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Effectiveness of Behavioral Therapy Program on Children with Autism Spectrum Disorders

A Dissertation Submitted

By

Dhafer Ameen Jabbar Almossawy

To

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Supervised by:

Prof. Dr. Saja Hashim Mohammed AL-Rubaie

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بسم الله الرحمن الرحيم
((قُلْ كُلٌّ يَعْمَلُ عَلَى شَاكِلَتِهِ فَرَبُّكُمْ
أَعْلَمُ بِمَنْ هُوَ أَهْدَى سَبِيلاً))
صدق الله العظيم
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Supervisor Certificate

This is to certify that the dissertation entitled: **Effectiveness of Behavioral Therapy Program on Children with Autism Spectrum Disorders**, submitted by **Dhafer Ameen Jabbar Almossawy** to the University of Babylon, College of Nursing in partial fulfillment of the requirements for the Degree of Doctor of Philosophy in Nursing. The dissertation work was carried out by the student under my supervision.

Signature

Prof. Dr. Saja Hashim Mohammed AL-Rubaie (Ph.D.)

Date: / / 2023

Signature

Prof. Dr. Amean Ageel Yasir. Ph.D

Head of Psychiatric-Mental Health Nursing & Community Health Nursing

College of Nursing / University of Babylon

Date: / / 2023

Committee Certification

We, the members of the Dissertation Discussion Committee, certify that we have reviewed the dissertation entitled **‘‘Effectiveness of Behavioral Therapy Program on Children with Autism Spectrum Disorders”** carried out by **Dhafer Ameen Jabbar Almossawy** and examined the student in the contents on Sunday, 26 /11 / 2023.

We decided that the dissertation is accepted as partial fulfillment of the requirements for the Degree of Doctor of Philosophy in Nursing with an estimation of ( ).

Member
Prof. Dr. Nuhad Mohammed Kassim
(Ph.D.)
Date: / 11 / 2023

Member
Prof. Dr. Shatha Saadi Mohamed
(Ph.D.)
Date: / 11 / 2023

Member
Asst. Prof. Dr. Waleed Azeez AlAmeedy
(Ph.D.)
Date: / 11 / 2023

Member
Asst. Prof. Dr. Qahtan Qasim Mohammed
(Ph.D.)
Date: / 11 / 2023

Chairperson
Prof. Dr. Arkan Bahlol Naji
(Ph.D.)
Date: / 11 / 2023
Approved by the council of the college of Nursing

Prof. Dr. Amean Ageel Yasir. Ph.D
Dean of Collage of Nursing
Date: / / 2023

Dedication

Praise be to first Allah Almighty.

To

- My first teacher in life, whose bosom is safety, whose heart is tenderness, and his name is honor on my chest... (**my father),**
- The flower that bloomed to show us the sweet fragrance of her serenity (**my beloved mother**),
- The secret of my happiness, my companion in life, the source of my pride, and the light of my eyes **(my beloved wife),**
- The flowers that relieved me of the thorns of time (my children) (**Ameer, Jannat** and **Elias).**
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Abstract

Behavioral therapy is an intervention program for an autistic child to improve desired behaviors and reduce undesirable behaviors through behavior modification strategies based on the principles of analytical behavioral therapy. The study's main aim was to assess how well a behavioral therapy program addressed an autistic child with behavioral problems.

The quasi-experimental study design consisted of (40) autistic children who participated as approvement taken from their families voluntarily in the study. The autistic children were selected through a "non-probability" (purposive) sample. The study carried out through the application of a repeated measures approach that consisted of three assessments (Pre-program test, and two tests after the program) post-test I, and post-test II for both study and control groups. The study was done through training sessions by behavioral therapy between the 1st of October 2021 and the 20th of April 2023) through the application of a Post-Test-1 two months after finishing the interventional program, and the following period for 3 months by monthly assessment through Gilliam Autism Rating Scale (GARS-2) and application of a Post-Test-2 three months after Post-Test-1. The researcher created the unique questionnaire variables.

The research results show that the findings of the severity of Autism Spectrum Disorder (ASD) for the experimental and control groups in the (Pre-test) regarding behavioral problems were High assessment with total of score (128.35) for experimental group and (125.90) were High for control group, which indicates a necessary need for applying behavioral therapy program, and after implementing the program and follow-up toward the severity of ASD with families, the results became in Post-test-II

were Below Average assessment with a total of score (87.15) for the experimental group and (123.55) were High for the control group.

The study concluded that the program has proven its real effectiveness towards children with ASD, after three months from the first evaluation (Post-test) of the implementation of the behavioral program through follow-up, supervision, and continuous rehabilitation, this is what enhances the behavioral intervention with autistic children continuously, and achieving integrated rehabilitation to reach the highest rate of improvement.

The study recommended intervention and rehabilitation by Behavioral Therapy with the autistic child must be through organized short-term and long-term treatment plans that target behavioral problems (repetitive and stereotype behaviors) and which should be measured and followed up monthly.

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List of Symbols and Abbreviations

Items	Meaning
Symbols	
$	American Dollar
%	Percent
&	And
∑	Summation
>	Greater than
<	Less than

≤	Less than or equal.
≥	Greater than or equal.
A	
AAC	Augmentative and Alternative Communication
AAP	American Academy of Pediatrics
AACAP	American Academy of Child and Adolescent Psychiatry
ABA	Applied Behavioral Analysis
ABC	Autism Behavior Checklist
AD	Anno Domini
ADDM	Autism and Developmental Disabilities Monitoring
ADHD	Attention-Deficit/Hyperactivity Disorder
ADI-R	Autism Diagnostic Interview - Revised
ADOS	Autism Diagnostic Observation Scale
ADLs	Activities of Daily Living
Ass.	Assessment
AH	Anno Hegirae
AISEP	Autism Screening Instrument for Educational Planning
APA	American Psychiatric Association
ASDs	Autism Spectrum Disorders
AsD	Asperger's Disorder
B	
B.C	Before Christ
BMJ	British Medical Journal
C	
C.S.	Comparative Significant
CAM	Complementary & Alternative Medicine
CARS	Childhood Autism Rating Scale
C.C.	Contingency Coefficient
CCHS	Canadian Community Health Survey
CDC	Center for Diseases Control and Prevention
CDD	Childhood disintegrative disorder
CG	Control group
CI	Confidence Interval
D	
DASH-II	Diagnostic Assessment for the Severely Handicapped-II
DASS	Depression, Anxiety , Stress Scale
DALYs	Disability-Adjusted Life Years
DAT	Dolphin-Assisted Therapy
DD	Developmental Delays

df	Degree of Freedom
Dr.	Doctor
DS	Down Syndrome
DSM-5-TR	Diagnostic Statistical Manual of Mental Disorders-5th Edition – Text Revision
DTT	Discrete Trial Training
E	
e.g.	Example gratia (For example)
ECI-4	Early Childhood Inventory – 4th Edition
EIBI	Early Intensive Behavioral Intervention
ESDM	Early Start Denver Model
EG	Experimental Group
et al.,	Italia (others)
F	
F	Frequency
FXS	fragile X syndrome
G	
GARS	Gilliam Autism Rating Scale
GHQ-12	General health questionnaire -12
H	
HBOT	Hyperbaric Oxygen Therapy
H. P.T	Hundred percent transforming
H.S.	Highly Significant
I	
IACC	Interagency Autism Coordinating Committee
ICN	International Council of Nurses
ID	Intellectual Disability
IEP	Individual Education Plan
M	
MMR	Measles, Mumps, and Rubella
MS	Mean of Score
N	
N	Total number of the sample
N.	Numbering
N.S	Not-Significant
NIMH	National Institute of Mental Health
NHIS	National Health Interview Survey
No.	Number
NSAC	National Society for Autistic Children
R	
OR	Odds Ratio

P	
P	P. value = priority value
P.	Page
p.p.	Papers
P.E.T.	Positron Emission Tomography
PDD	Pervasive Developmental Disorder
PDD-NOS	Pervasive Developmental Disorder Not Otherwise Specified
PRT	Pivotal Response Training
PL-ADOS	Pre-Linguistic Autism Diagnostic Observation Scale
R	
r	Correlation Coefficient
RDI	Relationship Development Intervention
S	
S	Significant
SD	Standard deviation
SPSS	Statistical Package of Social Sciences-version
SES	Socioeconomic Status
SSRI	Selective Serotonin Reuptake Inhibitor
T	
TD	Typically Developing (Healthy Children)
TEACCH	Treatment and Education of Autistic and Related Communication-Handicapped Children
U	
UK	United Kingdom
UCLA	University of California, Los Angeles
USA	United States of American
V	
Vol.	Volume
VABSA	Vineland Adaptive Behavior Scales
W	
WHO	World Health Organization
WHOQOL	World Health Organization Quality Of Life
X	
χ^2	Chi-square test
Y	
yrs	Years

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Chapter One

Introduction

Chapter One

1. 1 Introduction

Autism spectrum disorder (ASD) is a neurodevelopmental condition characterized by cerebral variations. Certain individuals diagnosed with Autism Spectrum Disorder (ASD) exhibit discernible variations, such as a genetic anomaly. The underlying factors are unidentified at present. It is widely postulated by scientists that ASD arises from a confluence of several factors, which collectively influence the typical trajectory of human development. There remains a significant knowledge gap about the underlying causes of ASD and their impact on individuals with this condition (APA, 2022).

Autism Spectrum Disorder (ASD) typically manifests prior to the age of three and can persist throughout an individual's lifespan, albeit with the possibility of symptom amelioration as time progresses. Certain children exhibit symptoms of ASD throughout the initial 12 months of their lives. In certain cases, symptoms may not manifest until the child reaches the age of 24 months or beyond. Certain people diagnosed with ASD exhibit a pattern wherein they acquire novel abilities and achieve developmental milestones until almost eighteen to twenty-four months of age. Subsequently, their progression in acquiring new skills stagnates or regresses, resulting in a loss of previously acquired abilities (Zhou et al., 2023)

ASD is distinguished by the persistent and typically profound a deficit of social interaction abilities, deviant speech, and confined stereotyped behavioral patterns. The categorization of previous pervasive developmental disorders, including Rett disorder, childhood disintegrative disorder, and Asperger disorder, has evolved to encompass a broader range

of conditions known as the autism spectrum. This modification facilitates the resolution of issues that were present when endeavoring to differentiate between these occasionally comparable illnesses. (Videbeck, 2020)

ASDs have wide-ranging and significant impacts on various domains such as healthcare, education, social services, housing, employment, welfare benefits, and labor markets. These consequences impose a considerable economic cost that persists into adulthood and is frequently shouldered by families. (Kim et al., 2022).

The indications of Autism Spectrum Disorder (ASD) typically manifest prior to the age of three, and numerous caregivers express apprehensions about developmental issues within 2 year of a child's life or even sooner. However, it is important to acknowledge that a considerable proportion of children diagnosed with Autism Spectrum Disorder (ASD) are not identified until they reach school age. Additionally, a smaller proportion of these children receive early therapies due to the limitations of relying solely on clinical judgment for detecting ASD in young children. (Zahorodny et al., 2018)

The children that meet diagnostic criteria of ASD may demonstrate stereotyped behaviors and interests, which commonly manifest as a strict adherence to inflexible routines and the display of motor stereotypes, such as hand flapping or body rocking (Zahorodny et al., 2018).

The ASD is distinguished by the presence of delayed and atypical development in social, communication, and cognitive abilities, which manifest throughout the early stages of childhood. While often linked with cognitive impairment, this particular disorder possesses unique characteristics in terms of its progression, effects, and therapeutic

approaches. Autism spectrum disorder encompasses a diverse array of syndromes, posing unique challenges for clinicians in terms of its care. Individuals diagnosed with autism spectrum disorder may seek clinical care at any stage of their developmental trajectory. The presence of several developmental and behavioral issues linked to this particular illness requires the implementation of a comprehensive approach to care, involving multiple disciplines, coordinated services, and active support for both individuals and their families. It is recommended to implement early and consistent intervention strategies, as well as employ various therapy modalities. (Hyman, S.E., Myers, 2020)

The diagnosis of Autism Spectrum Disorder (ASD) might present challenges due to various aspects that are not particular to autism, such as cognitive abilities and age. Furthermore, the complexity of diagnosing ASD is heightened by the interplay between developmental processes and the symptoms associated with ASD. During a specified timeframe, numerous attributes, particularly those identified by individuals providing information, which are typically associated with ASD, are not inherently exclusive to the diagnostic criteria and may manifest in other illnesses. (Rogers, et al., 2020)

The efficacy of early intensive behavioral intervention in the treatment of children diagnosed with autism spectrum disorders (ASDs) has been well-documented. However, it is important to note that the cost associated with this intervention can be a significant barrier for many individuals and families. The defrayal of expenses may be possible in cases where children can derive benefits from parental involvement in therapeutic activities. (Solmi et al., 2022)

Behavioral techniques are based on the principles of learning theory and center around the systematic observation and assessment of behavior. These approaches aim to discover the underlying motivating elements, antecedent stimulus, and consequences which contribute to the development of skills and the reduction of problem behavior. The assessment of progress is conducted through systematic methodologies, wherein the derived data is employed to inform and direct intervention strategies (Wergeland et al., 2022).

The primary objective of behavior therapy is to facilitate the transfer of behavior modification from the clinical context to the real-world environment, hence optimizing a children's capacity to operate autonomously (Bejnö, 2021).

The main objective of early diagnosis is to facilitate early intervention, a critical aspect given the observed inverse relationship between the age at which intervention begins and the subsequent treatment outcomes (Zwaigenbaum et al., 2019).

According to the findings of the National Research Council's Committee on Educational Interventions for Children with Autism (2012), it has been observed that children who are provided with personalized and intensive interventions from three age exhibit the most significant improvements in response to therapy. According to the guidelines, it is recommended that preschool-aged children received at least of twenty-five hours of treatment each week, consistently throughout the year. Treatment regimens that utilize behavioral strategies have been extensively supported by empirical evidence (Rovane et al., 2020).

There is abundant evidence to support the notion that children who undergo early and extensive behavioral intervention exhibit

significant enhancements in their cognitive abilities as well as their adaptive behavior (Valdez et al., 2023).

In order to ensure comprehensive skill acquisition, it is imperative to engage in a systematic approach that consists the deliberate instruction of several skills through a substantial number of teaching trials on a daily basis. This rigorous regimen must be sustained over a significant duration of time, spanning multiple years, and encompassing a substantial number of hours each week. Due to the extensive time and labor required, the cost of this treatment is sometimes prohibitively expensive, with estimated expenses exceeding sixty thousand dollars per child annually (Butter, 2003). In addition, insurance rarely covers rigorous behavioral intervention, moreover, most families cannot afford premium medical care (Gosling et al., 2022).

1. 2 Importance of the Study

When a child is born, joy pervades his family, whether male or female, but when the family discovers that their child is suffering from ASD, they go through a stage of shock, not believing what is going on around them, then a stage of denial and escaping from the bitter truth, followed by a stage of ignoring, either ignoring the situation or ignoring the child. himself, and ends with the stage of surrendering to reality, no matter how bitter it is, and this surrender may be out of satisfaction and conviction of what God has destined for them; This makes the parents or caregivers in a state of psychological stability and they can play their role effectively. However, if the surrender of the oppressed makes the entire family in a state of tension from time to time; therefore, they needs behavioral therapy and counseling programs to help them overcome these stages and face the difficult situations these encounters while raising and rehabilitating them

intellectually disabled child and integrating him into society, so psychiatric nursing must have an important and urgent role in rehabilitating the child behaviorally and the family psychologically.

Autism spectrum disorder continues to be seen as an enigmatic condition that has regrettably experienced a significant rise in its frequency throughout recent decades (Zaky, 2017).

The United Kingdom has recorded a prevalence rate of 3.89 per 1,000 for autism and 11.61 per 1,000 for Autism Spectrum Disorder (ASD) among nine and ten-year-old individuals. A study conducted in 2009 at Cambridge in England utilized distinct methodologies to assess prevalence and indicated that over 40% of ASD cases remained undiagnosed (American, 2023)

ASD occurs about 4.5 times more often in boys than in girls. Onset of the disorder occurs in early childhood, and in most cases, it runs a chronic course, with symptoms persisting into adulthood. Estimated prevalence of ASD increased from 2011 to 2014 following changes in developmental disabilities questions in the National Health Interview Survey (NHIS), according to recent findings (Al-Mossawy et al., 2019)

According to a research published by the World Health Organization (WHO), the global median prevalence of Autism Spectrum Disorder (ASD) is 62 per 10,000 individuals. This indicates that approximately one child in every 160 children in Europe is affected by ASD. Furthermore, the median rate of Autism in Europe is reported to be 61.9 per 10,000 individuals. In Australia, it is estimated that half a million individuals are affected by autism. (Mekonnen, 2016).

The prevalence rate of Autism Spectrum Disorder (ASD) in the American country (United States) is approximately 14.7 instances per one thousand children, which translates to a ratio of 1 in 68. However, it is important to note that these numbers can vary significantly depending on factors such as geographical location, gender, and race/ethnicity (Khalifeh et al., 2016).

According to Thi-Qar Autism Center, the number of autistic children registered in Thi-Qar governorate reached 756 children until February of 2018, most of the autism centers in Iraq are linked to the Ministry of Labor, and Social Affairs Which in turn classifies autism within the category of people with special needs (Sachit & Obaid, 2018).

A study conducted in preschool childcare facilities or nurseries in Greater Beirut and Mount Lebanon governorates has revealed a significant prevalence of Autism Spectrum Disorder (ASD) in Lebanon. The estimated prevalence of ASD in toddlers aged 16-48 months is approximately 153 per 10,000, indicating a substantial burden of this condition in the country. (Talantseva et al., 2023)

The increasing global prevalence of Autism Spectrum Disorder (ASD) has prompted extensive research aimed at gaining a deeper understanding of its escalating occurrence, potential etiological factors, and optimal intervention strategies. According to the Center for Disease Control (CDC), one in every 150 children (or 1 in 42 males and 1 in 189 girls) has been identified as having autism spectrum disorder (CDC, 2023).

Autism spectrum disorder (ASD) is a prevalent and rapidly expanding developmental impairment in the United States, with an estimated prevalence of affecting around one in 54 children across the

nation. According to the Centers for Disease Control and Prevention, they reported that in 2018 (Xu et al., 2019).

Autism, or autism spectrum disorder (ASD), refers to a broad range of conditions characterized by challenges with social skills, repetitive behaviors, speech and nonverbal communication. According to the Centers for Disease Control, autism affects an estimated 1 in 36 children in the United States in 2020. (CDC, 2022)

Autism spectrum disorders (ASD) involve a diverse array of behavioral, cognitive, and social difficulties that display considerable variation in their impact and expression among affected children. Although there exist interventions that effectively target skill deficiencies frequently identified in individuals with ASD, it is very important to acknowledge that a substantial fraction of these programs predominantly emphasize behavioral components (Leaf et al., 2020)

It is important to note that some individuals diagnosed with Autism Spectrum Disorder (ASD) are high functioning, while others suffer a more severe part of the spectrum. Autism Spectrum Disorder is the common name used to describe the range of severity of autism these individuals have.(Spain & Happé, 2020)

The prevalence of autism is seen to be around four times higher in males compared to girls. However, it has been noted that females diagnosed with Autism Spectrum Disorder (ASD) often exhibit more pronounced levels of intellectual handicap. While Kanner's initial report indicated a high prevalence of ASD among families with higher levels of education, later studies have failed to support this finding. The present methodologies utilized for diagnosing Autism Spectrum Disorder (ASD) have demonstrated efficacy on a global scale, encompassing various

cultural contexts. However, it is worth noting that cultural dimensions of ASD have not been extensively explored in the existing literature. Under diagnosis can occur in certain situations within the United States, such as among socioeconomically underprivileged children residing in inner-city areas. (Storch et al., 2021)

Valdez. (2023), mentioned that the our choice for this research problem revolves around how to integrate, empower and rehabilitate people with disabilities (children with the autism spectrum disorder) in a healthy society and work to reduce disturbed behaviors and differences between them and enhance their participation in life as part of society and partners in the process of community building. In addition, securing job opportunities commensurate with their capabilities by qualifying them skillfully, behaviorally and intellectually to help integrate them into society and lead their normal lives with complete independence. (Valdez et al., 2023)

The implementation of early intervention strategies for Autism Spectrum Disorder (ASD) has been shown to yield the most favorable results. However, it is important to note that prior to initiating intervention, it is crucial to conduct developmental surveillance and screening. Despite the strong recommendation for screening for the past two decades, a significant proportion of youngsters in the United States are not undergoing screening for Autism Spectrum Disorder (ASD). In this scholarly article, the authors examine the epidemiology, screening, and diagnosis of ASD, along with the recommended early interventions that nurses can implement when there is suspicion of ASD. (Al-Mossawy et al., 2023)

Nurses possess the potential to act as catalysts for change, disrupting this prevailing trend through the provision of education, support, and management to patients' families, community members, and other healthcare team members. Given the observed rise in the prevalence of ASD in recent years, nurses can anticipate encountering a growing number of patients with ASD. (CDC, 2023)

In several domains encompassing clinical practice, academia, and policy, nurses who possess a comprehensive understanding of risk factors, indicators, and contemporary optimal approaches for screening and early intervention in Autism Spectrum Disorder (ASD) are capable of directing caregivers to suitable resources in a timely manner, thereby preventing the loss of crucial treatment opportunities. This article provides a comprehensive overview of the current understanding of ASD epidemiology, highlights recent advancements in ASD screening and diagnosis, and explores the role of nurses in promoting timely identification and intervention for individuals with ASD. (Pinto-Martin et al., 2015)

The scope of intervention in child mental health varies according to the nature of the problem experienced, be it crisis intervention, a chronic mental health condition, or a serious illness. A child may be seen where the presenting problem is not mental health-focused (for example, child abuse and neglect, domestic and family violence), but it is important to keep in mind the child's mental health and assess what impact there is, from the presenting problem, on the child's mental health and wellbeing. Children challenged by mental health problems are particularly vulnerable. In working with children and their families, the occurrence of mental health problems gives primacy to child-centered and strengths-based practice, and exemplifies a systems or holistic approach, as the child is

centered in a context of relationships, which intersect with both the illness experience and their recovery. (Al-Mossawy et al., 2023)

The substantial economic burden encompasses various related expenses. Children diagnosed with ASD require many forms of support, such as medical care, special education, and the potential impact on parental productivity. Similarly, adults with ASD may require residential accommodations, medical care, and may experience a loss in productivity. The implementation of early intervention programs is anticipated to enhance long-term health outcomes and consequently result in significant reductions in lifetime costs related to Autism Spectrum Disorder (ASD). Research has shown that children diagnosed with Autism Spectrum Disorder (ASD) who undergo early intervention are more inclined to exhibit reduced symptoms, experience lower healthcare expenses, participate in mainstream educational programs, and have enhanced employment prospects compared to those who do not receive such intervention (Horlin C, et al. 2014).

