not exhibit intense fears or phobias.	3 10%	**7** 23.3%	3 10%	**7** 23.3 %	4 13.3%	2 6.7%	20 66.7%	14 46.7%
9.Interprets body language	4 13.3%	4 13.3%	0	0	4 13.3%	6 20%	22 73.3%	20 66.7%
10. Uses different tones of voice to convey messages.	8 26.7%	8 26.7%	2 6.7%	4 13.3 %	0	1 3.3%	20 66.7%	17 56.7%
2.2 Self-Regulation	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1. Allow others to comfort him/her if upset or agitated to do.	6 20%	6 20%	0	0	9 30%	11 36.7%	15 50.0%	13 43.3%
2. Self regulates when tense or upset.	6 20%	6 20%	0	0	**7** 23.3%	6 20%	17 56.7%	18 60%
3. Self-regulate when energy level is high.	0	3 10%	4 13.3%	1 3.3 %	4 13.3%	3 10%	22 73.3%	23 76.7%
4. Deals with being teased in acceptable ways.	11 36.7%	11 36.7%	1 3.3%	1 3.3 %	2 6.7%	2 6.7%	16 53.3%	16 53.3%
5. Deals with being left out of group.	15 50.0%	17 56.7%	2 6.7%	2 6.7 %	6 20%	4 13.3%	**7** 23.3%	**7** 23.3%
6. Accepts not being first at a game or activity	6 20%	8 26.7%	3 10%	2 6.7 %	5 16.7%	3 10%	16 53.3%	1756.7 %
7. Accepts losing at a game without becoming upset/angry	3 10%	5 16.7%	1 3.3%	0	**7** 23.3%	8 26.7%	19 63.3%	17 56.7%
8. Say "no" in an acceptable way to things s/he doesn't want.	3 10%	3 10%	1 3.3%	0	**7** 23.3%	8 26.7%	19 63.3%	19 63.3%
9. Accept being told "no" without becoming upset/ angry.	2 6.7%	2 6.7%	2 6.7%	1 3.3 %	10 33.3%	11 36.7%	16 53.3%	16 53.3%
10. Able to say "I don't know."	5 16.7%	8 26.7%	2 6.7%	0	2 6.7%	3 10%	21 70%	19 63.3%

11. Able to end conversations appropriately.	3 10%	4 13.3%	0	0	1 3.3%	5 16.7%	26 86.7%	21 70%

Table III showed the emotions that under of four sub points like understanding emotions and self-regulation.

Understanding emotions score 23.3% of children sometimes identifies likes and dislikes, identifies emotions in self sore of often 16.7% and sometimes 26.7% that means few children is known self-emotion. The improvement of identifies emotions on others, justifies emotions once identified, demonstrates affection and empathy toward peers that are little increased but score of refrains from aggressive behaviors toward peers, refrains from aggressive behaviors toward self, dose not exhibit intense fears or phobias, interprets body language, uses different tones of voice to convey messages are few percent increase that means children are catch their emotion. Self-regulation that improved rather than pre-test score like self-regulate when energy level is high, deals with being left out of group, accepts not being first at a game or activity and accepts losing at a game without becoming upset/angry.

Table IV: Flexibility and problem solving

2.3 Flexibility Pre		Post	Pre	Post	Pre	Post	Pre	Post
1. Accepts making mistakes without becoming upset/angry	11 36.7%	12 40%	3 10%	**7** 23.3 %	5 16.7%	2 6.7%	11 36.7%	9 30%
2. Accepts consequences of his/her behavior.	10 33.3%	10 33.3%	1 3.3%	6 20%	8 26.7%	5 16.7%	11 36.7%	9 30%
3. Accepts unexpected changes.	0	0	0	1 3.3%	11 36.7%	12 40%	19 63.3%	17 56.7 %
4. Continues to try when something is difficult.	0	0	0	1 3.3%	8 26.7%	9 30%	22 73.3%	20 66.7 %
5. Ignores others or situations when it is desirable to do so.	0	0	0	1 3.3%	1 3.3%	2 6.7%	29 96.7%	27 90%
2.4 Problem Solving	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1. Identifies /defines problems.	19 63.3%	19 63.3%	0	0	4 13.3%	8 26.7%	**7** 23.3%	3 10%
2. Generates solutions to problems.	19 63.3%	19 63.3%	0	0	2 6.7%	4 13.3%	9 30%	**7** 23.3 %