1.3. Research Question

How does a behavioral therapy program for autistic children influence the behavioral problems exhibited by children with ASD.

1.4. Hypothesis

There a significant difference in behavioral problems of children with ASD before and after the implementation of behavioral therapy program.

1. 5. Statement of the Problem

The behavioral problems among children with Autism Spectrum Disorders are very many and complex such as self-harm, aggressiveness, disruption of order, Repetitive behaviors, and Missing behaviors, so it is very difficult to intervene with these children to remove these behaviors and improve their lives. The behavioral therapy program will target and treat completely these behavioral problems through the effectiveness of behavioral therapy on children with ASD has been significantly decreasing the behavioral problems (stereotypical behaviors) and enhance communication skills, concentration, memory, and social skills and minimize negative behaviors, while other therapeutic programs of ASD less than effect on behaviors, the program was implemented in Najaf Province/ Happiness center for Autism.

1. 6. Objectives of the Study

The present study aims:

1. To assess the social-demographic characteristics of children with ASD.
2. To assess the severity of autistic symptoms among children.
3. To determine the severity of behavioral problems by GARS among children with ASD before the implementation of the intervention.
4. To evaluate the effectiveness of the behavioral therapy program on behavioral problems for autistic child.
5. To find out relationship between severity of behavioral problems of Autistic Children and their demographic characteristics (age, gender, sequence, father job, mother job and child age at diagnosis) with behavioral therapy program.

1. 7. Definition of the Basic Terms

1. 7. 1. Behavioral Therapy

a. Theoretical definition

Behavioral therapy is environmental modification, an understanding of the behavioral-science meaning of environment is essential. Environment does not mean something out there that a person can enter or leave at will. It refers to the stimuli that are in actual contact with a person. The positive emotional relationship between therapist and child—is used. (Williams & Williams, 2019)

a. Operational definition

Is a set of behavioral skills and communication and social and motor activities that were organized and planned in light of Scientific and methodological foundations, based on behavior modification techniques such as reinforcement - formation - Modeling, and extinction, which was applied to the members of the research sample through a number of sessions, In order to develop their non-verbal behaviors such as: (eye contact, attention concentration, emotional expressions, imitation, pointing, gestures and physical postures).

1. 7. 2. Autism Spectrum Disorder (ASD)

a. Theoretical Definition:

Autism spectrum disorder (ASD) is a collection of neurological developmental disorders that are defined by difficulties in communication and social interaction, along with the existence of stereotypical and recurrent patterns of conduct. (APA, 2022)

b. Operational Definition:

Is every child diagnosed with ASD by the criteria for autism spectrum disorders were used in the Diagnostic and Statistical Manual of Mental Disorders (DSM-V-TR) Fifth Edition (2022), and the Rating of Autism Severity by Gilliam Autism Rating Scale (GARS).

Chapter Two

Review of Literatures

Chapter Two

Review of Literatures

The following is a review of the literatures on Behavioral Therapy Program for Children with Autism Spectrum Disorder (ASD). Historical perspectives of ASDs will be investigated as well as its types. Related etiology and factors of ASDs will also be presented, in addition to behavioral therapy and treatment.

2.1. Historical Overview of Autism Spectrum Disorders (ASD)

The previous history of ASD in the Diagnostic and Statistical Manual, the American Psychiatric Association's holy book of diagnosis, shows how drastically the label has changed over the last 50 years or so. In the DSM, the term autism has largely replaced the terms childhood schizophrenia and childhood psychosis. Its clinical attributes and standards have likewise evolved and changed. This is significant not only because the DSM has influenced diagnostic choices, but also because those choices have affected who is eligible for health insurance coverage and educational benefits (Nielsen et al., 2023).

Kanner, 1951, the first to use the term autism was the American psychiatrist Leo Kanner and that was in (1943), describing those who suffer from autistic disorders. He coined the term “early infantile autism” to describe the constellation of symptoms exhibited by the children he studied. With his publication of detailed case studies, he was considered the first to recognize the denoted behavioral phenotype as disparate from childhood psychosis. Nevertheless, his first work on the subject did not specify diagnostic criteria in 1956, Kanner and Leon Eisenberger

delineated specific symptoms required for classification (Jackman & Zwaigenbaum, 2023).

Many names have been given to this disorder throughout history, such as childhood autism. Schizophrenic Childhood, Early Childhood Autism, The mid-sixties were constructed from (Atypical Ego Development), and the abnormal growth in the past, research activity confirmed the presence of a neurobiological disorder in autistic individuals. (Harris, 2018)

Infantile autism would be recognized as a distinct diagnosis from schizophrenia in the DSM-III in 1980. Six diagnostic requirements have to be met, including appearance prior to 30 months of age, egregious errors in language development, and strange, occasionally rigid attachments to items. The DSM-IIIR (1987) renamed the condition autism and defined it as having a pervasive lack of responsiveness to other people. (Volkmar & McPartland, 2014)

The condition was renamed Autistic Disorder in the revised edition of the DSM III (1987), which also expanded on the diagnostic criteria and protocol. The category was also linked to Pervasive Developmental Disorder Not Otherwise Specified (PDD-NOS), which was to be used if the criteria for Autistic Disorder and Schizophrenia or Schizoid Personality Disorder were not met. (Lipkin et al., 2023)

A Leon Eisenberger (1980) classified autism as a severe emotional disability, due to the multiplicity of theories about autism and its causes, and its association with mental illness, but it was reclassified by the Children's Psychological Association. (Jackman & Zwaigenbaum, 2023)

The term Autism Spectrum Disorders (ASDs) was first included in text revision of the DSM-IV (2000), and it thereafter came to be used

interchangeably with PDDs (American Psychiatric Association 2000). The most well-known condition is Asperger's. Asperger's was regarded as "high-functioning" autism and was named after Hans Asperger, a doctor from Vienna who originally coined the term "autistic psychopathy" in 1944. Asperger's was a label given to persons who had exceptional talent, particularly in the technical, scientific, or artistic disciplines, but lacked social understanding. Children who displayed unusual symptom profiles and did not match all the requirements for autism were placed in the PPD-NOS category. Children with PPD might not have met the criteria for autism in terms of age of onset or behavioral symptoms, such as mutism or speech impairments, repetitive behaviors and narrow interests, inability to interact with others or engage in imaginative play, and object fixation. In the DSM-V (2013), the category of ASDs underwent significant alterations by becoming a single umbrella term for PDDs. (APA, 2013)

In The DSM-V, which debuted in 2013, brought forth yet another modification in the diagnostic lingo. ASD, or autism spectrum disorder, now encompasses all four subgroups. This change generated a great deal of debate. Within the psychiatric, research, and advocacy sectors, where there was dispute over the necessity of greater accuracy in setting diagnostic boundaries, the elimination of Asperger's caused particularly ferocious controversy. (Evans, 2017)

There have been significant concerns raised regarding the possibility that many children and families would be denied the necessary services if prior diagnoses were eliminated. A compromise was made with autism spectrum disorder. It gave the impression of a more constrained condition while maintaining a wide range of internal variance. According to the official definition of ASD, autism could be present with or without intellectual disability, language impairment, or any combination of these,

and its severity could range from "requiring support" to "requiring very substantial support."(Lipkin et al., 2023)

Autism spectrum diseases exhibit a higher prevalence among the pediatric population compared to other well-known conditions such as diabetes, spinal bifida, or Down syndrome. Early diagnosis of the illness enables prompt implementation of therapeutic approaches, hence facilitating timely assistance for the kid. Pediatricians, family physicians, daycare providers, teachers, and parents may first overlook indicators of Autism Spectrum Disorder (ASD), maintaining an optimistic perspective that the child's developmental delay is temporary and will eventually be resolved. (Gertz, 2016)

Children diagnosed with ASD universally demonstrate deficits in three core areas: firstly: social interaction; secondly: verbal and nonverbal communication, and thirdly: repetitive or restrictive behaviors. Furthermore, individuals with this condition frequently exhibit atypical reactions to sensory stimuli, including specific auditory cues or visual perceptions. Each of these symptoms exhibits a range of severity, spanning from mild to severe. The manifestations of these presentations will vary among each individual youngster. For instance, a youngster may experience minimal difficulties in acquiring reading skills, yet demonstrate significant challenges in engaging in social interactions. Every child will exhibit unique communicative, social, and behavioral patterns that are specific to them, yet align with the broader diagnosis of Autism Spectrum Disorder (ASD).(Rice et al., 2022)

The Children diagnosed with ASD display atypical patterns of child development. Certain youngsters may exhibit early indicators of potential difficulties from the moment of their birth. In the majority of instances, the challenges pertaining to communication and social skills tend

to manifest in a more conspicuous manner when the youngster progressively falls behind their peers of comparable age. Several other children demonstrate a satisfactory level of performance initially. Frequently, throughout the developmental stage spanning from 12 to 36 months of age, discernible disparities in their responses to others and other atypical behaviors become evident. Certain parents have observed an abrupt alteration in their children's behavior, characterized by the rejection of individuals, peculiar actions, and a regression in linguistic and social abilities that were previously obtained. In certain instances, a phenomenon known as a "plateau" occurs, wherein progress in individuals with autism reaches a state of equilibrium, resulting in a more discernible disparity between their developmental trajectory and that of typically developing peers of the same age. (Solmi et al., 2022)

2.2. Epidemiological Evidence and Comorbidity of ASD

Around 1% to 2% of the world's population has ASD, with similar figures for children and adults. The prevalence of ASD among 8-year-old children in recent epidemiological estimates, was 1 in 59 US children has ASD in 2014 and 1 in 54 in 2016 1 in 36 child in 2020, a rising rate. The prevalence of ASD in children and adolescents in the United States was reported at 2.5% in 2014 to 2016. Misdiagnosis, delayed diagnosis, or underdiagnoses of some ethno racial groups may impact autism spectrum disease prevalence. Global prevalence in non-U.S. nations is near 1% (0.62% median), with little difference by area, ethnicity, or child and adult sample. The global male:female ratio in well-ascertained epidemiological samples is 3:1, raising concerns regarding under-recognition of autism spectrum disease in women and girls. (Hyman, 2020)

The rate of ASD was determined to be 3.4 per 1,000 children aged 3 to 10 years old, according to data from an earlier report compiled by

a program based in Atlanta and run by the CDC. The Centers for Disease Control and Prevention (CDC) estimates that 2–6 per 1,000 children, or between 1 in 500 and 1 in 150 children, have an autistic spectrum disorder (ASD) based on this study and numerous other large research on the prevalence of autism. The possibility is three to four times more likely in males than in girls. This incidence is higher than the rates for cerebral palsy (2.8 per 1,000 children), hearing loss (1.1 per 1,000 children), and vision impairment (0.9 per 1,000 children), but it is lower than the rate of mental retardation, which is 9.7 per 1,000 children. This rate is lower than the rate of mental retardation because there are fewer children with mental retardation. The Center for Disease Control and Prevention (CDC) points out that these studies do not offer a national estimate. (CDC, 2021)

Despite the high incidence of ASD, researchers have not yet isolated the specific factors that lead to this illness. Genes and environmental variables appear to be the most important contributors to the development of autism spectrum disorder (ASD), according to the research that is still being carried out. ASD is more likely to occur in individuals who were born before 26 weeks, in parents who had children later in life, in individuals who had additional problems, and in individuals who had siblings who had ASD. ASD can be diagnosed based on the individual's delayed behavioral development. (Talantseva et al., 2023)

Multiple impairments are caused by a wide variety of co-morbidities, which are frequently observed in young people who have autism spectrum disorder (ASD). Anxiety is one of the comorbidities that occurs most frequently. Anxiety can cause a persistent feeling of fear and danger, which might prevent regular activities from being carried out. Problems falling asleep or staying asleep are another common comorbidity seen in individuals with ASD. Approximately eighty percent of people who have ASD suffer from some form of sleep problem or insomnia, which is

related with heightened levels of anxiety. (Baker and Richdale 2015; Hedley et al., 2017)

Sleep problems have been linked to a variety of behavioral and mental health problems, including reduced cognitive function. Depression is another prominent comorbidity that impacts people who have autism spectrum disorder (ASD). In point of fact, based on the findings of a few studies, researchers have hypothesized that as many as thirty percent of people who have autism spectrum disorder had either considered or actively attempted suicide at some point in their lives. ASD patients also have an increased risk of developing attention deficit hyperactivity disorder (ADHD), schizophrenia, obsessive-compulsive disorder (OCD), and bipolar disorder. As well as having a greater prevalence of acquiring mental illnesses, adolescents who have autism spectrum disorder (ASD) are also more likely to develop various health-related concerns such as diabetes, asthma, heart disease, cerebral palsy, epilepsy, tuberous sclerosis, eczema, food allergies, and gastrointestinal diseases. This is in addition to having a higher prevalence of developing mental disorders. (Hedley et al., 2017)

Constant Struggles and Obstacles to Conquer Dealing with life while having ASD Living with ASD may have an effect on a person's cognitive abilities, social life, professional life, mental health, and overall quality of life (Hirota & King, 2023).

A fundamental characteristic of autism spectrum disorder is the inability to express oneself verbally or communicate with other people. Some people are able to communicate nonverbally, while others have trouble expressing themselves verbally. This could make it difficult to learn new things and make new acquaintances. Reading difficulties, challenges with interpreting body language, and limited nonverbal communication

abilities are also common symptoms of autism spectrum disorder (ASD). (National Institution of Health, 2021).

The Prevalence of ASD According Autism and Developmental Disabilities Monitoring (ADDM)

ADDM Network 2000-2020 Combining Data from All Sites

Surveillance Year	Birth Year	Combined Prevalence per 1,000 Children (Range Across ADDM Sites)	This is about 1 in X children
2020	2012	27.6 (23.1-44.9)	**1 in 36**
2018	2010	23.0 (16.5-38.9)	**1 in 44**
2016	2008	18.5 (18.0-19.1)	**1 in 54**
2014	2006	16.8 (13.1-29.3)	**1 in 59**
2012	2004	14.5 (8.2-24.6)	**1 in 69**
2010	2002	14.7 (5.7-21.9)	**1 in 68**
2008	2000	11.3 (4.8-21.2)	**1 in 88**
2006	1998	9.0 (4.2-12.1)	**1 in 110**
2004	1996	8.0 (4.6-9.8)	**1 in 125**
2002	1994	6.6 (3.3-10.6)	**1 in 150**
2000	1992	6.7 (4.5-9.9)	**1 in 150**

2020: Across all 11 ADDM sites, ASD prevalence per 1,000 8-year-olds ranged from 23.1 in Maryland to 44.9 in California. ASD was 27.6 per 1,000 (8-year-olds) and 3.8 times more common in males than girls (43.0 versus 11.4). Non-Hispanic White (24.3) and two-or-more-race (22.9) children had lower ASD incidence than Black, Hispanic, and Asian or Pacific Islander (A/PI) children (29.3, 31.6, and 33.4). Like other racial

and ethnic groups, non-Hispanic American Indian or Alaska Native (AI/AN) children had 26.5 percent ASD. ASD prevalence was related with lower household income at three sites but not the others. (Maenner MJ, Warren Z, Williams AR, 2023)

The term incidence refers to the rate at which new diagnoses appear in a particular group over the course of a specified period of time. It is impossible to determine the incidence in the absence of trustworthy longitudinal data gathered from a specific cohort. A variety of symptoms and levels of severity are associated with autism spectrum disorder, which makes it easy to diagnose the condition in children at a wide range of ages. It should be noted that the age listed here is not the age at which the ailment initially manifested itself; rather, this is the age at which the symptoms were identified for the first time. As a direct result of this, prevalence, which is a measure that indicates the rates of ASD in the population at a certain point in time, is typically reported more frequently than incidence. (Zhou et al., 2023)

Ongoing epidemiological investigations assist in better comprehending how the stated prevalence has shifted over the course of time. Data from epidemiology can be used to forecast the need for services and locate potential risk factors. Methods of surveillance include regional, state, and/or national registration systems; studies based on records or services; surveys; and other methods, such as population-based case findings. (Talantseva et al., 2023)

Top 10 Countries with the Lowest Autism Rates: by (American, 2023)

Rank	Country	Cases per 10,000	Simplified Rate
1	France	69.3	1 in 144
2	Portugal	70.5	1 in 142
3	Iceland	71.9	1 in 139
4	Norway	72	1 in 139
5	Italy	72	1 in 139
6	Germany	72.2	1 in 139
7	Greece	72.4	1 in 138

8	Austria	72.6	1 in 138
9	Belgium	73	1 in 137
10	Spain	73	1 in 137

Five Countries with Autism Rates above 100 per 10,000: by (American, 2023)

1. Qatar — 151.2 per 10,000 (1 in 66)
2. United Arab Emirates — 112.4 per 10,000 (1 in 89)
3. Oman — 107.2 per 10,000 (1 in 93)
4. Bahrain — 103.3 per 10,000 (1 in 97)
5. Saudi Arabia — 100.7 per 10,000 (1 in 99).
6. Kuwait: 97.70 per 10k children.
7. Jordan: 92.10 per 10k children.
8. Syria: 91.90 per 10k children.
9. Afghanistan: 91.20 per 10k children.
10. Palestine: 91 per 10k children.
11. Iraq: 89.40 per 10k children (1 in 112).

According to the documents of Ministry of Planning, the number of all children (< 18) years within the boundaries of Najaf Province was (18563) child for (2016) year (Ministry of Planning, 2016). This study indicated that the children diagnosed with ASD (number of study sample) were (152) autistic child; therefore, the prevalence rates of autistic children in Najaf city may be approximately 1 per 122 (7 per 1000 – 66 per 10,000) (0.0081 %) or even higher. However, there are some autistic children at Najaf city don't we have assessment document about their pathological status. (Al-Mossawy & Al-Dujaili, 2017)

2.3. Concepts of Autism Spectrum Disorder (ASD)

2.3.1. Introduction of ASD:

Autism Spectrum Disorder (ASD) is a neuro-developmental disorder that is commonly identified in early childhood. Autism Spectrum

Disorder (ASD) is characterized by two basic features, namely deficiencies in communication and difficulty in social interaction. These habits may provide challenges for individuals in their ability to acquire knowledge within a conventional educational environment. Individuals with certain conditions may exhibit behaviors that are characterized by restrictions and repetitions. These behaviors can manifest in various ways, such as the repetition of words or phrases and experiencing distress when confronted with changes in routine. (National Institution of Mental Health, 2021)

Sensory sensitivity can manifest as an additional symptom experienced by children with ASD. This encompasses instances of heightened or diminished sensitivity to various sensory stimuli such as light, noises, scents, tastes, touch, balance, and body awareness. (Autism Speaks, 2021).

While individuals diagnosed with Autism Spectrum Disorder (ASD) may encounter a multitude of difficulties, they also exhibit a diverse range of capabilities. This encompasses the capacity to acquire and retain knowledge, as well as to excel in a diverse range of academic disciplines. (National Institution of Mental Health, 2021)

Similar to previous periods in the historical development of autism as a diagnostic category, ASD exemplifies the integration of scientific rigor and deliberate ambiguity. The inclusion and characterization of autism in the Diagnostic and Statistical Manual of Mental Disorders (DSM) since 1952 demonstrate that the increased recognition and prevalence of autism can be attributed to heightened knowledge of the condition, broader diagnostic criteria, and a stronger inclination to identify and classify children as autistic compared to previous years. The nature of autism, whether it represents a singular syndrome or encompasses multiple variations, continues to be enigmatic and ambiguous. (Solmi et al., 2022)

People diagnosed with ASD may encounter challenges in the domain of communication. Individuals with communication impairments may exhibit a wide range of difficulties, including nonverbal communication, improper responses in conversations, limited comprehension of non-verbal signs, and struggles in establishing age-appropriate connections. Furthermore, children diagnosed with Autism Spectrum Disorder (ASD) may have a tendency to rely excessively on established routines, display heightened sensitivity towards alterations in their surroundings, or demonstrate intense fixation on objects or subjects that are deemed inappropriate. (Fusar-Poli et al., 2022)

ASD is distinguished by enduring deficiencies in communication and social interaction across various settings. These deficiencies encompass impairments in social reciprocity, nonverbal communicative behaviors employed for social interaction, and abilities in establishing, sustaining, and comprehending relationships. In conjunction with impairments in social communication, the diagnostic criteria for autism spectrum disorder necessitates the manifestation of confined and repetitive behaviors, interests, or activities. Due to the dynamic nature of symptom manifestation during the developmental process and the potential for compensatory mechanisms to obscure their detection, the diagnostic criteria can be satisfied through reliance on historical information. However, it is crucial that the current presentation of symptoms leads to substantial impairment. (Matson, 2016)

The criteria utilized to identify autism in children encompassed those who exhibited a pronounced fixation on self and a lack of engagement with others, resulting in a failure to establish the anticipated caregiver-child interactions by the chronological age of 2 years. The authors acknowledged the possibility of include cases that may not meet the criteria for infantile autism as defined by other professionals. However,

they adhered to Kanner's "common denominator" of social relationship difficulties as a prerequisite for inclusion. Consequently, their selection criteria did not encompass the manifestation of a rigid adherence to routine or the presence of comparable symptoms as outlined in Kanner's initial depiction. (Kumar & Das, 2022)

2.3.2. Causes & Factors of ASD

The causes of autism are still largely unknown. The APA do know that it is not caused by parents or the way a child is raised, and there is likely no single cause. Research is underway to explore possible causes including genetic and environmental factors. (APA, 2022)

The etiology of ASD is multifactorial and cannot be attributed to a single cause. Numerous factors encompassing environmental, biological, and genetic dimensions have been identified as potential contributors to the likelihood of a child developing ASD. Despite the limited understanding of precise etiological factors, the extant body of research indicates that some factors may potentially heighten the susceptibility of children to Autism Spectrum Disorder (ASD): (Hodges H, Fealko C, 2020)

1. Having a sibling with ASD
2. Suffering from a chromosomal or genetic disorder, including fragile X syndrome or tuberous sclerosis
3. Experiencing complications at birth
4. Being born to older parents

Autism is a complex illness characterized by a lack of comprehensive understanding regarding its etiology. The precise factors that contribute to the development of Autism remain elusive. Not long ago, the sole statement made was that there is no concept. Fortunately, current research has begun to provide insights into the etiology of autism, revealing

that it is not attributable to a singular cause. Moreover, it is now understood that autism encompasses various subtypes. (Richard et al., 2015)

If an individual possesses the genetic risk factor for autism, there are several non-genetic, or environmental, factors that also contribute to the likelihood of a child developing autism. These risk factors encompass events occurring before and during birth. It is crucial to emphasize that these risk factors alone do not directly cause autism. Moreover, apart from hereditary factors, they have the potential to augment the likelihood. (John & Sons, 2014).

Therefore, it has been suggested that the primary mechanism underlying the genesis of autism is the interplay between susceptible genes and environmental variables. (Karimi et al., 2017).

ASD could strike before the age of 3, which meant the children have had ASD as an embryo or infant. The factors which caused ASD were pretty complex and undetectable. In this article, three parts were showing the likelihood and factors of disease in infants at different times: The prenatal period, perinatal period, and Neonatal period. It was important to note that because each patient was different and because people have not been able to identify the factors that could cause autism, the following factors could only indicate a chance of causing autism, not complete certainty. In other words, the absence of the following factors did not necessarily mean that a child was not likely to have autism, and vice versa. This also meant that research in this area needed to continue. (Yasuda et al., 2023)

2. 3.2.1. Prenatal risk Factors

The main possible reason why infants with ASD was a genetic factor. It was pretty complex because it involved multiple genes. Many scientists tried to study the relationship between genes and ASD and would

like to make sure which genes were the true reason causing ASD, however, there were some challenges during the study. One of them was that genetic testing was too expensive. That's why genetic testing was not been included in the ASD detection methods. Recently, a study has proven that a variety of genetic mechanisms might cause ASD, and it has been shown that ASD could be inherited, especially in monozygotic twins. Until now, some kinds of genes have been revealed, such as NLGN3, NLGN4, and NRXN1 genes. And ASD could carry other complications with it, and the genetic factor was still an area that needed to be explored in the future. Before birth, genes were not the only possible cause of fetal autism. (Sauer et al., 2021)

The researchers analyzed some potential risk factors which might cause the appearance of ASD: parents' physical conditions, primiparous women, and mothers born outside Europe, North America, or Australia. And in these factors, one of the parents' physical conditions was more scientifically based. And the research illustrated that some conditions might cause infants' mental illness. The most possible condition which may cause ASD was one of the parents was too advanced (>40 years old). And for pregnant women, if they had bleeding, medical treatment, or diabetes, it was still possible but in these three conditions, only medical treatments have been proven. (Almandil et al., 2019)

2. 3.2.2. Perinatal risk Factors

The perinatal period was empirical and hard to be defined, and in this article, it was defined as the period of delivery. In this period, the childbirth condition may lead to ADS, such as preterm and post- term pregnancies. The research illustrated those premature babies were more likely to have ASD than babies born normally. However, it did not mean

that a premature or overdue birth necessarily meant that the child had autism. (Marlow et al., 2019)

2. 3.2.3. Neonatal risk Factors

Some factors which were infants' physical condition would be detected when the infants were born, to determine risk factors for autism, such as their sizes and weights. Also, several newborn complications may contribute to the cause of ASD. One classic example was hyperbilirubinemia, which has been proven that hyperbilirubinemia caused the possibility of ASD to increase. If these characteristics and conditions were outside the normal range, doctors would notice them, which meant that there was a theoretical chance that autism would be detected. In practice, however, identifying autism was complex and not just a few abnormal conditions could be determined. (Wei, 2023)

2.3.3. Medical Process of Dealing with Autistic Children

The researches considers the screening, diagnosis (assessment) and treatment of ASD medically necessary as outlined below: by (Stavropoulos et al., 2022)

I. Screening

The inclusion of ASD screening into normal well-baby examinations and continuous developmental monitoring is recommended. It is recommended that primary care professionals (PCPs) conduct routine screenings for autism and other developmental delays in children from birth to age 5, the screening tools encompass the following: by (Shaw et al., 2023)

1. The Pervasive Developmental Disorders Screening Test – II (PDDST-II) is a screening tool designed for assessing children

between the ages of birth and three years old for pervasive developmental disorders.

2. The Checklist of Autism in Toddlers (CHAT) is a diagnostic tool designed for the assessment of autism in toddlers at the age of 18 months.

3. The Gilliam Autism Rating Scale–Second Edition (GARS-2) is a screening tool for autism spectrum disorders for individuals between the ages of 3 and 22. It was designed to determine the severity or levels of ASD and to help differentiate those with autism from those with severe behavioral disorders as well as from those who are typically developing.

4. The Autism Behavior Checklist (ABC) is a tool that is administered by parents or caregivers to assess the behavioral patterns associated with autism.

5. The Childhood Autism Rating Scale (CARS) is a clinician-rated assessment instrument designed for children aged two and above. It assesses various domains including bodily movements, adaptability to change, responsiveness to auditory stimuli, verbal communication skills, and social relatedness.

6. The Screening Test for Autism in Two-Year-Olds (STAT)" is a diagnostic tool used to assess the presence of autism in children at the age of two.

7. The Social Communication Questionnaire (SCQ) is a standardized assessment tool designed for children aged four and older to evaluate their social communication.

II. Diagnostic Evaluation

The diagnosis of Autism Spectrum Disorder (ASD) is established through a collaborative approach involving a multidisciplinary team of behavioral health and medical professionals who working in close proximity with the parents. The team often comprises the primary care physician (PCP) or a behavioral pediatrician, a child psychiatrist, a speech and language pathologist, and additional clinical specialists as required". Some examples of these can include: by (Strunk et al., 2017)

1. A child psychologist
2. A neurologist
3. An audiologist
4. A psychiatric nurse (Mental health specialist).
5. Therapists in occupational therapy.
6. A physical specialist.
7. Educator specializing in special education.
8. A physician geneticist

Assessment of child's cognitive, and adaptive abilities, encompassing:

By (Fusar-Poli et al., 2022)

A. An evaluation, encompassing a comprehensive mental status examination conducted by a child psychiatrist, is recommended in order to identify any comorbid illnesses or mitigate the risk of an inaccurate diagnosis.

B. The assessment of adaptive and intelligence skills by a child psychologist is commonly conducted in cases of Autism Spectrum Disorder (ASD) to identify potential comorbid mental impairment and to determine the most appropriate areas for intervention.

C. Psychological and neuropsychological assessments are conducted when there is uncertainty concerning the existence of a neurological or psychiatric disorder, apart from or in conjunction with ASD.

D. Screening of scholastic performance among children aged six years and above.

E. The occupation entails the evaluation of sensory or motor impairments through physical therapy testing.

Clinicians employ many assessment procedures to aid in the diagnosis of Autism Spectrum Disorders (ASDs). These include:

- The Autism Diagnostic Observation Scale – Generic (ADOS-G) is a standardized assessment tool that specifically focuses on eliciting socio-communicative behaviors that are frequently delayed, aberrant, or absent in children with autism. (Shaw et al., 2023)

- Clinicians use the Diagnostic Interview for Social and Communication Disorders (DISCO) to assess patients for social and communication disorders through a structured interview. It's made to detect social and communication issues in people of all ages, from toddlers to senior citizens. The Autism Diagnosis Interview- Revised (ADI-R) is a structured interview that is conducted with parents or caregivers in order to assess and diagnose autism. (Loubersac et al., 2023)

III. Treatment

Autism Spectrum Disorder (ASD) currently lacks a definitive cure; nonetheless, it is amenable to treatment. The earlier the child is diagnosed and therapy is initiated, the more favorable the result will be. The optimal results are observed in youngsters exhibiting proficient

language skills and possessing IQ levels within the normal to high range, while also lacking any concurrent conditions such as seizures or psychiatric illnesses. Although the majority of individuals with Autism Spectrum Disorder (ASD) may not achieve complete independence in adulthood, it is crucial to maximize the developmental potential of each kid. (Wei, 2023)

2.3.4. Early Indicators of ASD

If a children suspects that their child may be affected by ASD, it is advisable to carefully review a comprehensive compilation of potential indicators associated with ASD. It is not necessary for a child to exhibit all of the below behaviors in order to be recommended for an assessment, include: No babbling, point, or make meaningful gestures by (12 months) 1 year of age, No word by 16 months, Avoids combining words by 2 years. (Echolalia refers to the act of repeating words or phrases spoken by others, which occurs both involuntarily and immediately), Does not respond to name, Loses language or social skills (The decline in linguistic proficiency or social abilities, regardless of the individual's age), Poor eye contact, Doesn't seem to know how to play with toys, Excessively lines up toys or other objects, Is attached to one particular toy or object, By the age of six months or later, there is an absence of significant displays of broad smiles or other expressions of warmth and joy, One potential issue that may arise in social interactions is the absence of shared interest or enjoyment, Impairment in Social interaction, Doesn't smile, back-and-forth sharing of sounds, or other facial expressions by 9 months, At times seems to be hearing impaired, Lack of coordination of non-verbal communication, Unusual prosody (little variation in pitch, odd intonation, irregular rhythm, unusual voice quality) (Kjellmer et al., 2018).

Repetitive Behaviors & Restricted Interests:

1. Repetitive movements with objects.

2. Repetitive movements or posturing of body, arms, hands or fingers.

2.3.5 Signs and Symptoms of ASD

2.3.5.1. Signs of ASD

Children diagnosed with Autism Spectrum Disorder (ASD) may have challenges pertaining to communication skills and engagement, as well as exhibit patterns of restricted or repetitive activities and interests. Individuals with ASD may exhibit distinct patterns of learning, motor skills, and attentional processes. These attributes might provide significant challenges in one's life. It is noteworthy to acknowledge that individuals without Autism Spectrum Disorder (ASD) may also exhibit certain symptoms associated with ASD. (Alsayouf, et al., 2020)

2.3.5.2. Symptoms of ASD

Children diagnosed with ASD exhibit a diverse array of behaviors, which may encompass: Excessive activity, Limited attention span, Self-harming behavior, Impulsivity, Aggressiveness, Temper tantrums, particularly in younger children or when they are in new or unfamiliar situations (Wallis et al., 2023).

Autism comes from Greek, meaning stereotypy. The term autism was first used by Bleuler to describe a patient who withdrew socially from his environment. Several case studies of this syndrome were identified between Bleuler and Kanner. In 1943, Kanner applied the label of autism to eleven children who were socially aloof and self-isolated from a very early age. The author studied these children extensively from early childhood through adulthood. After his study, presented a detailed account of the children’s adjustment and placement. Author described the prognosis for this disorder as poor. (Wallis et al., 2023)

Kanner (1943) believed that the impairment of the child to form relationships with other people, including children and adults, was the primary characteristic of autism (Jenabi et al., 2023).

2.3.5.3. Core Symptoms of ASD

The behavioral characteristics of autism spectrum disorder (ASD) appear in a variety of unique ways depending on a person's age, level of language proficiency, and cognitive capabilities, despite the fact that the symptoms have a neurological basis. According to the DSM-5, core symptoms tend to cluster in two different areas: social communication and interaction, as well as confined, repetitive patterns of conduct. (Hyman, 2020)

Symptoms of ASD can be attributed to abnormal development in multiple functional domains. Impairment in development of social communication and pretend play, as well as an interest in other children, can be predicted by abnormalities in the ability to grasp the intentions of other people, a reduction in the amount of eye contact that is interactive, and an abnormal use and interpretation of gesture. The symptoms and signs of ASD are further defined by deficiencies in imitation as well as in the ability to absorb information across sensory modalities, such as visual (gesture) and hearing (language). (Chaste & Leboyer, 2022)

Repetitive actions and perseveration may be fundamental compulsions; however, they may also be related to an aberrant interpretation of sensory information or may indicate a wish to create predictability in situations in which an individual does not understand the intent of others. (Hyman, 2020)

2.3.6. Diagnosis of Autism Spectrum Disorder (ASD)

The diagnosis of ASD presents challenges due to the absence of a definitive medical test, such as a blood test, for its identification. Medical professionals assess the child's behavioral patterns and developmental milestones in order to establish a diagnosis. Autism Spectrum Disorder (ASD) has the potential to be identified in children as young as 18 months or even earlier. By the age of two, a diagnosis made by a proficient expert can be deemed trustworthy. One possible way to rewrite the user's text to be more academic is as follows: The Nevertheless, a significant number of children are not provided with a conclusive diagnosis until they reach a more advanced age. There exists a subset of individuals who do not receive a diagnosis until they reach the stage of adolescence or adulthood. The aforementioned delay may result in individuals with Autism Spectrum Disorder (ASD) experiencing a potential lack of timely intervention and support. (Rice et al., 2022)

In contrast to prevailing beliefs, the diagnosis or exclusion of Autism Spectrum Disorder (ASD) cannot be determined just from a brief interaction with a youngster. At a minimum, it is imperative to do an evaluation for Autism Spectrum Disorder (ASD) that takes into account the following factors related to the child: (Kashef, 2022)

1. The study of developmental history and the assessment of an individual's current developmental level.
2. Proficiency in functional language skills (excluding speech articulation).
3. Functional social communication refers to the ability to effectively engage in interpersonal interactions and convey information in a manner that is appropriate and meaningful within a given social context.

4. Functional play refers to a type of play that involves the use of objects or materials for their intended purpose.
5. The presence or absence of sensory abnormalities.

The examination of the presence or absence of repetitive behaviors, interests, or activities.

ASD can be difficult to diagnose due to there being no specific medical test. Early diagnosis is important because it allows for early intervention and counseling for both the child and the caretakers (Johnson & Myers, 2007). Diagnostic procedures for ASD require medical professionals to conduct a clinical assessment of the patient's developmental age based on a variety of criteria. These criteria include behavior, communication, self-care, and social skills, an approach known as clinical judgment. Based on the findings of the Center for Disease Control and Prevention (CDC, 2019), diagnosing ASD takes two steps: Developmental Screening and Comprehensive Diagnostic Evaluation. (Thabdah & Peebles, 2019)

Developmental Screening looks at how the child is developing and what skills should be retained at that stage. Developmental surveillance and screening should occur at every doctor's visit throughout childhood and includes eliciting and attending to the parents' concerns, maintaining a developmental history report, making accurate and informed observations of the child, identifying the presence of risk and protective factors, and documenting the process and findings. (Mellema et al., 2022)

Screening for autism spectrum disorder (ASD) should be done on all infants between the ages of 18 and 24 months, as per the recommendations of the American Academy of Pediatrics. (Autism Speaks, 2021).

The clinician can ask parents questions about their child and family history and can engage in activity with the child to observe how they communicate and behave. As a baby hits developmental milestones, it is a priority to be screened for developmental delays and disabilities at 9 months, 18 months, and 24-30 months. (CDC, 2019)

To recognize ASDs as early as possible, it's important for the medical professionals to ask about the development of verbal and nonverbal communication, reciprocal social interaction, and sharing of interests. If a clinician notes any delays or problematic occurrences during developmental screening, then a comprehensive diagnostic evaluation is performed. (Megerian et al., 2022)

A comprehensive diagnostic evaluation is a precise review of looking at the child's behaviors through development and asking the parents further questions. With this evaluation, other testing may be performed in order to confirm ASD such as genetic testing, neurological testing, and hearing and vision screening (CDC, 2019).

A comprehensive evaluation should include health, developmental, and behavioral histories that include at least a three generation pedigree, physical examination including a search for dysmorphic features and neurologic abnormalities, a developmental evaluation to determine a child's overall level of functioning and whether a discrepancy between motor-adaptive problem solving and social communication skills is evident. The primary practitioner can then refer to specialists such as developmental pediatricians, child neurologists, and child psychologists or psychiatrists in order to perform a more complete medical assessment. (Kjellmer et al., 2018)

It is imperative to acknowledge that when diagnosing persons with autism, the timeliness of the diagnosis plays a crucial role. the better the results due to early intervention. Even though autism is a well-known

condition, it lacks specific screening tools, leading to delays in diagnosis and therapeutic advancements (Almandil et al., 2019).

However, diagnosing ASD early can improve quality of life, reduce self-criticism, and help foster a positive sense of identity (Bargiela et al., 2016).

2.3.6.1. Diagnostic Criteria for ASD (DSM-5-TR)

By (American Psychiatric Association, 2022)

A. Persistent impairments in social communication and social interaction in various settings, as evidenced by the following characteristics, both presently and in the past (the examples provided are not comprehensive, but rather serve as illustrations; please refer to the accompanying text for further details):

1. Social-emotional reciprocity deficits manifest in several ways, such as atypical social approach and an inability to engage in typical conversational exchanges. Additionally, individuals may exhibit diminished inclination to share interests, emotions, or affect, as well as a lack of initiative or responsiveness in social interactions.

2. The presence of deficiencies in nonverbal communicative behaviors employed for social interaction can manifest in various ways. These may include inadequately coordinated verbal and nonverbal communication, atypical eye contact and body language, difficulties in comprehending and utilizing gestures, or a complete absence of facial expressions and nonverbal communication.

3. The presence of deficits in the development, maintenance, and comprehension of relationships can manifest in several ways. These may include challenges in adapting one's behavior to different social

situations, difficulties in engaging in imaginative play or forming friendships, as well as a lack of interest in interacting with peers.

The determination of severity is predicated upon the presence of impairments in social communication as well as the manifestation of confined and repetitive behavioral patterns.

B. Restricted and repeated patterns of behavior, interests, or activities are evident in individuals, as shown by a minimum of two of the following criteria, either presently or in the past (the examples provided are meant to illustrate, but are not exhaustive; refer to the text for further details):

1. Stereotyped or repetitive motor movements, utilization of objects, or speech patterns are observed in individuals with certain neurodevelopmental conditions. These behaviors may include simple motor stereotypes, such as repetitive hand movements, lining up toys or flipping things, as well as speech patterns like echolalia or the usage of unique words.

2. The presence of an unwavering commitment to uniformity, an inability to adapt to changes in routines, or the manifestation of ritualistic verbal or nonverbal behaviors (such as experiencing significant anxiety in response to minor alterations, struggling with transitions, exhibiting rigid thought processes, adhering to certain greeting rituals, or displaying a need to follow the same daily route or consume identical food items).

3. Individuals may exhibit highly confined and focused interests that deviate from the norm in terms of their intensity or focus. These interests may manifest as a strong attachment to or fascination with uncommon objects, or as excessively narrow or perseverative interests.

4. Individuals may exhibit highly confined and focused interests that deviate from the norm in terms of their intensity or focus. These interests may manifest as a strong attachment to or concern with atypical items, or as excessively narrow or perseverative interests.

The determination of severity is predicated upon the presence of impairments in social communication as well as the manifestation of confined and repetitive patterns of behavior.

C. Symptoms are required to be evident from the initial stages of development, although they may not become completely apparent until social demands surpass restricted capacities or may be concealed by acquired techniques in subsequent stages of life.

D. The symptoms of the condition result in notable impairment in various crucial aspects of an individual's current functioning, such as social interactions, occupational performance, and other significant areas.

E. These disruptions cannot be more adequately accounted for by the presence of intellectual disability (also known as intellectual developmental disorder) or global developmental delay. The co-occurrence of intellectual impairment and autism spectrum disorder is a common phenomenon. In order to establish a comorbid diagnosis of autism spectrum disorder and intellectual disability, it is necessary to observe social communication skills that are significantly below the predicted level of development.

Note: The recommended approach is to assign individuals who have a confirmed diagnosis of autistic disorder, Asperger's disorder, or pervasive developmental disorder not otherwise specified with the diagnosis of autism spectrum disorder, as outlined in the DSM-IV. Individuals who exhibit significant impairments in social communication, but do not fulfill the diagnostic criteria for autism spectrum condition, should undergo

assessment for social (pragmatic) communication disorder. (American Psychiatric Association, 2022)

2.3.7. Prognosis of ASD

Autism Spectrum Disorder (ASD) is not treatable in any way. There are, on the other hand, treatment and intervention strategies that are extremely effective and can be utilized to assist individuals and their families in addressing the symptoms that are associated with this disorder. Early therapies that are based on best practices are designed to assist children with autism spectrum disorder (ASD) in the development of abilities, the acquisition of effective communication, participation in family life, and achievement in school. (Aishworiya et al., 2022)

Some autistic patients are able to operate effectively and achieve a certain level of independence if they receive suitable treatment and it is administered at an early enough age. The majority of patients require support for the rest of their lives. Many facilities and support groups in the Philippines provide autism care for children. The nurse helps spread this information and provide high-quality autism care. (Cavalli et al., 2022)

It is difficult to determine the prognosis and growth of a young kid with ASD at diagnosis. On the other hand, a diagnosis of ASD is maintained for the vast majority of children (about 80 percent) after a thorough evaluation when they are younger than three years old. If a child is younger than 3 years old and has cognitive abilities that are average or above normal, Their moderate autism spectrum disorder (ASD) symptoms may be harder to recognize. Early childhood development may increase communication and social emotional skills. Conversely, maturation or intervention may change repetitive habits. (Talantseva et al., 2023)

Phenotypic and demographic subgroups of children with autism spectrum disorder (ASD)—girls, children of different races and ethnicities, and children born with macrocephaly—need more research. There is a possibility that approximately 9% of children who are given a diagnosis of ASD in early childhood will not meet the diagnostic criteria for ASD by the time they are young adults. Those children and adolescents who previously met the criteria for ASD but no longer do so are more likely to have a history of stronger cognitive skills at the age of two, to have participated in earlier intervention services, and to have showed a decrease in the number of repetitive behaviors they engage in over the course of their lifetime. Children diagnosed with autism spectrum disorder (ASD) before 30 months or pervasive developmental disorder not otherwise specified (PDD-NOS) according to the DSMIV are more likely to change their clinical diagnosis to ADHD or (OCD). It is most likely that severity scores will improve in children and adolescents who have shown the greatest improvement in their assessed verbal I.Q. Difficulties with the executive function. (Wallis et al., 2023)

In a general, it appears that young children with ASD who have language impairment have more problems with social engagement than those who do not. Children diagnosed with autism spectrum disorder (ASD) and intellectual disabilities have the worst time developing social skills. (Todorow et al., 2018)

2.3.8. Treatments of ASD

The current treatments for ASD focus on alleviating symptoms that get in the way of daily functioning and overall quality of life. Because ASD manifests itself uniquely in each individual, those who have autism face their own specific set of advantages and disadvantages as well as treatment requirements that are one-of-a-kind. Treatment regimens

typically involve a team of different professionals and are designed specifically for each patient. (Metwally et al., 2023)

2.3.8.1. Goal of Treatment: (Ira, 2020)

To alleviate distress caused by certain symptoms and enhance general well-being.

2.3.8.2. General Medical Management

1. The prescribing of medications such as antipsychotics, anxiolytics, and anticonvulsant medications.
2. The medical treatment focuses primarily on alleviating the kid's symptoms while also addressing any harmful patterns of behavior that the child may engage in.
3. Prioritize diet changes for youngsters seeking a lifestyle-appropriate diet. Dietary changes or vitamin supplements may improve digestion and eliminate food intolerances or allergies, which may contribute to autistic behavioral difficulties.
4. The family doctor is obligated to provide an extensive amount of information regarding the unique requirements of the kid as well as the community resources that are accessible to the family.

2.3.8.3. Roles of psychiatric nurse with ASD:

The roles were supported by one psychiatric nurse in co-facilitating some of the skills classes. Clinical supervision was provided during weekly consultation meetings using the model of standard BT. General roles of nurse: (Cornwall et al., 2021)

1. The nurse must understand the multiple symptoms related with autism in the patient.

2. The nurse coordinates therapy and interventions according to each child's requirements.

3. The nurse prioritizes safety throughout treatment sessions. Things that could injure the kid must be removed by the nurse. Informing other staff members of the child's specific requirements is crucial.

4. Implement suitable behavioral methods. Example: applied behavioral analysis. This curriculum emphasizes skill practice through one-on-one instruction. Aim to get the child close to normal development.