3. Carries out solutions by negotiating or compromising.	12 40%	13 43.3%	3 10%	2 6.7%	5 16.7%	6 20%	10 33.3%	9 30%
4. Ignores others or situations when it is desirable to do so.	9 30%	9 30%	6 20%	6 20%	5 16.7%	5 16.7%	10 33.3%	10 33.3 %

Table IV showed the flexibility and problem solving. The child are few flexible such as accepts making mistakes without becoming upset/angry, accepts consequences of his/her behavior that presents little change in flexibility. The problem solving sore of 43.3 % almost always in carries out solutions by negotiating or compromising.

Table V: Communication Skills

Variable	**Almost always**		**Often**		**Sometimes**		**Almost never**	
3.1 Conversational Skills	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1. Initiate conversations when it is appropriate to do so.	5 16.7%	5 16.7%	2 6.7%	0	8 26.7%	9 30%	15 50.0%	16 53.3%
2. Initiates conversation around specified topic.	5 16.7%	5 16.7%	0	0	8 26.7%	11 36.7%	17 56.7%	14 46.7%
3. Ask "Why" questions.	5 16.7%	5 16.7%	0	0	4 13.3%	4 13.3%	21 70%	21 70%
4. Respond to "Why" questions.	5 16.7%	5 16.7%	0	0	2 6.7%	2 6.7%	23 76.7%	23 76.7
5. Make a variety of comments, related to the topic, during conversations.	0	2 6.7%	**7** 23.3 %	5 16.7 %	0	1 3.3%	23 76.7%	22 73.3%
6. Introduces him/herself to someone new.	6 20%	10 33.3%	5 16.7 %	1 3.3%	2 6.7%	2 6.7%	17 56.7%	17 56.7
7. Introduces people to each other.	8 26.7%	10 33.3%	3 10%	1 3.3%	2 6.7%	2 6.7%	17 56.7%	17 56.7%
8. Ends conversations appropriately.	**7** 23.3%	**7** 23.3%	2 6.7%	0	3 10%	3 10%	18 60%	17 56.7%
3.2 Non-verbal conversational Skills	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1. Maintain appropriate proximity to conversation partner.	5 16.7%	5 16.7%	1 3.3%	1 3.3%	4 13.3%	6 20%	20 66.7%	18 60%
2. Orient body to speaker.	5 16.7%	5 16.7%	1 3.3%	1 3.3%	4 13.3%	4 13.3%	20 66.7%	20 66.7%

3. Pays attention to a person's nonverbal language and understand what is being communicated.	3 10%	3 10%	1 3.3%	1 3.3%	3 10%	3 10%	23 76.7%	23 76.7%
4. Waits to interject.	**7** 23.3%	8 26.7%	2 6.7%	4 13.3 %	8 26.7%	**7** 23.3%	13 43.3%	11 36.7%
3.3 Compliments	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1.Gives appropriate compliments to peers	7 23.3%	7 23.3%	1 3.3%	1 3.3%	10 33.3%	10 33.3	12 40%	12 40%
2. Appropriately receives compliments.	7 23.3%	7 23.3%	1 3.3%	3 10%	10 33.3%	8 26.7%	12 40%	12 40%
3. Asks for a favor appropriately.	3 10%	3 10%	1 3.3%	1 3.3%	3 10%	3 10%	23 76.7%	23 76.7%
4. Apologizes independently.	**7** 23.3%	8 26.7%	2 6.7%	4 13.3 %	8 26.7%	**7** 23.3%	13 43.3%	11 36.7%

Here in table V shows that communication skills such as conversational skills, non-verbal conversational Skills and compliments.

The children are good conversation in make a variety of comments, related to the topic, during conversations, introduces him/herself to someone new, introduces people to each other. Also their non-conversational skills like maintain appropriate proximity to conversation partner, orient body to speaker, pays attention to a person's nonverbal language and understand what is being communicated not changed in almost always but waits to interject is increased 26.7% of almost always that means their non-verbal conversation improved that might help to communication with other peer. Complements such as apologizes independently score of 26.7% almost always but gives appropriate compliments to peers, appropriately receives compliments, asks for a favor appropriately not improved because children did not able to shows that complements.