5. Listen to the child, parents, and caregivers. You must communicate well with these people as a nurse.

Persuading individuals to adopt healthy behaviors is the critical role of psychiatric nurses. Hence, the importance of the part of the psychiatric nursing profession in the treatment of behavioral problems of children with ASD. The assistance psychiatric nurses provide includes various aspects such as the transfer of health knowledge, helping parents to monitor themselves psychologically and their children behaviorally, and providing preventive guidance on behavioral problems and behavioral management. (Pinto-Martin et al., 2015)

Each child requires individualized assessment & treatment, therefore, the role of the nurse came through a comprehensive assessment of the psychological and behavioral state of the autistic child, in addition to implementing and planning non-pharmacological rehabilitative behavioral therapeutic programs, these roles include the following:

1. Not all children with ASD are the same.
2. Education and consultation.
3. Teach family members signs and symptoms.
4. Help parents understand it is NOT a result of bad parenting.

5. Family Support.
6. Behavioral Modification Programs.
7. Medications ordering.

Nurses possess the potential to act as catalysts for change, disrupting this prevailing trend through the provision of education, support, and management to patients' families, community members, and other healthcare team members. This aims to raise awareness about the significant of early detection and treatment of Autism Spectrum Disorder (ASD). According to the Centers for Disease Control and Prevention (CDC), it is recommended that caregivers communicate any concerns related to Autism Spectrum Disorder (ASD) to the child's primary care provider. However, it is worth noting that the initial healthcare encounter for a parent and child is typically with a nurse. Given the observed rise in the prevalence of ASD in recent years, nurses can anticipate encountering a growing number of patients with ASD. (CDC, 2023)

2.3.8.4. Types of Treatments of ASD

There is a wide variety of medical care that can be received. In general, these treatments can be classified into the following categories; however, some treatments require more than one strategy: (Hyman, S.L., Levy, S.E., Myers, S.M., AAP, 2020)

1. Behavioral
2. Developmental
3. Educational
4. Social-Relational
5. Pharmacological
6. Psychological
7. Complementary and Alternative

1. Behavioral Approaches:

Behavioral techniques aim to change behaviors by improving pre- and post-activity knowledge. The best data shows behavioral treatments for ASD symptoms are preferable. Many treatment centers and schools utilize them, as do educators and healthcare professionals. Applied Behavior Analysis (ABA) is a popular ASD treatment. ABA encourages and discourages desired behaviors to develop many abilities. Progress is tracked and assessed. (Bernard, 2020a)

The types of behavioral therapy interventions include: 1) Lovaas Young Autistic Program (YAP), 2) Social Skills Training (SST), 3) Pics for Communication Program (PECS), 4) Daily Life Therapy (DLT), 5) Auditory Integration Training (AIT), 6) Sensory Integration Training (SIT), 7) Facilitated Communication (FC), 8) Holding Therapy (HT), 9) Physical Exercise (PE) Therapy, 10) Gentle Teaching (GT), 11) Music Therapy (MT). (CDC, 2022)

2. Developmental Approaches

The focus of developmental approaches is either on increasing particular developmental skills, such as linguistic skills or physical skills, or on enhancing a wider range of developmental abilities that are interconnected with one another. The behavioral and developmental techniques are frequently blended in clinical practice: by (Restrepo et al., 2020)

- **Speech and language therapy** helps patients improve both their comprehension and their ability to use speech and language effectively. Some individuals who have ASD are able to converse vocally. The use of signs, gestures, photographs, or a gadget that facilitates electronic communication may all be modes of communication utilized by others.

- **Occupational Therapy** imparts knowledge and abilities that enable the individual to live as independently as feasible. Putting on clothes, eating, taking a bath, and interacting with other people are all examples of skills. Occupational therapy may also consist of the following:

• **Sensory Integration Therapy** enhances responses to overwhelming or limiting sensory input.

• **Physical therapy** enhances physical skills, including fine finger movements and trunk/body movements.

Based on Applied Behavior Analysis, the Early Start Denver Model (ESDM) is a comprehensive development program. Used with 12-48-month-olds. Parents and therapists play, socialize, and focus in natural environments to develop language, social, and learning skills. (Bejnö, 2021)

3. Educational Approaches

Educational treatments are delivered in class. Treatment and Education of Autistic and Related Communication-Handicapped Children (TEACCH) is an educational technique. TEACCH assumes autism benefits from consistency and visual learning. It helps teachers enhance academic and other outcomes by adjusting classroom organization. Daily routines can be written or sketched and displayed. Learning stations might have boundaries. Complement verbal teachings with visual or physical demonstrations (P). (Chezan et al., 2022)

4. Social-Relational Approaches

Social-relational therapies improve social skills and emotional ties. Parent or peer mentors are used in several social-relational methods. (Gosling et al., 2022)

• The Developmental, Individual Differences, Relationship-Based paradigm (commonly known as Floor time) promotes parents and therapists to follow individual interests to enhance communication.

• The Relationship Development Intervention (RDI) model promotes motivation, interest, and abilities for social relationships.

• Social Stories offer clear expectations for social situations.

• Social Skills Groups offer structured support for individuals with ASD to practice social skills.

5. Pharmacological Approaches

Pharmacological interventions for ASD aim to alleviate specific symptoms of irritability, including aggression, hyperactivity, self-harm, impulsivity, and temper tantrums. There is a lack of pharmacological interventions targeting the fundamental symptoms. (Aishworiya et al., 2022)

The primary symptoms of ASD are not treated by medicines. ASD patients can benefit from drugs that alleviate co-occurring symptoms. Medication may help with high energy, inability to focus, or self-harming behavior like head banging or hand biting. Medication can also treat co-occurring psychological issues like anxiety or sadness and physiological conditions like seizures and ASD sleep problems. Risperidone (Risperdal) and aripiprazole (Abilify) are FDA-approved to treat Autism Spectrum Disorder (ASD) irritability. Risperidone is for 5–16-year-olds and aripiprazole for 6–17-year-olds. When using risperidone, be cautious of rare but serious side effects such neuroleptic malignant syndrome, tardive dyskinesia, hyperglycemia, and diabetes. Sedation, fatigue, weight gain, vomiting, somnolence, and tremor were the most common side effects of aripiprazole in clinical trials. The main reasons aripiprazole was stopped

were sedation, excessive salivation, tremors, vomiting, and extrapyramidal problems. (Fieiras et al., 2023)

6. Psychological Approaches

Psychological therapies can help ASD patients manage anxiety, depression, and other mental health difficulties. Cognitive-Behavior Therapy (CBT) helps people understand how ideas, feelings, and actions relate. CBT involves setting objectives and changing how a person thinks about a situation to change how they behave. (Kuroda et al., 2022)

Family therapy is a therapeutic approach aimed at assisting parents and siblings in effectively managing the diagnosis of a child and the associated behaviors. In this study, a concise form of psychotherapy is employed to educate parents about behavioral modification strategies, with the aim of aiding them in effectively managing their child's behavior. The utilization of individual cognitive-behavioral psychotherapy (CBT) is recommended for adolescents and young adults diagnosed with Autism Spectrum Disorder (ASD) who possess the cognitive ability to gain insight into their condition and experience anxiety, depression, or rage in response to their awareness of the severity of their impairment. (Gosling et al., 2022)

7. Alternative and Complementary Treatments

Certain individuals and parents employ unconventional treatments that do not align with any established classifications. These therapeutic interventions are sometimes referred to as Complementary and Alternative therapies. Complementary and alternative therapies are frequently employed as adjunctive modalities to complement conventional therapeutic methods. Potential interventions that could be considered encompass a range of modalities, such as specialized dietary regimens, herbal supplements, chiropractic treatments, animal-assisted therapy, arts-

based therapy, mindfulness practices, and relaxation therapies. It is imperative for individuals and families to engage in communication with their healthcare provider prior to initiating any complementary and alternative treatment. (Hyman, S.L., Levy, S.E., Myers, S.M., , 2020)

2.3.9. Prevention

There's no way to prevent autism spectrum disorder, but ASD can be improved their language and social skills. Children with ASD typically continue to learn and compensate for problems throughout life, but most will continue to require some level of support. The child is diagnosed with autism spectrum disorder, talk to experts about creating a treatment strategy. Keep in mind that may be need to try several different treatments before finding the best combination of therapies for child. (CDC, 2022)

2.3.10. Early Intervention

Research has shown that children diagnosed with ASD who get early intervention are more inclined to exhibit reduced symptoms, experience lower healthcare expenses, participate in mainstream school settings, and have enhanced prospects for employment compared to those who do not receive such interventions. (Frost et al., 2020)

The fiscal implications of delayed intervention. According to a literature review conducted in 2014, it was estimated that Autism Spectrum Disorder (ASD) posed a significant economic burden in the United States. The aggregated annual costs were estimated to be between $61 billion and $66 billion for children, and between $175 billion and $196 billion for adults. These estimates were contingent upon the assumed prevalence of intellectual disability, which was either 40% or 60% for children and adults, respectively. (Huntjens et al., 2020)

Two notable programs in the field of autism intervention are the Early Denver Start Model and the Treatment and Education of Autism and associated communication Handicapped Children (TEACCH) program. (Alonso-Esteban & Alcantud-Marín, 2022)

The public school system is a significant and valuable resource for providing assistance to children diagnosed with autism. According to Federal Public Law 94-142, also known as the Individuals with Disabilities Education Acts of 1990 and 1997, it is mandated that educational institutions are required to offer children with disabilities a no-cost, suitable education until they reach the age of 21. The educational institution is responsible for assessing each student and collaboratively creating an Individual Education Plan (IEP) in conjunction with the parents. The evaluation may encompass a range of factors: (Rovane et al., 2020)

1. Developmental and intelligence testing.
2. Neuropsychological and/or educational achievement testing
3. Adaptive skills testing, which is essential to document the presence of associated mental retardation and to establish priorities for interventions
4. Speech, language and communication testing that include vocabulary, actual language use skills, both receptive and expressive, articulation and oral-motor skills.
5. Pragmatic skills testing to determine the child's level of communication skills relative to social contexts
6. Occupation and physical therapy testing if sensory hyper- or hyposensitivities are present.
7. After the completion of the evaluation process, the gathered information is integrated with data from additional sources in order to formulate the Individualized Education Program (IEP). (Chezan et al., 2022)

The Early Intervention (EI) program, for the Individuals with Disabilities Education Act, is implemented by the federal government to identify and provide necessary interventions for children under the age of

three who have special needs. The programs exhibit variation across different states, although the collection of services offered remains consistent. These services necessitate access and implementation within a natural environment, such as the child's family or another familiar location. All services are provided without any cost, regardless of the financial status of the family. (Bejnö, 2021)

Parent training and education has to be a continuous component of any intervention program. It is imperative for parents to acquire knowledge on positive reinforcement and the effective implementation of behavioral methods. Consistency in behavioral strategies is crucial across many settings such as the home, school, or pre-school. Therefore, it is imperative for parents, teachers, and caregivers to collaborate in order to achieve this consistency. (Chahin et al., 2020)

2.3.11. Importance of Early Intervention

While there is no set time limit for ASD intervention, it is crucial to initiate ASD-specific treatment at the earliest opportunity to maximize unique developmental trajectories. Ideally, intervention should commence before the age of two, as this stage is characterized by significant neuroplasticity and rapid brain growth. Although Autism Spectrum Disorder (ASD) can be accurately diagnosed by the age of two, the majority of children are not diagnosed until beyond the age of four. This delay significantly diminishes the window of opportunity for implementing effective interventions. (Hodges et al., 2023)

This substantial fiscal burden encompasses various interconnected expenses. Children diagnosed with Autism Spectrum Disorder (ASD) require many forms of support, such as medical care, special education, and the potential loss of parental production. Similarly, adults with ASD may require residential accommodations, medical care,

and may experience a loss of productivity. It is anticipated that implementing early intervention strategies will enhance long-term health outcomes and consequently result in significant reductions in lifetime costs associated with ASD. (Marino et al., 2020)

Certain therapies and equipment suggested by a professional or expert are considered ineligible expenditures. The subsequent instances pertain to products that are deemed ineligible: (Bernard, 2020)

1. Home repairs, renovations, swimming pools, hot tubs, trampolines, playground equipment.
2. Household items, including appliances
3. General recreation and sports enrolment fees
4. Sports/fitness equipment
5. Televisions
6. Vitamins, medical supplies, orthotics
7. Clothing
8. Food (however, small reinforcers for therapy may be eligible)
9. Any items to be used only in school settings
10. Monthly smart phone bills and/or data plans.

2.4. Behavioral Modification

Behavior modification is one of the most important techniques used to treat behavioral problems in children in general, whether they are normal or have special needs (autistic child), in order to provide good opportunities to adapt to their society naturally, so that there is no strangeness in their behavior in front of others. (Martin & Pear, 2019)

Behavior modification is a term with a broad meaning that refers to that field whose methods derive from research related to learning. According to Hustyi, behavior modification includes modifying

environmental and social conditions or reorganizing them with the aim of changing the apparent behavior and not changing the internal psychological processes that are believed to act as a driver for this behavior. (Hustyi et al., 2023)

2.4.1. Behavior Analysis and Child Development

The developmental theory of behavior specialists underpins autism intervention since developmental changes over time are lacking in autism and most child disorders. Treatment is guided by theory, which explains how behavior may be altered and how children can develop into functioning adults. The contemporary behavior therapy's theoretical foundations are based on child psychopathology, which accounts for both the strengths and drawbacks of the approach. (Hustyi et al., 2023)

This theory aims to explain how different repertoires can merge and reshape themselves into new ones. (Cerny, 2023)

The field of behavior analysis, which studies the development of children, does two things: (1) it places a significant amount of emphasis on the role that learning and social interaction play as the primary foundation for psychological development; and (2) it avoids making causal assertions about processes that cannot be observed, on the grounds that these processes, in and of themselves, require an explanation. (Haupt, 2020)

As a consequence, treatments for autism center on habilitation, or the teaching of new skills, rather than a concentration on psychological damageThe user's text is too short to be rewritten in an academic manner. The alteration of the developmental trajectory of autism can be achieved through the acquisition of several crucial skills, including language (Lovaas, 1973), imitation (Smith & Bryson, 1994), social interactiveness (Krantz & McClannahan, 1998), and joint attention, which involves

multiple stimulus control. Joint attention refers to a situation where the child is simultaneously under the influence of both the parent and the object, while the parent is also influenced by the child and the same object. These skills play a significant role in modifying the developmental trajectory of individuals with autism. (Boerio, 2021)

While much behavior analytic research in the field of developmental disorders focuses on the acquisition of skills, specialists design programs to address challenging behaviors. Because recovery involves learning new behaviors rather than eliminating old ones, this is bad for our profession and our clients. As a result, our standard guideline is for behavioral programs to place an emphasis on the development of new abilities. These types of programs for children with autism should place an emphasis on enhancing communication, social skills, and adaptable behavior in order to help children with autism become more suitable in their interactions with the community. A good consultation or treatment will put an emphasis on the client's behavioral growth. The alleviation of troublesome behaviors is a secondary goal that should be addressed by a program. Obviously, the situation is different when the youngster is putting themselves in danger by hurting themselves, because then the pattern is inverted. Autism presents a unique set of challenges, which therapists who work with autistic children need to be aware of. (Abram, 2014)

Children diagnosed with ASD have a variety of obstacles that impede their learning abilities. Children diagnosed with autism spectrum disorder (ASD) frequently exhibit adverse reactions, including tantrums and crying, in response to disruptions in their established routines. This behavioral pattern is considered a defining hallmark of the illness. These instances of meltdowns can be triggered by changes in the direct care staff, the teachers at the child's educational institution, or even by more nuanced modifications in the daily schedule. (Howard et al., 2014)

Furthermore, the presence of behavior problems and self-stimulatory motions hinders the efficacy of training. The observed movements do not seem to have a discernible impact on the child's learning capacity, but they do seem to have an influence on the teachers' efficacy in delivering instruction. While children with different disabilities may exhibit comparable behaviors, the frequency, severity, and duration of these behaviors differ. In recent times, in order to mitigate the aforementioned impacts on educators, numerous programs have commenced employing computer-assisted instructional methodologies. Moreover, locating appropriate reinforcements for children diagnosed with autism might provide a significant challenge. When administering a reinforcer preference survey to children that do not exhibit a consistent behavioral pattern, the therapist can utilize direct observation of the child's exploration of their environment. Typically, children exhibiting behaviors consistent with autism spectrum disorder often demonstrate a reduced inclination to engage in exploratory activities within their environment. Another concern regarding youngsters exhibiting this behavioral pattern is that in order for reinforcers to have a desired impact, they need to be clearly defined, tangible, and/or exceptionally attention-grabbing. (Gitimoghaddam et al., 2022)

In order to address the challenges associated with autism, therapists must employ strategies aimed at expanding the repertoire of reinforcing stimuli that elicit responses from children exhibiting autistic behaviors. The practice of combining social reinforcement with primary reinforcers, such as food, is a widely observed phenomenon in academic literature. One of the early studies to employ this strategy was conducted by Lovaas et al. in 1966. Selective attention is a topic of ongoing dispute in relation to children exhibiting autistic tendencies, and is regarded as a potential concern. This subject has been extensively examined by

researchers such as Lovaas (1977), Koegel (1975). It mostly pertains to behavior analyzers, who are concerned with the phenomenon of irrelevant contextual factors exerting control over the individual's behavior. (Cerny, 2023)

When a child's attention becomes fixated on a certain component of an activity or situation, their ability to perceive other properties, including those that are pertinent, may be compromised. One other issue shared by educators and therapists working with children on the autism spectrum is the limited capacity of these individuals to generalize acquired knowledge. The presence of highly specific patterns exhibited by children diagnosed with autism poses challenges for the process of generalization. (Aishworiya et al., 2022)

Nevertheless, there have been inquiries regarding the issue of selectivity. The problem of over selectivity can potentially be attributed to the training methods and processes employed, particularly those utilized in discrete trial formats that do not incorporate the recommended generalization procedures of train loosely" as proposed by Stokes and Baer (1977). Despite the various challenges, educational programs catering to students with autism have demonstrated noteworthy outcomes.(Hodges et al., 2023)

Significant efforts have been made since the 1960s to design, implement, and evaluate behavioral interventions for children diagnosed with autism (for a comprehensive overview, see to Schriebman, 1988). Matson et al. (1996) reported that a substantial body of research, comprising more than 550 studies, has been conducted to demonstrate the effectiveness of behavioral interventions in fostering diverse skill development among individuals with autism across various age groups. In summary, behavior therapy has been identified as the most efficacious

intervention for children diagnosed with autism. Despite the aforementioned circumstances, there have been inquiries over the efficacy of behavior therapy when juxtaposed with alternative approaches. (Chahin et al., 2020)

2.5. Behavioral Therapy

The behavioral therapy consists of concepts and strategies and techniques of behavior modification for children with ASD. (Martin & Pear, 2019)

The behavioral therapy for children with ASD helps teach social, motor, and verbal behaviors, as well as reasoning skills, and works to manage challenging behavior. It focuses on eliminating negative habits while increasing positive ones. Behavioral therapy has been shown to enhance communication skills, concentration, memory, and social skills and minimize negative behaviors. To get the most benefit from behavioral therapy, the child will need extensive one-on-one therapy for an average of 25 hours each week. A drawback is that this type of intensive therapy is expensive. The behavioral therapy is also most effective if you get training in it yourself. That way, you can teach the child and constantly reinforce positive behaviors. However, using it is very time-consuming and takes a lot of skill to get right. However, it will help the child generalize the skills they have learned. It also will help lower the likelihood that the child will engage in unhealthy or negative behaviors. (Williams & Williams, 2019)

2.5.1. Applied Behavior Analysis (ABA)

One of the behavioral therapy programs is the ABA program, which was used in both styles of intervention with children. "Two ABA teaching styles are Discrete Trial Training (DTT) and Pivotal Response Training (PRT). **DTT** uses step-by-step instructions to teach a desired

behavior or response. Lessons are broken down into their simplest parts, and desired responses and behaviors are rewarded. Undesired responses and behaviors are ignored. **PRT** takes place in a natural setting rather than clinic setting. The goal of PRT is to improve a few (pivotal skills) that will help the person learn many other skills. One example of a pivotal skill is to initiate communication with others". (Martin & Pear, 2019)

Behavioral interventions, such as Applied Behavioral Analysis (ABA), are derived from basic and empirically supported learning principles can be used in the home or be provided in the school setting to help the child learn more appropriate behavior as well as becoming a better academic learner. Schools, Regional Centers, Health Net and other entities working with the family should coordinate diagnostic and treatment services needed by a child with an ASD so that they are provided in the appropriate setting. (Franz et al., 2022)

The ABA is one of the most widely accepted therapies for children with autism spectrum disorder. ABA training is most effective if therapy begins when children are younger than age 5, although older children with ASD can also benefit. ABA helps teach social, motor, and verbal behaviors, as well as reasoning skills, and works to manage challenging behavior. It's based on teaching these skills through observation and positive reinforcement. To get the most benefit from applied behavior analysis, your child will need extensive one-on-one therapy for an average of 25 hours each week. A drawback is that this type of intensive therapy is expensive. (Fuller et al., 2020)

A primary strategy of ABA is using positive reinforcement such as rewarding when completing an activity correctly. Using behavior-based therapy is an effective strategy for allowing children with ASD to gain more independence and typical life skills. Children who undergo early

intervention behavioral treatment have been shown to make a significant increase in IQ, language, academic performance, and social behavior. (Bernard, 2020)

Currently, the most promising treatment for autistic people is behavior modification derived from modern learning theory. Empirical results of behavioral intervention with autistic children have been both positive and negative. Regarding the positive results, the treatment behavioral can elaborate complex behaviors, such as language, and can help in the suppression of pathological behaviors such as aggression and self-stimulatory behavior. Clients achieve good results to different degrees, but client achievements treatment are in proportion to the time spent. Regarding the results negative, treatment achievements have been specific to the particular setting in which the client received the treatment, substantial relapses have been observed during the follow-up, and no client could be declared as recovered. (Franz et al., 2022)

2.5.2. Techniques of behavioral therapy

The experiments conducted by Pavlov provide Watson with support for this theory. Theories of behavior and learning center on characteristics already present in an individual's environment that are thought to influence their behaviour. Individual behavioral therapy employs a number of different treatment strategies within an approach that is founded on empirical research in the field of behavior, and these strategies are referred to as techniques. The following is a list of the most essential approaches that are used in the individual behavioral treatment program, which is designed to help children with autism develop abilities in adaptive behavior: By (Williams & Williams, 2019)

1. **Modeling**: The process of acquiring a certain behavior by observing and mimicking the positive behaviors of other people and then applying what

one has learned. The method entails demonstrating to the child positive role models and instructing him or her in appropriate behavior in order to bring about behavioral change and the acquisition of new behaviors. Training on the abilities of independence, social interaction, and communication with others can be accomplished through the use of the modeling approach. Direct modeling or participative modeling are the two methods that are used to carry it out. This process is repeated until the youngster is able to participate without trepidation in the activity that was before feared. One case in point is a young kid of six years old who, after participating in such a treatment program, was able to completely reverse his excessive social separation from his contemporaries.

2. **Positive reinforcement**: Reward and support are utilized in this approach to treatment. It is used after the youngster demonstrates the conduct that has been requested. This strategy is frequently utilized with autistic children who are displaying the desired behaviors in order to reinforce those behaviors and to train them to continue displaying those behaviors.

3. **Training on social courage**: In situations involving personal relationships in which the youngster is unable to explain either themselves or their feelings, this form of therapy may be utilized. The youngster is taught to communicate well and to articulate his requirements.

4. **Punishment**: A method that brings about a reduction or cessation of unwanted conduct. Emotional punishment can take the form of scolding, such as when one says silence, wrong, or no,while physical punishment might take the form of beating or pinching. The use of punishment is reserved for situations in which all other alternatives have been exhausted.

5. **Support:** A strategy with the objective of reinforcing the desired behavior and increasing the likelihood of it occurring in the future. It

encompasses a variety of kinds, including social, positive, and negative emphasis, respectively.

6. **Illustrative table activity**: A collection of pictures, each of which depicts a different action and instructs the autistic youngster in how to carry it out. The table is designed to resemble a photo album, and each individual page is intended to encourage and inspire the youngster to participate in the activities that are being targeted.

7. **Learning through observation**: This is one of the primary ways that autistic children can acquire models or altered patterns of behavior that require modeling or imitation, and it is also one of the most common approaches. Children with autism may be able to benefit by gaining direct experiences by observing the behavior of others.

8. **Assistance or motivation**: There is a wide variety of support available to aid autistic children in correctly performing the appropriate action, skill, or response. This includes providing the child with physical assistance, which may be defined as leading the child towards the desired behavior, skill, or appropriate response by the use of physical interventions. One example of this would be holding the child's hand and directing him or her towards the appropriate response. It also encompasses support in verbal form. Activities that require physical actions typically make use of assistance or motivation, whereas activities that require verbal actions typically make use of verbal motivation. (Williams & Williams, 2019)

Two of the methods that are utilized in the treatment of problematic behaviors are known as operant conditioning and behavioral modeling. Children who have autism spectrum disorders have been taught by behavioral therapists how to develop a wide array of skills through the use of these strategies. Among these are displaying appropriate affective reactions to discourse, putting an end to echolalic speaking, and playing

with other people. Playing imaginatively, imitating others, and practicing self-management are just some of the other skills that can be acquired with the assistance of these strategies. (Bernard, 2020)

2.6. Theoretical Framework

In the study for a theoretical base to support the current doctoral thesis, which is an interventional program for children with ASD, the theory of learning was chosen, and thus it constitutes a general conceptual framework that guides current dissertation. Burrhus Frederic (B. F.) Skinner was the theorist who systematically outlined the basic principles of learning (Skinner, 1938; 1953). In 1928, B. F. Skinner completed his graduate studies at Harvard University where he earned a master's degree in psychology in 1930 and his Ph.D. in psychology in 1931. It was as a graduate student in psychology that Skinner began to develop his theory of learning. Skinner was influenced by the objective experimental methodology of Pavlov and also by Darwin's work on evolution in the late nineteenth century. He was also influenced by and extended the movement in America toward objective observable dependent and independent variables, i.e., observable stimuli and behavior, as the focus of psychology, as opposed to introspection and mentalistic explanations of behavior. Skinner broke from Pavlov in at least two critical ways. Skinner believed that the behavior of the organism should be the focus of study, not physiological aspects of the organism. (Redd, 2015)

Additionally, Pavlov's analysis, and later John B. Watson's analysis, saw respondent behavior occurring as a function of antecedent events only. While acknowledging that some behaviors, such as true reflexes (e.g., knee jerk, gag reflex, pupil dilation and constriction), functioning of smooth muscles, glands, internal organs, and some emotions, are controlled by antecedent stimuli alone, most behaviors of

interest to psychologists, teachers, and parents are controlled by antecedent stimuli and consequences. Skinner described this latter voluntary behavior as operant behavior because the behavior operated on/within the environment to generate consequences, which in turn affected the future frequency of the response. These environmental consequences may be in the form of social consequences (e.g., smiling results in contingent praise or attention), changes in the physical environment (e.g., turning on a light switch results in illumination of a room), or automatic reinforcement (e.g., scratching an itch relieves minor pain or licking a lollipop stimulates taste receptors). Whereas, respondent behavior is controlled exclusively by antecedent stimuli: unconditioned stimuli (UCS) and conditioned stimuli (CS), operant behaviors are controlled both by antecedent and consequent stimuli. Detailed and clear analyses of respondent behavior can be found in other works. Unlike most other learning theorists, Skinner conducted numerous experimental studies to analyze the environmental factors responsible for learning and then inductively looked for commonalities that would explain behavior across all these studies. These inductions soon led to his delineation of the principles of learning published in the Behavior of Organisms (1938) and he later refined and expanded his work in the Science and Human Behavior at 1953. (Moore & Symons, 2011)

ABA is the practice of utilizing the psychological principles of learning theory to enact change on the behaviors seen commonly in individuals diagnosed with ASD. Ole Ivar Lovaas produced a method based on the principles of B. F. Skinner's theory of operant conditioning in the 1970s to help treat children diagnosed with ASD (or "autism" at the time) with the goal of altering their behaviors to improve their social interactions (Lovaas et al., 1973; Skinner, 1953; Smith & Eikeseth, 2011). To evaluate this method, the University of California at Los Angeles (UCLA) Young Autism Project model was developed and empirically

tested by measuring the effects of the intervention when administered one-to-one to children diagnosed with ASD for 40 hour per week over the span of 2–3 years. The remarkable findings revealed that 47% of the children who participated in this treatment reached normal intellectual and educational functioning compared to only 2% of a control group. (Gitimoghaddam et al., 2022)

2.7. Previous studies

(Josephine A. Sodano, 2022)

Effectiveness of Music-Infused ABA Strategies on Children with Autism Spectrum Disorder

This research sought to examine the effectiveness of a music-infused approach combined with Applied Behavioral Analysis methodology. The exploratory mixed method design pilot study examined and comprehended the narratives of special education early childhood teachers assigned and trained to deliver a music-infused intervention program within a natural self-contained Applied Behavioral Analysis program, five days a week, 20 minutes a day, for a duration of 6 weeks to a population of ten preschool students, ages 3-5, diagnosed with ASD. Based on the findings of the study, music-infused ABA strategies interventions in self-contained classrooms is effective for improving social group building skills and communication skills, supporting the individual discrete trials of Applied Behavioral Analysis instruction. The study showed that when musical stimuli (beanbags and instruments) were present, preschoolers diagnosed with autism spectrum disorder were able to express music in the following ways: imitation, using their voice, improvising with a musical instrument, and dancing. Also showing some improvement in social and communication skills in a more naturalistic approach.

(Asta & Persico, 2022)

Differential Predictors of Response to Early Start Denver Model vs. Early Intensive Behavioral Intervention in Young Children with Autism Spectrum Disorder: A Systematic Review and Meta-Analysis

The purpose of this systematic review is to identify putative predictors of response to two different approaches in behavioral treatment: Early Intensive Behavioral Interventions (EIBI) and the Early Start Denver Model (ESDM). Both are based upon the foundations of Applied Behavioral Analysis (ABA), but the former is more structured and therapist-driven, while the latter is more naturalistic and child-driven. Studies were selected if participants were children with ASD aged 12–48 months at intake, receiving either EIBI or ESDM treatment. A higher IQ at intake represents the strongest predictor of positive response to EIBI, while a set of social cognitive skills, including intention to communicate, receptive and expressive language, and attention to faces, most consistently predict response to ESDM. Although more research will be necessary to reach definitive conclusions, these findings begin to shed some light on patient characteristics that are predictive of preferential response to EIBI and ESDM, and may provide clinically useful information to begin personalizing treatment.

(MacDonald et al., 2014)

Effectiveness of low intensity behavioral treatment for children with autism spectrum disorder and intellectual disability

The study aimed to determine the effectiveness of low intensity behavioral treatment (LIBT) supplementing regular treatment in young children with autism spectrum disorder (ASD) and intellectual disability (ID) standardized tests of cognition, adaptive behavior, interpersonal relations,

play, language, characteristics of autism, emotional and behavioral problems, behavioral flexibility, early social communication, and maternal stress were administered in a treatment group (n = 20), receiving 4–10 h LIBT per week and a control group (n = 20) receiving treatment as usual. At baseline, no differences were found between groups (mean chronological age: 5.3 years; mean developmental age: 1.11 years) on several key variables. Following intervention, no differences between groups were found on expressive language, behavioral flexibility and maternal stress. Progress in developmental age, adaptive behavior, interpersonal relations, play and receptive and expressive language was clinically and reliably significant for the majority of the LIBT group.

(T. Anitha Reddy, 2013)

Behavioral Intervention for Children with Intellectual Disability having Autism

The purpose of the study was to find out the effectiveness of behavioural intervention on children with Intellectual Disability having Autism. Children below IQ 70 were subsequently administered Indian Scale for Assessment of Autism. Thus, total 13 children with mild and moderate intellectual disability having ASD belonging to the local area were included in the study. Behavioural intervention using (behavioral techniques) was planned and executed for select target group. The intervention was provided individually to each subject with age wise distribution of sample. The results demonstrated the effectiveness of behavioural intervention for children with intellectual disability having autism. Behavioural intervention for children having intellectual disability with autism was noted to be effective as main finding of the study.

Chapter Three

Methodology

Chapter Three
Methodology

In this chapter, the study design and all other scientific steps that were followed by the researcher from the beginning of the study until its completion will be covered, which are used to measure and determine the effectiveness of behavioral therapy program on children with Autism Spectrum Disorders in Najaf city.

3.1. Design of the Study:

The current study used the quasi-experimental design was carried out through application of repeated measure approach that consist of three assessments (pre-test, post-test 1, and post-test II) post-test I, and posttest II for both study and control groups; pre-test done before any data collected to see if there any participants have certain tendencies, then implementation of an interventional program (Behavioral Therapy Program) then repeated measures is carried by post-test I and post-test II. The study done during the period from (**1/10/2021** to **20/4/2023**) on a sample of children with ASD regarding their behavioral problems in Al-Najaf Al-Ashraf city.

3.2. Administrative Arrangements and Ethical Approval:

Before the collection of data, a series of formal administrative agreements and ethical permissions were obtained for conducting the study and the decisive part of the research work, was founded in (**Appendix D**).

1. After the presentation of the research an official agreement was gained from the higher studies committee.
2. Reviewing the study tools questionnaire and the intervention program by the Scientific Research and Ethical Committee in the College of Nursing, which, therefore agreed to conduct the study from (1/10/2021) to (20/8/ 2022) to conduct study the official letter was provided.

3. An official approval was attained from the Directorate of work and Social Affairs, Department of Care for Special Needs, **Happiness Center for Autism (Governmental Center) in Najaf Governorate. Official letter provided on 25th August 2022 to implement the study protocol.

4. The administrative arrangements which is the last step of an official letter by the (Department of Care for Special Needs) in the Al-Najaf work and Social Affairs Directorate was issued to the Happiness Center for Autism, for facilitating cooperation with the researcher in completing his work and implementation of the research. (Appendix D)

5. Interviews were conducted with the manager of the Happiness Center for Autism (HCA) to clarify the nature and the aim of the research and then to get permission from the manager to do the work.

6. Acceptance of the family for participation in the study was also obtained orally, and the consent of autistic child family was obtained to participate their child and caregiver in the study, after explaining the objectives and usefulness of the study to them and assuring that all information provided will be confidential and for scientific and research purposes (autonomy and privacy).

These consents facilitated the researcher's entrance into the center, and meeting the children and their families.

3.3. Study setting:

The study has been conducted at the Happiness Center for Autism (HCA) related to the Department of Care for Special Needs, Directorate of work and Social Affairs at Najaf city, Ministry of work, Iraq and other sites (privately).

Happiness Center for Autism (HCA): a specialized center that was established in 2021 in Najaf City. Its governmental center and administrative affairs were related to the Directorate of work and Social Affairs, Department of Care for Special Needs in Najaf City.

It was established with a capacity of (20) autistic children, and provides different educational, behavioral, psychological, and health services, including care of children with ASD and speech problems, learning difficulties and language learning. The number of visitors to the center is (70) children per month, it can be increased, and there is a list of the number of children on the waiting list (About 50 children or more). The center receives cases of neurodevelopmental disorders, and other psychological disorders. The autistic child is received in the evaluation unit after being diagnosed by the psychiatrist and then referred to the center to be evaluated for behavioral and other problems and then cared for.

The staff is under the supervision and training of professors from the University of Kufa, College of Nursing and Directorate of Education and Najaf Governorate Office (institutional cooperation between the institutions). Its employees are a group of specialists in psychology, special education, psychological and educational counselling, kindergarten and mental health and some other specialties. (Appendix – F)

In the beginning, a meeting was held with all the families of the autistic children targeted in the current study, and the goals and details of the program were explained in detail.

The behavioral therapy program was implemented for each autistic child as a system of single sessions in one of the center's halls designated for behavioral therapy training, with the presence of one of the

parents or caregivers for the child in the initial sessions (1, 2, 3 session only) to benefit from the steps of the program.

3.4. Study Sample and Sampling:

3.4. 1. Target Population:

The target population is children with ASD, who are actually diagnosed by psychiatrist and have behavioral problems symptoms and aged between (3-21) years old and who attend the Happiness Center for Autism (HCA).

3.4. 2. Sample Size:

The samples were composed of **(63)** child who participate in the program and attend in Happiness Center for Autism (HCA), **(13)** of them was excluded because they did not adhere to the study criteria, and 10 child was excluded from the pilot study and **(40)** of them were selected from the total number of the participants as study and control groups.

A total of **(40)** ASD children were selected through a purposive (non- probability) sample. The autistic children who participated in the study were distributed equally into (**20)** child for each control and study group. The control group was selected from the waiting list who visited to Happiness Center for Autism, they did not receive any behavioral therapy or other behavioral treatment program (not exposed to the interventional program) and the study group participants were selected from autistic children at Happiness Center for Autism (under behavioral therapy program), and this assortment for the reason that:

1. All autistic children were selected from this center in the same geographical area thus there is no diversity in their characteristics in a degree which may affect the study results.

2. The researcher intentionally separated the autistic children into the study and control groups in the same site from which the sample was dram, to know if child received a behavioral treatment program outside the center or not by following them up.

3.4.3 The Criteria of the Sample Selection:

The following criteria were adopted in selecting students to participate in the study:

3. 4. 3. A. Inclusion Criteria for Sample Selection:

1. All children are diagnosed by psychiatrist with ASD.
2. Selection of autistic children according to DSM-5-TR severity scores from moderate (level 2) to severe (level 3).
3. Children with documented behavioral problems associated with ASDs, such as challenge in social communication, repetitive behaviors or difficulties in emotional regulation.
4. Not being on psychiatric medication.
5. Autistic children who are aged from 3 years or younger (Early intervention by behavioral therapy with autistic children is a good and very effective way to improve their adaptive behaviors).
6. Both sexes (male and female) and Arabic Nationality.
7. Parents had to provide written or verbal approval to participate in the study.
8. All autistic children and their families are from Al-Najaf city and live within the geographical area served by the rehabilitation center.
9. Caregivers who provide care directly and attached to child with ASD about 16 hours/ day.

3. 4. 3. B. Exclusion Criteria for Sample Selection:

The study excluded the following:

1. Receiving any other intervention directly related to behavioral skills during the trial.

2. The autistic children who are taking (behavioral therapy) less than 4 session in other sites.
3. Autistic children who are absent at the time of program at least 4 sessions.
4. Autistic children who have intellectual disability and other mental disorder.
5. Autistic children with IQs under 50.
6. Autistic children who have other significant comorbities.
7. Autistic children who take psychiatric drugs that affect the effectiveness of the implemented programme of behavioral therapy.

Based on the aforementioned 'criteria, the study sample distributed among **30** male autistic child and **10** female autistic child which were assigned by nonprobability technique into control and study groups (**15** males for study group and **15** for control group and **5** females for study group and **5** for control group).

3.5. The Phases of Study Conducting:

The research is carried out through five major phases as follow:

3.5.1. Phase -1: Pre-Program Phase (Exploratory Study)

The pre-program phase included the following steps:

A. Consultation of psychiatrists and mental health specialists working in Najaf directorate of health (Psychiatry department) and autism centers (Assessment & Diagnosis Unit) about the most prevalent behavioral problems among children with ASD in recent time.

B. Review of periodical health charts and mental illnesses profile among the children with ASD during the past two years.

C. Identification and selection of Autism Spectrum Disorder (ASD) as the most high prevalence behavioral problems among the children with ASD depending on findings from the two previous steps.

3.5.2. Phase-2: Interventional Program Phase (Program Constructing):

Based on the findings of assessment of psychiatrists and mental health specialists' (psychotherapist) information, books, experience and practice with autistic children the behavioral therapy program was constructed to meet the aims of the study for the period from 1/9/2022, throughout 20/4/ 2023.

3.5.3. Phase-3: Research Methods Phase (Assessment Tools):

Study instrument for the purpose of the study a special questionnaire was constructed by the researcher through extensive review of related literatures, and previous studies in addition to the information gained through the assessment of psychiatrists and mental health specialists' (psychotherapist) information and based on the study objectives.

3.5.4. Phase-4: The Interventional Program (Implementation Phase):

All children were subjected to the pre-test and the researcher prepared children for the interventional program by separating the sample into two groups the study and control groups and application of the interventional program, with the parents' daily follow-up. The implementation started with the application of the behavioral programme from the period of 26th October, 2022 throughout 26th December, 2022.

3.5.5. Phase-5: Evaluation and investigation the effectiveness of the interventional Program (Evaluation & Following Phase)

The final step of the study is to evaluate result of the interventional program regarding the behavioral problems of autistic children. This is done through the application of a **Post-Test-1 two month** after finishing the interventional program, and following period for 3 months by monthly assessment through Gilliam Autism Rating Scale (GARS-2). And then to investigate the efficacy of the interventional program through application of a **Post-Test-2 three months** after Post-Test-1. The Evaluation phase & Following started with the evaluation of the behavioral problems among ASD children from the period of **27th December 2022 to 20th May 2023.**

3.6. The Study Instrument:

The questionnaire was used to gather data, it was composed from two main parts:

3.6.1. Part I: Child's & Parent Characteristics:

3.6.1.1. Child's Socio-demographic Characteristics:

This part involves of **(4)** items on children with ASD' characteristics including chronological age, gender, Child Schooling, and Child Sequence.

3.6.1.2. Parent's Socio-demographic Characteristics:

This parent partition is consist of **(7)** items residency area, level of education of fathers, educational level of mothers, father job and mother job, family monthly income, and Marital Status.

3.6.1.3. Child's Clinical Characteristics:

The second part of the questionnaire comprises **(5)** items, including number of autistic children in family, number of autistic children in siblings (Consanguinity), age of child at diagnosis, Speak of the first word, and Mental Age.

3.6.2. Part II: Behavioral Problems Scales:

The tools (Scales) of instruments are Gilliam Autism Rating Scale-Second Edition by J. Gilliam in 2006 and involves of the subsequent parts of assessment behavioral problems, based on behavioral therapy program constructed in order to measure the intended program:

3.6.2.1. Severity of ASD and Behavioral Problems among autistic children: By Gilliam Autism Rating Scale (GARS-2):

The Gilliam Autism Rating Scale–Second Edition (GARS-2) is a screening tool for autism spectrum disorders for individuals between the ages of (3 to 22). It is a norm-referenced instrument that reflects the conceptualizations of ASD per the Diagnostic and Statistical Manual of Mental Disorders and the Autism Society of America. Completion time is (5-10) minutes. It was designed to determine the severity or levels of ASD and to help differentiate those with ASD from those with severe behavioral disorders as well as from those who are typically developing.

GARS-2 is a one of the available and widely used tests in ASD diagnosis and assessment of the severity. A trained clinician can give an ASD diagnosis and differentiate them from those with other developmental disabilities based on direct behavioral observation of the child according to the **4 dimensions.** These dimensions include (Stereotyped Behaviors,

Communication, and Social Interaction and developmental history), each dimension consists of 14 items, where the total of the items is 56. Each item has 4-item responses that a weighted score ranging from 0 to 3.

GARS-2 by J. Gilliam in 2006, is a behavioral checklist that helps identify people with autism spectrum disorder. The checklist queries behavioral characteristics related to autism across four domains. The manual provides detailed information regarding the psychometric properties, administration, and scoring aspects of the test, as well as a nicely written overview of autism and issues related to differential diagnosis. (Samadi et al., 2021)

3.6.2.2. Target Behaviors during program implementation:

The behavior to be changed in behavior therapy program is called Target Behavior, and it may be social, cognitive, life experiences, or otherwise, and the aim may be to form, strengthen, or weaken it. In behavior modification programs, the focus is on responses, which are behavioral units that can be directly measured.

The main behavioral problems (Targeted Behaviors):

There are five common behavioral problems among children with ASD that the behavioral therapy program will target and treat completely: The Target Behaviors include:

1. **Self-harm:** such as biting the hand or hitting (banging) the head.
2. **Aggressiveness:** such as hitting others.
3. **Disruption of order or chaos:** such as throwing things, shouting and screaming, leaving the place and running away.
4. **Repetitive behaviors:** such as questions, words, or sounds he repeats excessively, and hyperactivity.

5. **Missing behaviors:** such as impulsiveness, lack of motivation, avoidance of contact with others, short attention span, inability to accept change in routine.

3.6.3. Construction of the Behavioral Therapy Program:

The behavioral therapeutic interventional program used in this study is constructed, collected and extracted program from a group of behavioral therapy programs licensed for autistic children in the world, as (ABA, TEACCH, Floor time, RDI, and ESDM) (CDC, 2022). One of these programs from which a large part of the steps of the behavioral therapy program were extracted is the ABA program, which was used in both styles of intervention with children.

Two ABA teaching styles are Discrete Trial Training (DTT) and Pivotal Response Training (PRT). **DTT** uses step-by-step instructions to teach a desired behavior or response. Lessons are broken down into their simplest parts, and desired responses and behaviors are rewarded. Undesired responses and behaviors are ignored. **PRT** takes place in a natural setting rather than a clinical setting. The goal of PRT is to improve a few (pivotal skills) that will help the person learn many other skills. One example of a pivotal skill is to initiate communication with others.

The behavioral therapy was based on a handbook (Lovaas & Smith, 2003) & (Lovaas et al., 1974), with the adjustment that contingent aversive, such as those utilized by Lovaas (1987), were not employed. (LeBlanc & Gillis, 2012)

Interventional program is separate the sample into two groups (study and control groups). The experimental group was subjected to the interventional program intervention only, it has been implemented upon

(20) autistic child through (40) single sessions per (2) months, each session is (45-55) minutes long for application of the interventional program by using techniques and strategies of behavioral modification. According to the plan set for each child through the behavioral problems that he suffers from behavioral problems, according to their priority or severity. The plan for each behavioral problem is fully implemented and improvement appears, and then we move on to the next problem according to priority. There are some behavioral problems that last for a week, and some problems that last more than two weeks.

Each child was given a combination of behavioral interventions that were specifically chosen for that child after taking into account the child's specific behavioral issues as well as the degree to which they were affected by ASD. These interventions were carried out in a one-on-one setting in a separate room from the rest of the group.

3.6.3.1. Steps used in Behavioral intervention with an Autistic Child

This is a range of steps that followed within a procedural program to modify the behavior of an autistic child:

1. Determine the target behavior (correct its wrong behaviors).
2. Defining the targeted behavior (asking for something, randomly repeated movements, hitting others).
3. Measuring the target behavior (the time period in which it was observed and the steps that were followed).
4. Determine the variables that are functionally related to the target behavior (environment).
5. Designing a treatment plan (with the behaviorist).
6. Implementation of the treatment plan (the interventional stage at work).

7. Evaluation of the effectiveness of the therapy program (treatment outcomes).
8. The most important conclusions drawn from the previous steps (developing the necessary recommendations).

3.6.3.2. Implementation of the Behavioral therapy program: (40 session)

1. Self-harm: (6 session)

A. Biting the hand: (3 session)

Analysis: Biting behavior may appear as a form of communication about a sense of pressure, expressing pressure on others to implement what he wants, or stop asking for his participation in a goal.

Objective: To teach the child an alternative behavior that helps him communicate his feeling of distress and prevents him from biting his hand.

Intervention: During the training sessions, observe the child carefully so that intervention can be made before or at the moment when he starts biting his hand directly. And then be next to him and prevent him from moving his hand to his mouth and quickly put his hand on the table and then work on directing him to imitate you while you shake your head and say (No, No, I want biscuits) according to the reason that led to his feeling of pressure and when the child imitates this means of communication it must From a reward, for example, tell him, (Yes, Here's another biscuit).

B. Hitting the head: (3 session)

Analysis: This behavior may appear when the child is in a state of anger (if he does not want something on the table or when starting a new activity or changing the routine arrangement of toys or things on the table).

Objective: to intervene to prevent this mess so that the child does not harm himself.

Intervention: As soon as the child leans forward and hits his head once, pull the seat (or his body if he is sitting on the floor) back so that he feels an imbalance, and keep him in this tilted position for five seconds, and then return the seat to its place. Repeat the attempt every time the child starts by leaning forward. Do not speak or point at anything while the seat (or torso) is reclined. The aim is that the child does not like his feeling of losing balance, and this makes him stop that adjusting the head is the cause of the loss of balance, and so he begins to calm himself down and prevent the inner desire that he has to hit his head for whatever reasons.

2. **Aggressiveness** (hitting others): **(4 session)**

Analysis: The behavior of hitting others is a means of communicating and expressing a situation that the child does not want, or expressing feelings of frustration, turmoil and lack of understanding.

Objective: To teach the child a sign that announces his tiredness from work, his lack of understanding, or his desire not to be disturbed.

Intervention method: When the child tries to hit the teacher during the lesson, his hand must be restrained calmly, firmly and forcefully, and say to him "hit no" and teach him at the same time an alternative sign such as the tips of the fingers of the two hands rub at the front of the chest. And support this relationship with a reward, and let him play for a minute with whatever he wants at the table, then start his teaching activity again, but return to an activity that he can do with achievement, give continuous help and reward him for what he accomplishes, teach him to use the (salvation) sign at the moment when you find him preparing to hit again. And always let him stop working for a moment

after he performs the sign himself, thus giving him the concept of your communication with him and that you have understood what he means by this sign. This method can always be used for self-care skills during the day as well.

3. Disruption of order or chaos: (8 session)

A. Throwing things: (3 session)

Analysis: This behavior often disrupts the course of the educational process and often creates chaos in the life of the family due to throwing a lot of things inside the house. This behavior is often observed when he is asked to do something he does not want to do or when he cannot get something he wants. And the method of diction gives him the opportunity to control what surrounds him.

Objective: To get rid of the phenomenon of throwing things during the lesson.

Intervention: There are primary methods such as:

→ Direct verbal commands.

→ Ignore the behavior.

→ Force him to pick up the thing he threw.

These methods may work sometimes, but there are other times when the child needs a focused method.

So, after observing this behavior for two weeks, start implementing the following methods:

1. Keep valuables out of his reach.
2. Be vigilant and always notice before he starts throwing.
3. Don't pay any attention to something he threw.

Start by learning simple skills and when he starts to throw things, say in a firm voice, (**throw noooo**) and take his hands and grip them firmly at the sides of his body. Keep your head away from his face and start counting silently for 30 seconds, then let go of his hand and turn towards him and give him the thing he threw or almost threw to put it in its place.

B. Shouting and screaming, and crying: (5 session)

Analysis: The refusal is usually not related to some difficulty in performing the activities, but the refusal is due to his desire to refuse to change for new skills or activities (for example, refusing to go somewhere - refusing to get out of the car - refusing to enter the bathroom ... and so on).

This refusal pushes the family or the teacher to despair of reforming the child and gives him the ability to control situations with his knowledge. Promises or threats are useless in containing this refusal, as are severe punishment methods.

Objective: Reducing rejection by shouting or crying.

Intervention: Within a week start writing your observations in the table Questions to see if these methods work:

1. Ignore the shouting and shouting.
2. Giving frequent assistance with financial support and encouragement, such as patting on the shoulders, head, or the like.
3. Showing a material reward (candy as enhancer) in the field of view to be promised for the completion of the activity.

4. Repetitive or stereotyped behaviors: (10 session)

A. Frequently Questions (Constant questioning): (5 session)

Analysis: Persistent questioning represents permanent thoughts within the child and does not concern him with the answers of others or not. He only

expresses these permanent thoughts with permanent questions or comments.

Objective: To reduce the questioning time during working hours in the classroom.

Intervention: Start teaching the child to (**close their mouth**) during specific times in the classroom. Give him nonverbal skills like matching shapes or colors to numbers. Put six large colored dice or beads and a cup on the table every time he can match a cube with a number and reward him put a stone or beads in the cup, and as soon as he starts to ask, tell him "shut your mouth" and shake your head to confirm the command and purse your lips as well and take out beads Or a stone from the cup and show your displeasure.

Point to him to continue working and repeat the attempts again and if he tries to ask, give him a warning sign point to the beads and purse your lips and so we do not get the beads out of the cup if he gains the ability to control the impulse ask and when the task is finished put all the beads in the cup ask him the question he used to ask him, if any, and let him answer the question if he can answer (he must learn that there is a specific time when he can ask questions and a time when he cannot).

B. Constant screaming and annoying sounds: (5 session)

Analysis: Same as standing questions. The child lacks the ability to control internal thoughts and is not concerned with the reactions of others.

Objective: Finding an alternative means or gaining the ability to control the inner desire to make these sounds.

Intervention: As soon as the child starts making these annoying sounds, put your fingers to your lips and say "**shshsh**" and help him imitate you. If

he continues to make these sounds after you remove your hand from your mouth, put a large paper or plastic bag on each head covering it and reach His shoulders, leave it for a few seconds, then remove it and continue with the activities.

If it lasts a second, anesthetize it in a "**shshsh**" fashion and then put the bag back in for a longer period (no more than **20** seconds). The bag must allow the passage of air and light, but at the same time it increases the volume of the noise it makes, and thus he perceives it and at the same time towards it, and therefore he will not accept it and repeat it, and he will learn how to control it once he sees the bag. The short time to put the bag is intended so that the child does not forget the purpose and start making alternative sounds or other annoying behaviors.

5. Missing behaviors: (12 session)

A. Stability, short attention span, inability to accept change in routine, and Lack of motivation: (6 session)

Analysis: When a child shows an inability to stay seated during meals, go to the toilet, or get dressed without realizing that what he is doing is wrong. All of these behaviors mean a short attention span and an inability to control impulsive behavior.

Objective: Increase sitting and attention time from 2 to 15 seconds.

Intervention: The behavioral therapist should arrange the workplace so that the child sees what he will do and what he will play with. Start with a simple activity that the child can do (the four-shape painting, for example). Put the board on the table, remove a piece and give it to the child to put it back in place. Invite him to the table and help him sit down, directing him to put the piece in place. When executing the command, reward him with candy (enhancer). Then give him the command to go to the play area. After thirty seconds, invite him back to the activity and this time remove two pieces from the board and repeat the reward for the activity and repeat the invitation to go play.

B. Impulsiveness in moving things before orders are issued: (2 session)

Analysis: Impulsiveness in behaviors during study and failure to listen to guidance or planning has a significant impact on the child's academic path. Even when he is given orders to keep his hands under the table until orders are issued, he does not obey that, and this is because he does not realize that listening is necessary before acting. The purpose of listening is to employ the given information and plan for proper solution.

Therefore, the training method is based on three concepts: "Wait - Listen - Think".

Objective: Teach the child to listen, wait and plan before reaching for something.

Intervention: Take four cups of paper and on the base of each one stick a picture that represents one of the verbs to be taught (the child runs - the child catches the ball - the dog runs - the dog barks) turn the cups over and arrange them in a row put a coin under one of the cups so that the child does not see it now Tell him that the coin is under the cup like this...

If he picks up the coin from under the specified cup, give it to him. If he fails, do not give him anything and tell him to try again, and so on, and continue until he can pick up four coins. Do not tell him to wait or listen. He must realize by himself that this waiting and listening is a prerequisite for obtaining coins or anything liked by this method. You need a child over the age of five who has a reasonable level of presence and attention and the ability to cooperate when he wants to.

C. Avoidance of contact with others (e.g. Eye contact, Hugs and kisses) (4 session)

Analysis: The lack of eye contact and the sideways look occur when the child does not want to communicate with those around him and adhere to the preservation of his own world, therefore he refuses to kiss and hug anyone.

Objective: Direct the child's gaze to the speaker and listen to him for a period of 2 to 15 seconds.

Intervention method: Close the room, remove all distractions, and prepare material reinforcement for the child, then light the candle and make sure that the child does not hurt himself by touching the candle or hurting himself. Turn off the light at first. It is preferable to move the candle slowly. Talk to the child during that, then measure the duration of the child's communication and reinforce him when he communicates. Play with him and do not make him feel that he is in a training session. Repeat the process several times, this will increase the duration of communication. There are also other exercises with the same goal, namely: the laser tool, the imagination exercise, the shadow, the mirror, the camera, woo...etc.

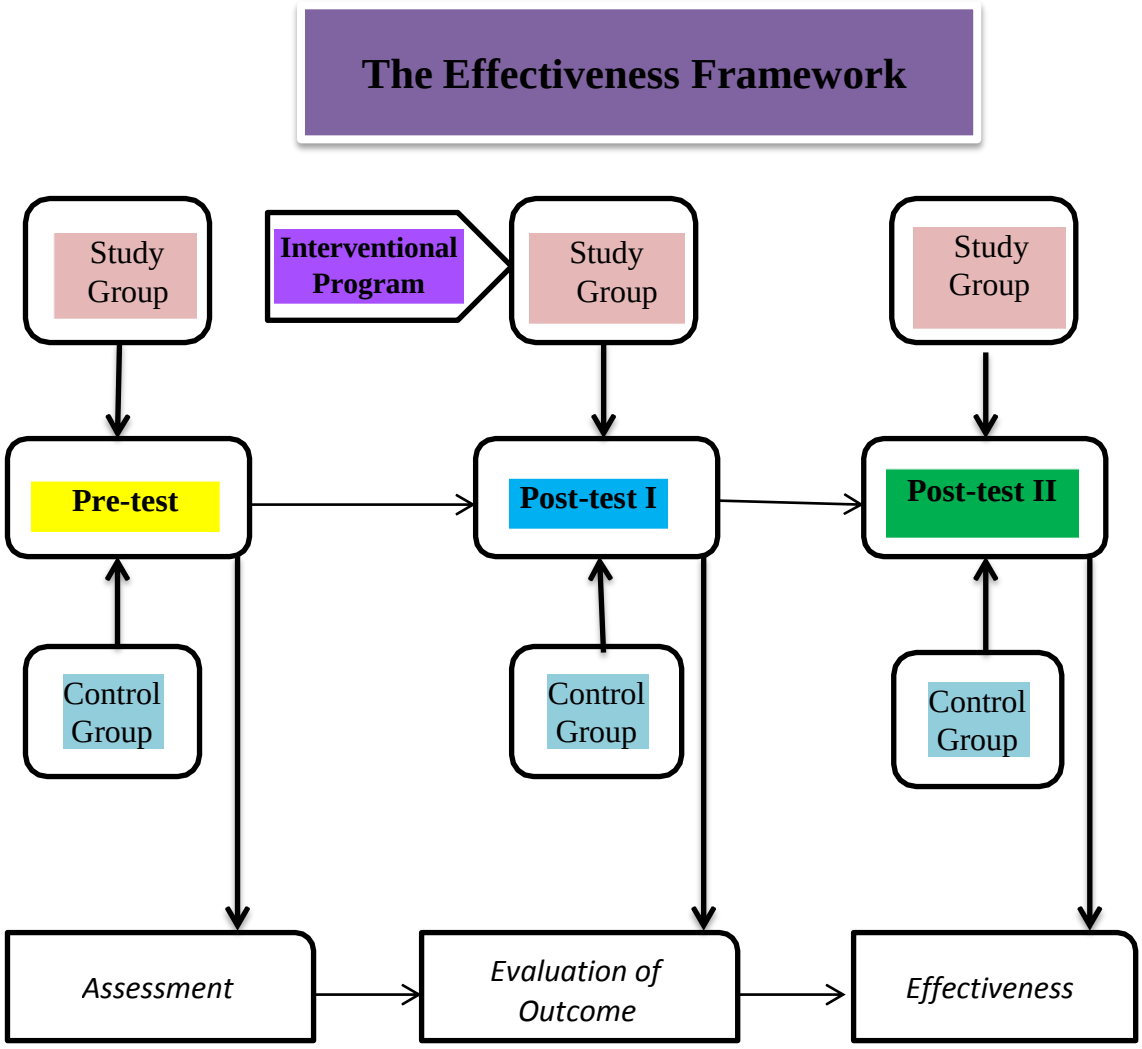

Fig. (3-1) The Repeated Measure Design

3.7. Rating and scoring:

The (GARS) or Autism Index is calculated by first calculating the raw scores of each subscale and then converting them into derived standard scores. And then collecting the standard scores for all the four dimensions (Stereotyped Behaviors, Communication, and Social Interaction and developmental history), each dimension consists of 14 items, where the total of the items is 56. Each item has four responses that a weighted score ranging from 0 to 3 and are scored as (0) = No/Never, (1) =rarely, (2) = sometimes, (3) = Yes/always, and except the developmental dimension, it is weighed by score ranging from (0) = No, (1) = Yes. The rating of the sum of points gives the probability and severity of the ASD.

A total mean of score between (0-3) it represents the Severity of Stereotypical Behaviors, as the average score of (0-0.75) is considered No behavioral problem; and a score from (0.76-1.5) is Mild; and a score from (1.6-2.25) is Moderate; and a score from (2.26-3) is Severe. The social interaction and communication dimension is measured in the same way as the dimension of stereotypical behaviors, or the developmental dimension is measured by mean of scores between (0-1) it represents the Severity of Developmental Disorders, as the average score of (0-0.33) is considered Mild; and a score from (0.34-0.66) is Moderate; and a score from (0.67-1) is Severe.

When measuring the general GARS Scale, it is found that the summation of all scores for each domain and then all domains is measured according to the following: scores from GARS are estimates of the likelihood that an individual will have ASD. Sub-standard scores of an ASD of **90 to 110** are within the middle range (Average) for people with ASD and indicative of autistic features, the average estimates by converting the total scores calculated for each dimension and extracting the standard

score for it through the list of standard scores. And then collecting the standard scores for all the four dimensions, and also extracting the standard score for the scale as a whole according to the list of standard scores (attached in the appendix-C) for the four dimensions, and after determine the score of calculated, put it within levels of ASD severity to extract the severity of autism spectrum disorder for each child. Scores of **70 to 89** indicate that an individual **may have autism**, and any score of **69 or less** suggests that it is **unlikely** that the individual has autism. In summary, according to the results of the GARS-2 is in the unlikely, possibly, very likely probability of having an autism spectrum disorder. (Gilliam, 2006)

Levels of ASD severity according Gilliam Scale (GARS-2):

The rate or percentage of ASD

- ➔ Very High >131
- ➔ High 121-130
- ➔ Above Average 111 - 120
- ➔ Middle 90 - 110
- ➔ Below Average 80 - 89
- ➔ Low 70 - 79
- ➔ Very Low < 69

3.8. Validity of the interventional Program and the Questionnaire:

Content validity of the study instrument (assessment tool) and the interventional program (behavioral therapy) determined through a panel of **(23)** experts from different specialties (They were selected on the basis of having experience more than 5 years in the field of nursing, medicine, and psychology), related to the field of the study, **(12)** from the nursing specialties, **(4)** from the Medicine Specialties, **(6)** From the Human

Sciences Specialties (Psychology specialty), and **(1)** From the biostatistics specialty. **Appendix (A)**

Validity is the extent to which an instrument measures the attributes of a concept accurately (LoBiondo-Wood & Haber, 2014). The process of consulting experts aimed to investigate the current study tool for its efficiency in reaching the objectives set, in addition to the clarity of its components and questions. They were:

[4] Expert from Nursing Faculty / Babylon University.
[4] Expert from Nursing Faculty / Baghdad University.
[2] Expert from Nursing Faculty / Kufa University.
[3] Expert from medicine Faculty / Kufa University.
[1] Expert from College of Computer & Math science / Kufa University
[2] Expert from Nursing Faculty / Cairo University / Egypt.
[1] Expert from Education Faculty / Suez Canal University / Egypt.
[3] Expert from Education Faculty / Kufa University.
[1] Expert from College of Basic Education / University of Babylon.
[1] Expert from Health Science Faculty / Lebanese University / Lebanon.
[1] Expert from University of London/ Faculty of Medicine / UK.

The questionnaire and the program are submitted to each one of the experts. After review and evaluation by the experts, reveal that the instrument has adequate content and changes have been done too many items according to their suggestions. A copy of the interventional program (behavioral therapy) was submitted to each one of the experts. They are asked to review and evaluate its content validity and adequacy. The results indicated that the interventional program (behavioral therapy) was clear, adequate, relevant, and valid. Also, some changes and modification to the behavioral therapy program done according to the experts.

3.9. Pilot study:

Pilot study, it is conducted on (10) autistic children who were selected (as a purposive sample) from Happiness Center for Autism. Done period from **September 8**, and ended on **October 15**, **2022**. Initial test was done and data collection was obtained by utilizing a structured questionnaire. After one month later of pre-test and information was collected, the retest was directed by using the same questionnaire. The researcher during the pilot study, identified the common behavioral problems among children with ASD within this geographical area, to be a preliminary form of the behavioral problems that we will work on through the behavioral therapy program. The behavioral therapy program was administered in **(5)** sessions.

The pilot study purposed to determine the feasibility of the study and to improve the study tool if there any inconsistencies. The pilot sample were excluded from study sample. The test-retest result revealed in (Table 3.1).

As a result; it was:

1. Determination of the average time required for each respondent was (45-55) minutes.
2. The questionnaire was, understandable, clear, and easy to answer.
3. Some parents did not fully commitment to the session schedule for a month, so they set timetables for them and followed them up daily.
4. Some children have behavioral problems that have a relationship or originate from physical problems and disorders, so such samples were excluded

3.10. Reliability of the Study Instrument:

The period of the Reliability from 13th March, 2022 throughout 15th October, 2022. Reliability instrument has been obtained through calculation of PCC Pearson Correlation Coefficient (R); Test-retest method used to estimate the reliability. The items of the current instrument enter through statistics analysis program (SPSS program version 24) Statistical Package for the Social Sciences and applied PCC to calculate the reliability.

The reliability score of the questionnaire (instrument of study) for the method of test-retest indicated the statistically was reliable as showed thought table below and this due to good indicator for reliable of the instrument and has convergent measurements. The degree of reliability is usually confirmed by the use of correlation procedure, where the value above (0.70) is considered satisfactory and the higher value reflects higher degree of internal consistency.

Table 3.1. Reliability Coefficients of the Studied Scales:

Scale (GARS)	Reliability Technique	N	No. of Items	Actual Value (C.C.)	Accepted Value	Evaluation
Behavioral Problems	(Test/ Re-Test)	10	14	0.931	0.70	Reliable
Communication		10	14	0.84	0.70	Reliable
Social Interaction		10	14	0.88	0.70	Reliable
Developmental Problems		10	14	0.68	0.70	Reliable
Total			56	0.83	0.70	Reliable

N= (Number of Population). C.C: Correlation Coefficient

The results found that the coefficient of correlation was (r = 0.83%) at the level ($p \leq 0.05$) for behavioral problems and program. This mean that the study instrument was adequately reliable (Polit and Hungler, 1999; Polit and Beck, 2008).

3.11. Data Collection

Data were collected through direct clinical interviews of all study participants (study and control groups) by administrating the tests by using the study instrument and application of the interventional program for the period from 20th October, 2022 until 20th April, 2023. Pre-posttests approach and follow-up techniques were utilized as a method of data collection and carried through the following techniques:

A. Before the collection of data, all participants were interviewed and apprised about the purposes and objectives of the study.

B. All autistic children with ASD (study & control group) who participated in the study exposed to **Pre-Test** in order to determine their behavioral problems and severity of ASD and other factors that effect on program before participated in the study and get in the interventional program (behavioral therapy program) on **20th October**, until 25th **October**, 2022 .

C. All autistic children with ASD in the study group are exposed to the interventional program (**Application** of the behavioral therapy program for the study group only) at the same time in the Happiness Center for Autism from 26th October, 2022 until 26th December, 2022

D. All participants of the study and control groups are exposed to **Post-Test-I** immediately after the implementation of the interventional program (behavioral therapy program) to measure modifications in their behavioral problems on 27th December, 2022. The evaluation period is from 10 to 15 days.

E. The second posttest (**Post-Test-II**) was conducted for all participants of the study & control group too after three months of post-test-1 on **10th April, 2023** to measure effectiveness of the behavioral therapy program. The research participants are illustrated in figure(3-2).

The research Algorithm (3-2).

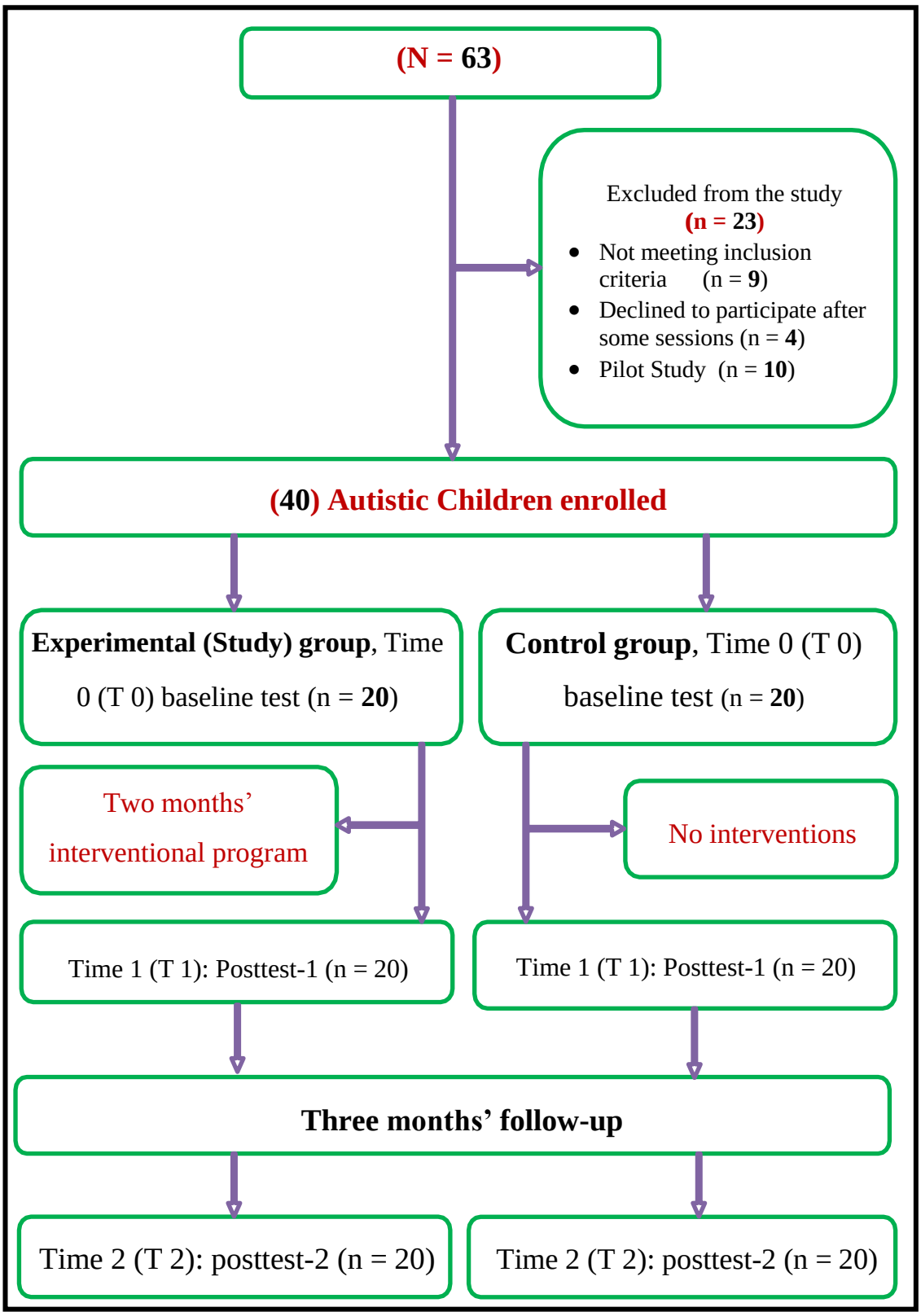

Figure (3-2) the Research Algorithim

3.12. Data Analyzing:

After the collection of data of the current study, they have been coded and analyzed by the application of statistical procedures and by using a Statistical package of Social Science (IBM SPSS) program (version 24) for Windows which was released, as well as the statistical analysis system for the application and Excel to analyze and assess the results of the study, the data of the current study has been analyzed through application of the following statistical approach:

3.12.1. Descriptive Statistical Data Analysis:

This method was extended by calculating the following:

1. **Frequencies (F):** In statistics mean the incidence of states is the number of events the states happened in a study or experiment (Kenny, 2016). It was used for describing the distribution of sample demographic variables.

2. **Percentage (%):** A rate or number that showed the number in a certain form of parts regarding an object divided within parts from 1 to 100 (Merriam, 2016).

3. **Mean:** It is utilize to calculate the average of the data.

4. **Mean of Scores (MS*):*** It is utilize to estimate the value of the behavioral problems among autistic children. In statistics, the mean is the mathematical average of a set of numbers. (Chernick, 2003).

M.S = Mean of Score

Σ = The sum of

Fi = The frequency of (i) responding

Si = The score (i) index

5. **Standard Deviations (SD):** Bland & Altman, 1996 define a measure that is utilized to quantify the result of dispersion or variation of set values of data. The variation of data related to the level of behavioral problems has been determined.

3.12.2. Inferential Data Analysis:

These were used to accept or reject the statistical hypothesis, which included the following:

1. **Pearson Correlation Coefficient:** (Cronbach's Alpha)

"Polit, 2013 written about that and said it was used to estimate the internal consistency of the study instrument at p-value ≤ 0.05. The formula (r) used to calculate the Pearson correlation coefficient":

2. **Chi-square-test**

Is used for testing a difference between several category nominal scales of dichotomous random variables. The Chi-square-test has used for cross-tabulation behavioral problems among autistic children with the demographic and clinical characteristics.

$\chi 2$= Chi-square.

Σ= Sigma, the statistical symbol for summation.

O= Observed frequencies.

E= Expected frequencies (Al-Rawi, 2000).

3. **Independent T-test:**

There are other named as independent-samples t-test or student's t-test, the two-sample t-test is a test of statistical inferential that estimate if there is a significant difference in a statistic among the means within **two** irrelevant groups Control and Study groups (Leard Statistics, 2019).

4. **Variance Analysis or ANOVA test:** It is a set of model statistical applied to analyze the variances between a group of means and their procedures of association (such as the difference between and among groups), Analysis of Variance (ANOVA) is beneficial for make comparison (testing) for three means or more (variables or groups) for the significance of statistical. It is similar in conceptually with to T-Tests for two-sample, but the conservative is less (resulting in less type one error) and so it is suitable for a broad range of problems in practical fields (Fisher, 2016).

5. **Simple Linear Regression Analysis**

A regression is a statistical analysis assessing the association between two variables (one independent variable and one dependent variable). Often, the objective is to predict the value of an output variable (or response) based on the value of an input (or predictor) variable.

3. 13. Limitations of the Study

This study faces some limitations during its process:

1. Unavailability of a single sessions or behavioral program place.

2. Lack of national literature and studies related to this study because the application of the program takes a lot of time and difficulty dealing with autistic children.

3. Some families are refused participate in the study.

4. Small sample size, due to the time of implementation of this study.

5. Parents feel hopeless when they are asked about their child due to they are afraid of calling it autism with their child situation, therefore, they need a lot of time to follow up.

6. Much time needed to some parents due to their low education to clarify and explain the strategies and steps of behavioral modification for them after session.

7. Lack of national statistic regarding Autism spectrum disorder.

8. Economic barriers prevent some families from participation due to they do not have the money to transfer between housing and a center of behavioral therapy for a child.

Chapter Four

Results

4. Results of the study

This chapter describes the demographic and clinical characteristics of the participants (Child & Parents) and determines the severity of ASD regard the behaviors problems of children and efficacy of the behavioral therapy strategies for children with autism spectrum disorders and determines the significant differences in and children and clinical characteristics of the ASD children with behavioral therapy between two group (Control and Experimental).

Table 4.1. Demographic characteristics of the children with ASD (Control and Experimental).

N.	Demographic Data		Experimental (n=20)		Control (n=20)	
			Freq.	%	Freq.	%
1.	Chronological Age	- (3 - 6) years	10	50.0	14	70.0
		- (7 - 10) years	7	35.0	4	20.0
		- (11 - 14) years	3	15.0	1	5.0
		- (More Than 14) years	0	0	1	5.0
		Mean ±SD	2.935±1.5479		3.245±1.1330	
2.	Sex	– Male	15	75.0	15	75.0
		– Female	5	25.0	5	25.0
3.	Child Schooling	- No Schooling	20	100.0	20	100.0
4.	Child Sequence	- First	16	80.0	10	50.0
		- Second	2	10.0	2	10.0
		- Third	1	5.0	3	15.0
		- Fourth	0	0	3	15.0
		- Fifth	0	0	1	5.0
		- Sixth	0	0	1	5.0
		- Seventh	1	5.0	0	0

According to the table (4.1), a total of (40) child with ASD were included in the study, and divided equally into Control and Experimental group (20 child at each group), and the mean Chronological age was (2.935±1.5479, 3.245±1.1330) for experimental and control group,

respectively. Whereas, the age stages was half percentage (50%) of ASD children was within the age group of (3-6) years for experimental group, and two thirds percentage (70%) was in the age group (3-6) years for control group.

Regarding the gender (30) children were male (15 for study and 15 for control group), and (10) child were female (5 for study and 5 for control group).

Regarding the Child Schooling 100% No Schooling for study and 100% No Schooling for control group.

In addition, the Child Sequence more than 80% are First order for experimental group and about 50% are First order for control group.

Table 4.2.: Demographic characteristics of the Parents of children with ASD (Control and Experimental).

N.	Demographic Data		Experimental (n=20)		Control (n=20)	
			Freq.	%	Freq.	%
1.	Residency Area	– Urban	19	95.0	16	80.0
		– Rural	1	5.0	4	20.0
2.	Father Job	- Employed	10	50.0	12	60.0
		- Free work	7	35.0	7	35.0
		- Workless	3	15.0	1	5.0
3.	Father's Educational level	Illiterate	0	0	1	5.0
		Literate (read & write)	4	20.0	1	5.0
		Graduate of Primary School	7	35.0	3	15.0
		Secondary School	5	25.0	9	45.0
		Graduate of Institute/ College	3	15.0	4	20.0
		Graduate of High Education	1	5.0	2	10.0
4.	Mother Job	- Employed	15	75.0	11	55.0
		- Free work	2	10.0	5	25.0
		- Housewife	3	15.0	4	20.0
5.	Mother's Educational level	Illiterate	2	10.0	2	10.0
		Literate (read & write)	4	20.0	2	10.0
		Graduate of Primary School	2	10.0	6	30.0
		Secondary School	6	30.0	1	5.0
		Graduate of Institute/ College	3	15.0	9	45.0
		Graduate of High Education	3	15.0	0	0

6.	**Marital Status**	**- Married**	**18**	**90.0**	**19**	**95.0**
		- Divorced	**1**	**5.0**	**1**	**5.0**
		- Widowed	**1**	**5.0**	**0**	**0**
7.	**Monthly Income**	**- Sufficient**	**13**	**65.0**	**9**	**45.0**
		- Barely sufficient	**5**	**25.0**	**7**	**35.0**
		- Insufficient	**2**	**10.0**	**4**	**20.0**

Table (4.2) shows the residency area, more than 95% of children with ASD who participated in the study were urban residents, while only 5% participants were rural residents.

Regarding the Father Job 50% Employed for study and 60% employed for control group, whereas the mothers' job 75% Employed for study and 55% Employed for control group.

In regard to educational level of fathers 35% of children fathers had Graduate of Primary School followed by 25% Graduate of Intermediate/intermediate school for experimental group and 45% of children fathers had Secondary School followed by 20% Graduate of Institute/ College for control group, whereas the mothers' educational level was (30%) Secondary School followed by (20%) of Literate (read & write) for experimental group and 45% of children mothers had Graduate of Institute/ College followed by 30% Graduate of Primary School for control group.

According to Marital Status for parents more than 90% of parents are married for experimental group and about 95% of parents were married for control group.

Concerning the Monthly Income Approximately, 65% of parents are Sufficient for experimental group and 45% of parents are Sufficient for control group replied that income of their families was barely enough.

Table 4.3: Clinical characteristics of the children with ASD (control and experimental).

N.	Clinical Data		Experimental (n=20)		Control (n=20)	
			Freq.	%	Freq.	%
1.	Age of child at diagnosis	- Less than 3 years	12	60.0	15	75.0
		- (4 - 6) years	8	40.0	4	20.0
		- (7 - 9) years	0	0	1	5.0
2.	There is autistic children in family	- No	18	90.0	15	75.0
		- One Child	2	10.0	5	25.0
3.	There is autistic children in siblings (Consanguinity)	- No	10	50.0	13	65.0
		- One Child	10	50.0	7	35.0
4.	Speak of the first word at	- Less Than 1 Year	4	20.0	6	30.0
		- (1-2) Years	5	25.0	6	30.0
		- More Than 2 Years	11	55.0	8	40.0
5.	Mental Age in Pretest	- (Less Than 3) years	12	60.0	9	45.0
		- (3 - 6) years	8	40.0	11	55.0

Concerning the clinical characteristics, the Age of child at diagnosis approximately, 60% are Less than three years for experimental group and 75% are less than (3) years for control group (Table 4.3).

Regarding to the autistic children in family (90%) haven't other autistic children them 10% have one child for experimental group 75% haven't other autistic children and 25% Yes have one child for control group.

Regarding to the autistic children in siblings (Consanguinity) 50% haven't other autistic children and 50% Yes have one child for experimental group, whereas the control group, 65% was haven't other autistic children and 35% was Yes have one child.

Concerning other clinical characteristic; the table shows that the first word spoken by the child take more than 2 years about (55%), while the control group (40%) are More Than 2 Years.

In this table, the Mental Age in Pretest phase approximately, 60% were (Less Than 3) years for experimental group and about 55% are (3-6) years for control group.

Table 4.4: Distribution of the children with ASD (Experimental & control) groups in (Pre-test) according to their Stereotype Behaviors Dimension

No.	Item	Ratings	Experimental G. Pretest (n=20)				Control G. Pretest (n=20)			
			F.	%	M.	Ass.	F.	%	M.	Ass.
	A. Stereotype Behaviors Dimension									
1.	He avoids that his eyes meet with others (he looks away when someone talks to him and looks at him).	Rarely	0	0	2.90	Severe	1	5.0	2.60	Severe
		Sometimes	2	10.0			6	30.0		
		Always	18	90.0			13	65.0		
		Total	20	100.0			20	100		
2.	He stares at the hands, objects, or those elements that are present in the environment for a period of at least five seconds at least (as if he takes a mental picture of the thing).	Rarely	0	0	2.70	Severe	1	5.0	2.90	Severe
		Sometimes	6	30.0			0	0		
		Always	14	70.0			19	95.0		
		Total	20	100.0			20	100		
3.	Tapping or tapping lightly and quickly with the finger in front of the eye for five seconds or more.	Sometimes	7	35.0	2.65	Severe	7	35.0	2.65	Severe
		Always	13	65.0			13	65.0		
		Total	20	100.0			20	100		
4.	He only eats a certain food and refuses to eat what most people usually eat	Rarely	1	5.0	2.55	Severe	5	25.0	2.40	Severe
		Sometimes	7	35.0			2	10.0		
		Always	12	60.0			13	65.0		
		Total	20	100.0			20	100		

5.	He licks or feels certain things that are not eaten, such as hands, toys, books, etc., for example	**Rarely**	**1**	**5.0**	**2.50**	**Severe**	**1**	**5.0**	**2.55**	**Severe**
		Sometimes	**8**	**40.0**			**7**	**35.0**		
		Always	**11**	**55.0**			**12**	**60.0**		
		Total	**20**	**100.0**			**20**	**100**		
6.	Smells or inhales things such as toys, hands, hair, etc.	**Never**			**2.60**	**Severe**	**1**	**5.0**	**2.10**	**Moder ate**
		Rarely	**1**	**5.0**			**5**	**25.0**		
		Sometimes	**6**	**30.0**			**5**	**25.0**		
		Always	**13**	**65.0**			**9**	**45.0**		
		Total	**20**	**100.0**			**20**	**100.**		
7.	It rotates quickly or moves in the form of circles.	**Rarely**	**1**	**5.0**	**2.40**	**Severe**	**4**	**20.0**	**2.40**	**Severe**
		Sometimes	**10**	**50.0**			**4**	**20.0**		
		Always	**9**	**45.0**			**12**	**60.0**		
		Total	**20**	**100**			**20**	**100**		
8.	It works to rotate things that were not originally designed for this, such as dishes, cups, cups, and others	**Rarely**	**0**	**0**	**2.55**	**Severe**	**3**	**15.0**	**2.35**	**Severe**
		Sometimes	**9**	**45.0**			**7**	**35.0**		
		Always	**11**	**55.0**			**10**	**50.0**		
		Total	**20**	**100**			**20**	**100**		
9.	He rocks or rocks back and forth when he's sitting or standing	**Rarely**	**1**	**5.0**	**2.65**	**Severe**	**1**	**5.0**	**2.70**	**Severe**
		Sometimes	**5**	**25.0**			**4**	**20.0**		
		Always	**14**	**70.0**			**15**	**75.0**		
		Total	**20**	**100.0**			**20**	**100**		

10.	It moves quickly like an arrow when moving from one place to another	**Rarely**			**2.35**	**Severe**	**5**	**25.0**	**2.05**	**Moderate**
		Sometimes	**13**	**65.0**			**9**	**45.0**		
		Always	**7**	**35.0**			**6**	**30.0**		
		Total	**20**	**100.0**			**20**	**100**		
11.	He walks on tiptoes when moving from one place to another	**Sometimes**	**5**	**25.0**	**2.75**	**Severe**	**2**	**10.0**	**2.90**	**Severe**
		Always	**15**	**75.0**			**18**	**90.0**		
		Total	**20**	**100.0**			**20**	**100**		
12.	He flapped his arms or even his fingers	**Rarely**			**2.50**	**Severe**	**1**	**5.0**	**2.55**	**Severe**
		Sometimes	**10**	**50.0**			**7**	**35.0**		
		Always	**10**	**50.0**			**12**	**60.0**		
		Total	**20**	**100.0**			**20**	**100**		
13.	Makes sharp sounds with high tones such as (I abuse) or utters loud sounds in order to achieve self-stimulation	**Always**	**20**	**100.0**	**3.00**	**Severe**	**20**	**100.**	**3.00**	**Severe**
14.	He tries to harm himself in various ways, such as electrocuting himself, hitting his head on something, or biting himself.	**Rarely**	**1**	**5.0**	**2.70**	**Severe**	**0**	**0**	**2.90**	**Severe**
		Sometimes	**4**	**20.0**			**2**	**10.0**		
		Always	**15**	**75.0**			**18**	**90.0**		
		Total	**20**	**100.0**			**20**	**100**		

Severity of Stereotype Behaviors: *M.S.* **No problem**= (0-0.75), **Mild**= (0.76-1.5), **Moderate**= (1.6-2.25), **Severe**= (2.26-3).

Table 4.5: Distribution of the Experimental & Control groups regarding to their overall Stereotype Behaviors Dimension in (Pre-test):

Dimension	Level	Experimental Pretest				Control Pretest			
		F.	%	M.	Ass.	F.	%	M.	Ass.
A- Stereotype Behaviors	Moderate Stereotype Behaviors	0	0	2.6286	Severe	1	5.0	2.5750	Severe
	Severe Stereotype Behaviors	20	100			19	95.0		
	Total	20	100			20	100.0		

Severity of Stereotype Behaviors: ***M.S.*** **No problem**= (0-0.75), **Mild**= (0.76-1.5), **Moderate**= (1.6-2.25), **Severe**= (2.26-3).

The (table 4.4) and (Table 4.5) shows that the Severity of Stereotype Behaviors responses of both control and study group of Children with ASD in (Pre-test) regarding behavioral problems, which measured in light of four categories (Never, Rarely, Sometime, and Always).

In detail, the responses of sample to the first domain of stereotype behaviors which includes behavioral problems of children with ASD was Severe assessment with mean score (2.6286) for Experimental group and Severe with mean score (2.5750) for Control group.

Table 4.6: Distribution of the children with ASD (Experimental & control) groups in (Pre-test) according to their Communication Dimension

No.	Item	Ratings	Experimental G. Pretest (n=20)				Control G. Pretest (n=20)			
			F.	%	M.	Ass.	F.	%	M.	Ass.
	B- Communication Dimension									
15.	Repeats (echoes) words verbally or with signs	never	1	5.0	2.45	Severe	0	0	2.55	Severe
		rarely	2	10.0			1	5.0		
		Somtimes	4	20.0			7	35.0		
		Always	13	65.0			12	60.0		
		Total	20	100.0			20	100		
16.	Repeats words out of context.	never	1	5.0	2.50	Severe	0	0	2.45	Severe
		rarely	1	5.0			2	10.0		
		Somtimes	5	25.0			7	35.0		
		Always	13	65.0			11	55.0		
		Total	20	100.0			20	100		
17.	Repeats words or phrases over and over.	never	3	15.0	2.25	Moderate	1	5.0	2.40	Severe
		Somtimes	6	30.0			9	45.0		
		Always	11	55.0			10	50.0		
		Total	20	100.0			20	100		
18.	Speaks or signs with flat tone or with dysrhythmic patterns	never	0	0	2.85	Severe	2	10.0	2.25	Moderate
		Somtimes	3	15.0			9	45.0		
		Always	17	85.0			9	45.0		
		Total	20	100.0			20	100		
19.	Responds inappropriately to simple commands (Stand, Sit).	rarely	0	0	2.50	Severe	1	5.0	2.50	Severe
		Somtimes	10	50.0			8	40.0		
		Always	10	50.0			11	55.0		
		Total	20	100.0			20	100		
20.	Looks away or avoids looking at speaker when name is called.	Rarely	4	20.0	2.35	Severe	3	15.0	2.35	Severe
		Sometimes	5	25.0			7	35.0		
		Always	11	55.0			10	50.0		
		Total	20	100.0			20	100		
21.	Does not ask for things he or she wants	Rarely	2	10.0	2.75	Severe	2	10.0	2.60	Severe
		Sometimes	1	5.0			4	20.0		
		Always	17	85.0			14	70.0		
		Total	20	100.0			20	100		
22.	Does not initiate conversations with peers or	Never	3	15.0	2.50	Severe	3	15.0	2.15	Moderate
		Rarely	0	0			2	10.0		
		Sometimes	1	5.0			4	20.0		

	adults	Always	16	80.0			11	55.0		
		Total	20	100			20	100		
23.	Uses "yes" and "no" inappropriately.	Never	0	0	2.80	Severe	3	15.0	2.20	Moderate
		Rarely	0	0			1	5.0		
		Sometimes	4	20.0			5	25.0		
		Always	16	80.0			11	55.0		
		Total	20	100.0			20	100		
24.	Uses pronouns inappropriately	Never	5	25.0	2.20	Moderate	6	30.0	1.70	Moderate
		Rarely	0	0			3	15.0		
		Sometimes	1	5.0			2	10.0		
		Always	14	70.0			9	45.0		
		Total	20	100.0			20	100		
25.	He repeats unclear and incomprehensible sounds over and over again.	Sometimes	2	10.0	2.90		5	25.0	2.75	Severe
		Always	18	90.0			15	75.0		
		Total	20	100.0			20	100		
26.	Uses pronouns inappropriately (referring to himself as he or she, for example)	Never	4	20.0	2.25	Moderate	6	30.0	1.75	Moderate
		Rarely	0	0			2	10.0		
		Sometimes	3	15.0			3	15.0		
		Always	13	65.0			9	45.0		
		Total	20	100.0			20	100		
27.	Uses gestures instead of speech or signs to obtain objects	Sometimes	5	25.0	2.75	Severe	7	35.0	2.65	Severe
		Always	15	75.0			13	65.0		
		Total	20	100.0			20	100		
28.	Inappropriately answers questions about a statement or brief story	Never	3	15.0	2.25	Moderate	7	35.0	1.85	Moderate
		Sometimes	6	30.0			2	10.0		
		Always	11	55.0			11	55.0		
		Total	20	100.0			20	100		

Severity of Communication: ***M.S.*** **No problem**= (0-0.75), **Mild**= (0.76-1.5), **Moderate**= (1.6-2.25), **Severe**= (2.26-3). "

Table 4.7: Distribution of the experimental & control groups regarding to their overall Communication Dimension in (Pre-test):

Dimension	Level	Experimental Pretest				Control Pretest			
		F.	%	M.	Ass.	F.	%	M.	Ass.
B- Communication	Moderate Communication Problems	1	5.0	2.5214	Severe	8	40.0	2.2964	Severe
	Severe Communication Problems	19	95.0			12	60.0		
	Total	20	100.			20	100.0		

The (table 4.6) and (Table 4.7) shows that the Severity of Communication Skills responses of both control and study group of Children with ASD in (Pre-test) regarding Communication and language problems, which measured in light of four categories (Never, Rarely, Sometime, and Always).

Also, the second dimension (communication) had includes language and communication problems of children with ASD was Severe assessment for both study and control groups with mean score (2.5214, 2.2964), respectively.

Table 4.8: Distribution of the children with ASD (Experimental & control) groups in (Pre-test) according to their Social Interaction Problems Dimension

No.	Item	Ratings	Experimental G. Pretest (n=20)				Control G. Pretest (n=20)			
			F.	%	M.	Ass.	F.	%	M.	Ass.
	C- Social Interaction Problems Dimension									
29.	Avoids eye contact; looks away when someone looks at him or her.	Rarely	4	20.0	2.50	Severe	3	15.0	2.45	Severe
		Sometimes	2	10.0			5	25.0		
		Always	14	70.0			12	60.0		
		Total	20	100.0			20	100		
30.	Stares or looks unhappy or unexcited when praised, humored, or entertained.	Never	4	20.0	1.60	Moderate	1	5.0	2.05	Moderate
		Rarely	3	15.0			3	15.0		
		Sometimes	10	50.0			10	50.0		
		Always	3	15.0			6	30.0		
		Total	20	100.0			20	100		
31.	Resists physical contact from others.	Never	4	20.0	1.80	Moderate	4	20.0	1.55	Mild
		Rarely	5	25.0			8	40.0		
		Sometimes	2	10.0			1	5.0		
		Always	9	45.0			7	35.0		
		Total	20	100.0			20	100		
32.	Does not imitate other people when imitation is required or desirable, such as in games or learning activities.	Never	2	10.0	2.40	Severe	2	10.0	2.35	Severe
		Rarely	1	5.0			2	10.0		
		Sometimes	4	20.0			3	15.0		
		Always	13	65.0			13	65.0		
		Total	20	100.0			20	100		
33.	Withdraws, remains aloof, or acts standoffish in group situations.	Never	2	10.0	2.10	Moderate	3	15.0	2.10	Moderate
		Rarely	4	20.0			2	10.0		
		Sometimes	4	20.0			5	25.0		
		Always	10	50.0			10	50.0		
		Total	20	100.0			20	100		
34.	Behaves in an unreasonably fearful, frightened manner	Never	3	15.0	2.15	Moderate	1	5.0	2.25	Moderate
		Rarely	2	10.0			3	15.0		
		Sometimes	4	20.0			6	30.0		
		Always	11	55.0			10	50.0		
		Total	20	100.0			20	100		
35.	Is unaffectionate; doesn't give affectionate responses.	Never	2	10.0	2.25	Moderate	1	5.0	2.50	Severe
		Rarely	4	20.0			2	10.0		
		Sometimes	1	5.0			3	15.0		
		Always	13	65.0			14	70.0		

		Total	**20**	**100.0**			**20**	**100**		
36.	**Shows no recognition that a person is present (i.e: looks through people).**	**Never**	**4**	**20.0**	**2.15**	**Moderate**	**3**	**15.0**	**2.05**	**Moderate**
		Rarely	**0**	**0**			**1**	**5.0**		
		Sometimes	**5**	**25.0**			**8**	**40.0**		
		Always	**11**	**55.0**			**8**	**40.0**		
		Total	**20**	**100.0**			**20**	**100**		
37.	**Laughs, giggles, cries inappropriately.**	**Rarely**	**1**	**5.0**	**2.80**	**Severe**	**0**	**0**	**2.95**	**Severe**
		Sometimes	**2**	**10.0**			**1**	**5.0**		
		Always	**17**	**85.0**			**19**	**95.0**		
		Total	**20**	**100.0**			**20**	**100**		
38.	**Uses toys or objects inappropriately.**	**Never**	**0**	**0**	**2.45**	**Severe**	**1**	**5.0**	**2.35**	**Severe**
		Rarely	**3**	**15.0**			**1**	**5.0**		
		Sometimes	**5**	**25.0**			**8**	**40.0**		
		Always	**12**	**60.0**			**10**	**50.0**		
		Total	**20**	**100.0**			**20**	**100**		
39.	**Does certain things repetitively, ritualistically.**	**Never**	**1**	**5.0**	**2.35**	**Severe**	**1**	**5.0**	**2.00**	**Moderate**
		Rarely	**0**	**0**			**4**	**20.0**		
		Sometimes	**10**	**50.0**			**9**	**45.0**		
		Always	**9**	**45.0**			**6**	**30.0**		
		Total	**20**	**100.0**			**20**	**100**		
40.	**Becomes upset when routines are changed.**	**Never**	**1**	**5.0**	**2.25**	**Moderate**	**3**	**15.0**	**1.70**	**Moderate**
		Rarely	**2**	**10.0**			**5**	**25.0**		
		Sometimes	**8**	**40.0**			**7**	**35.0**		
		Always	**9**	**45.0**			**5**	**25.0**		
		Total	**20**	**100.0**			**20**	**100**		
41.	**Responds negatively or with temper tantrums when given commands, requests, or directions.**	**Rarely**	**0**	**0**	**2.75**	**Severe**	**1**	**5.0**	**2.45**	**Severe**
		Sometimes	**5**	**25.0**			**9**	**45.0**		
		Always	**15**	**75.0**			**10**	**50.0**		
		Total	**20**	**100.0**			**20**	**100**		
42.	**Lines up objects in precise, orderly fashion and becomes upset when the order is disturbed.**	**Never**	**1**	**5.0**	**2.40**	**Severe**	**0**	**0**	**2.45**	**Severe**
		Rarely	**0**	**0**			**1**	**5.0**		
		Sometimes	**9**	**45.0**			**9**	**45.0**		
		Always	**10**	**50.0**			**10**	**50.0**		
		Total	**20**	**100.0**			**20**	**100**		

Severity of Social Interaction Dimensions: ***M.S.*** **No problem**= (0-0.75), **Mild**= (0.76-1.5), **Moderate**= (1.6-2.25), **Severe**= (2.26-3).

Table 4.9: Distribution of the Experimental & Control groups regarding to their overall Social Interaction Dimension in (Pre-test):

Dimensions	Level	Experimental Pretest				Control Pretest			
		F.	%	M.	Ass.	F.	%	M.	Ass.
C- Social Interaction	Mild Social Interaction Problems	2	10.0	2.2821	Severe	1	5.0	2.2349	Moderate
	Moderate Social Interaction Problems	6	30.0			11	55.0		
	Severe Social Interaction Problems	12	60.0			8	40.0		
	Total	20	100			20	100.0		

The (table 4.8) and (Table 4.9) shows that the Severity of the social interaction impairment responses of both control and study group of Children with ASD in (Pre-test) regarding social interaction problems, which measured in light of four categories (Never, Rarely, Sometime, and Always).

In addition, this dimension (social interaction) had includes social interaction problems of children with ASD was Severe assessment with mean score (2.2821) for Experimental group and Moderate assessment with mean score (2.2349) for Control group.

Table 4.10: Distribution of the children with ASD (Experimental & control) groups in (Pre-test) according to their Developmental Disorders Dimension

No.	Item	Ratings	Experimental G. Pretest (n=20)				Control G. Pretest (n=20)			
			F.	%	M.	Ass.	F.	%	M.	Ass.
	D- Developmental Disorders Dimension									
43.	Did the child sit, stand, then walk, following this same sequence?	Positive	14	70.0	0.30	Mild	14	70.0	0.30	Mild
		Negative	6	30.0			6	30.0		
		Total	20	100			20	100		
44.	Did the child walk during the first fifteen months of his life?	Positive	13	65.0	0.35	Moderate	14	70.0	0.30	Mild
		Negative	7	35.0			6	30.0		
		Total	20	100			20	100		
45.	Did the child develop a certain skill, such as walking, for example, but then suffer a relapse later, such as if he stopped walking and then returned to crawling, for example?	Positive	5	25.0	0.75	Severe	2	10.0	0.90	Severe
		Negative	15	75.0			18	90.0		
		Total	20	100			20	100		
46.	Did the child spend a large portion of time shaking or swaying when he was awake, such as shaking his body for five minutes or more, many times during the day?	Positive	12	60.0	0.40	Moderate	18	90.0	0.10	Mild
		Negative	8	40.0			2	10.0		
		Total	20	100			20	100		
47.	Did the child begin to have any developmental delays or was he diagnosed as suffering from them before he reached the age of thirty-six months (3 years)?	Positive	13	65.0	0.35	Moderate	11	55.0	0.45	Moderate
		Negative	7	35.0			9	45.0		
		Total	20	100			20	100		
48.	Did the child extend his hand to his father when his father was about to leave him and leave the house, or did the child prepare himself and prepare for his father to take him with him?	Positive	5	25.0	0.75	Severe	3	15.0	0.85	Severe
		Negative	15	75.0			17	85.0		
		Total	20	100			20	100		
49.	Did the child smile at his father or sisters when he played with them?	Positive	12	60.0	0.40	Moderate	10	50.0	0.50	Moderate
		Negative	8	40.0			10	50.0		
		Total	20	100			20	100		
50.	Did the child scream or cry during the first year of life when approached by an unfamiliar person?	Positive	3	15.0	0.85	Severe	5	25.0	0.75	Severe
		Negative	17	85.0			15	75.0		
		Total	20	100			20	100		
51.	Was the child able to imitate another person before he reached the age of three, such as imitating him while playing, imitating his voice, etc.?	Positive	2	10.0	0.90	Severe	2	10.0	0.90	Severe
		Negative	18	90.0			18	90.0		
		Total	20	100			20	100		

52.	Did the child show happiness when someone hugged him or carried him during the first thirty-six months (3 years) of his life?	**Positive**	**3**	**15.0**	**0.85**	**Severe**	**2**	**10.0**	**0.90**	**Severe**
		Negative	**17**	**85.0**			**18**	**90.0**		
		Total	**20**	**100**			**20**	**100**		
53.	Did the child use speech to communicate during the first thirty-six months (3 years) of his life?	**Positive**	**1**	**5.0**	**0.95**	**Severe**	**0**	**0**	**1.00**	**Mild**
		Negative	**19**	**95.0**			**20**	**100**		
		Total	**20**	**100**			**20**	**100**		
54.	Did the child seem deaf to some sounds while hearing others?	**Positive**	**5**	**25.0**	**0.75**	**Severe**	**3**	**15.0**	**0.85**	**Severe**
		Negative	**15**	**75.0**			**17**	**85.0**		
		Total	**20**	**100**			**20**	**100**		
55.	Was the child able to follow some simple commands, such as understanding us when we told him to stop, sit, come here, etc., for example, and then carry out what we asked of him?	**Positive**	**2**	**10.0**	**0.90**	**Severe**	**0**	**0**	**1.00**	**Mild**
		Negative	**18**	**90.0**			**20**	**100**		
		Total	**20**	**100**			**20**	**100**		
56.	Was it possible for the child to remember different things, where he put his favorite toy, or what happened in some places and situations, such as his visit to the doctor, for example?	**Positive**	**3**	**15.0**	**0.85**	**Severe**	**4**	**20.0**	**0.80**	**Severe**
		Negative	**17**	**85.0**			**16**	**80.0**		
		Total	**20**	**100**			**20**	**100**		

Severity of Developmental Dimension: ***M.S.*** **Mild**= (0-0.33), **Moderate**= (0.34-0.66), **Severe**= (0.67-1).

Table 4.11: Distribution of the Experimental & Control groups regarding to their overall Developmental Disorders Dimension in (Pre-test):

Dimensions	Level	Experimental Pretest				Control Pretest			
		F.	%	M.	Ass.	F.	%	M.	Ass.
D- Developmental Disorders	Moderate Developmental Disorders	14	70.0	0.6679	Moderate	11	55.0	0.6857	Severe
	Severe Developmental Disorders	6	30.0			9	45.0		
	Total	20	100			20	100		

Severity of Developmental Disorders Dimension: ***M.S.*** **Mild**= (0-0.33), **Moderate**= (0.34-0.66), **Severe**= (0.67-1).

The (table 4.10) and (Table 4.11) shows that the Severity of developmental disorders responses of both control and study group of Children with ASD in (Pre-test) regarding developmental problems, which measured by two categories (Positive and Negative).

Thus, this domain (developmental disorders) had includes developmental problems of children with ASD was Moderate assessment with mean score (0.6679) for Experimental group and Severe assessment with mean score (0.6857) for Control group.

Table 4.12: Overall of the Gilliam Autism Rating Scale regarding to Experimental & Control groups in (Pre-test).

Dimensions	Level	Experimental Pretest				Control Pretest			
		F.	%	S	Ass.	F.	%	M.	Ass.
Gilliam Autism Rating Scale (Severity of ASD)	Very High = (More Than 131)	9	45.0	128.35	High	7	35.0	125.90	High
	High = (121 – 130)	6	30.0			4	20.0		
	Above Average = (111 – 120)	4	20.0			9	45.0		
	Average = (90 – 110)	1	5.0			0	0		
	Total	20	100			20	100		

Severity of ASD Children by Gilliam: Very High = (More Than 131), **High =** (121-130), **Above Average** = (111 – 120), **Average** = (90 – 110), **Below Average** = (80 – 89), **Low** = (70 – 79), Very Low = (Less Than 69). According to Summation of Standard Scores of GARS (**Appendix C**).

The (table 4.12) presents that the Severity of ASD responses of both control and study group of Children with ASD in (Pre-test) regarding behavioral problems and the four dimensions of stereotype behaviors, communication, social interaction and developmental disorders items toward autism spectrum disorders, where the three dimensions (stereotype behaviors, communication, and social interaction) measured in light of four categories (Never, Rarely, Sometime, and Always) and developmental disorders measured by two categories (Positive and Negative).

The table (4.12) reveals the overall of Gilliam Autism Rating Scale (Four Dimensions) of experimental and control group of children with ASD in Pre-test toward severity of ASD were High assessment with total of score (128.35) for experimental group and (125.90) were High for control group.

Table 4.13: Distribution of the experimental & control groups regarding to their overall Stereotype Behaviors Dimension in (Post-Test-I):

Dimension	Level	Experimental G. Post-Test-I				Control G. Post-Test-I			
		F.	%	M.	Ass.	F.	%	M.	Ass.
A- Stereotype Behaviors	No Stereotype Behaviors	20	100	0.3214	No			2.2893	Severe
	Moderate Stereotype Behaviors	0	0			7	35.0		
	Severe Stereotype Behaviors	0	0			13	65.0		
	Total	20	100			20	100.0		

Severity of Stereotype Behaviors: ***M.S.*** **No problem**= (0-0.75), **Mild**= (0.76-1.5), **Moderate**= (1.6-2.25), **Severe**= (2.26-3).

The (table 4.13) shows that the Severity of Stereotype Behaviors responses of both control and study group of Children with ASD in (Post-Test-I) regarding behavioral problems, which measured in light of four categories (Never, Rarely, Sometime, and Always).

In detail, the responses of sample to the first domain of stereotype behaviors which includes behavioral problems of children with ASD was **No** assessment with mean score (0.3214) for Experimental group and **Severe** with mean score (2.2893) for Control group.

Table 4.14: Distribution of the experimental & control groups regarding to their overall Communication Dimension in (Post-Test-I):

Dimension	Level	Experimental G. Post-Test-I				Control G. Post-Test-I			
		F.	%	M.	Ass.	F.	%	M.	Ass.
B- Communication	No Communication Problems	3	15.0	1.1536	Mild	0	0	2.4000	Severe
	Mild Communication Problems	11	55.0			0	0		
	Moderate Communication Problems	6	30.0			5	25.0		
	Severe Communication Problems	0	0			15	75.0		
	Total	20	100.			20	100.0		

Severity of Communication: ***M.S.*** **No problem**= (0-0.75), **Mild**= (0.76-1.5), **Moderate**= (1.6-2.25), **Severe**= (2.26-3).

The (table 4.14) shows that the Severity of Communication Skills responses of both control and study group of Children with ASD in (Post-Test-I) regarding Communication and language problems, which measured in light of four categories (Never, Rarely, Sometime, and Always).

Also, this dimension (communication) had includes language and communication problems of children with ASD was **Mild** assessment with mean score (1.1536) for Experimental group and **Severe** with mean score (2.4000) for Control group.

Table 4.15: Distribution of the Experimental & Control groups regarding to their overall Social Interaction Dimension in (Post-Test-I):

Dimension	Level	Experimental G. Post-Test-I				Control G. Post-Test-I			
		F.	%	M.	Ass.	F.	%	M.	Ass.
C- Social Interaction	No Social Interaction Problems	5	25.0	0.9357	Mild	0	0	2.3214	Severe
	Mild Social Interaction Problems	15	75.0			0	0		
	Moderate Social Interaction Problems	0	0			11	55.0		
	Severe Social Interaction Problems	0	0			9	45.0		
	Total	20	100			20	100.0		

Severity of Social Interaction Dimensions: ***M.S.*** **No problem**= (0-0.75), **Mild**= (0.76-1.5), **Moderate**= (1.6-2.25), **Severe**= (2.26-3).

The (Table 4.15) shows that the Severity of the social interaction impairment responses of both control and study group of Children with ASD in (Post-Test-I) regarding social interaction problems, which measured in light of four categories (Never, Rarely, Sometime, and Always).

In addition, this dimension (social interaction) had includes social interaction problems of children with ASD was **Mild** assessment with mean score (0.9357) for Experimental group and **Severe** assessment with mean score (2.3214) for Control group.

Table 4.16: Distribution of the Experimental & Control groups regarding to their overall Developmental Disorders Dimension in (Post-Test-I):

Dimension	Level	Experimental G. Post-Test-I				Control G. Post-Test-I			
		F.	%	M.	Ass.	F.	%	M.	Ass.
D- Developmental Disorders	Moderate Developmental Disorders	14	70.0	0.7036	Severe	15	75.0	0.6500	Moderate
	Severe Developmental Disorders	6	30.0			5	25.0		
	Total	20	100			20	100		

Severity of Developmental Dimension: ***M.S.*** **Mild**= (0-0.33), **Moderate**= (0.34-0.66), **Severe**= (0.67-1).

The (table 4.16) shows that the Severity of developmental disorders responses of both control and study group of Children with ASD in (Post-Test-I) regarding developmental problems, which measured by two categories (Positive and Negative).

Thus, this domain (developmental disorders) had includes developmental problems of children with ASD was **Severe** assessment with mean score (0.7036) for Experimental group and **Moderate** assessment with mean score (0.6500) for Control group.

Table 4.17: Overall of the Gilliam Autism Rating Scale regarding to Experimental & Control groups in (Post-Test-I).

Dimensions	Level	Experimental G. Post-Test-I				Control G. Post-Test-I			
		F.	%	S	Ass.	F.	%	M.	Ass.
Gilliam Autism Rating Scale (Severity of ASD)	Very High = (More Than 131)	0	0	86.75	Below Average	3	15.0	123.75	High
	High = (121 – 130)	0	0			8	40.0		
	Above Average = (111 – 120)	0	0			9	45.0		
	Average = (90 – 110)	6	30.0			0	0		
	Below Average = (80 – 89)	11	55.0			0	0		
	Low = (70 – 79)	3	15.0			0	0		
	Total	20	100			20	100		

Severity of ASD Children by Gilliam: Very High = (More Than 131), **High =** (121-130), **Above Average** = (111 – 120), **Average** = (90 – 110), **Below Average** = (80 – 89), **Low** = (70 – 79), Very Low = (Less Than 69). According to Summation of Standard Scores of GARS (**Appendix C**).

The table (4.21) shows the overall of Gilliam Autism Rating Scale (Four Dimensions) of experimental and control group of children with ASD in Post-test-I toward severity of ASD were Below Average assessment with total of score (86.75) for experimental group and (123.75) were High for control group.

Table 4.18: Distribution of the children with ASD Experimental & control) groups in (Post-test-II) according to their Stereotype Behaviors Dimension

No.	Item	Ratings	Experimental G. Post-test-II (n=20)				Control G. Post-test-II (n=20)			
			F.	%	M.	Ass.	F.	%	M.	Ass.
	A- Stereotype Behaviors Dimension									
1.	He avoids that his eyes meet with others (he looks away when someone talks to him and looks at him).	Never	18	90.0	0.25	No	0	0	2.25	Moderate
		Rarely	0	0			3	15.0		
		Sometimes	1	5.0			9	45.0		
		Always	1	5.0			8	40.0		
		Total	20	100			20	100.0		
2.	He stares at the hands, objects, or those elements that are present in the environment for a period of at least five seconds at least (as if he takes a mental picture of the thing).	Never	6	30.0	0.90	Mild	0	0	2.70	Severe
		Rarely	10	50.0			1	5.0		
		Sometimes	4	20.0			4	20.0		
		Always	0	0			15	75.0		
		Total	20	100			20	100.0		
3.	Tapping or tapping lightly and quickly with the finger in front of the eye for five seconds or more.	Never	12	60.0	0.45	No	0	0	2.55	Severe
		Rarely	7	35.0			1	5.0		
		Sometimes	1	5.0			7	35.0		
		Always	0	0			12	60.0		
		Total	20	100.0			20	100.0		
4.	He only eats a certain food and refuses to eat what most people usually eat	Never	10	50.0	0.70	No	0	0	2.30	Severe
		Rarely	7	35.0			5	25.0		
		Sometimes	2	10.0			4	20.0		
		Always	1	5.0			11	55.0		
		Total	20	100.0			20	100.0		
5.	He licks or feels certain things that are not eaten, such as hands, toys, books, etc., for example	Never	16	80.0	0.25	No	0	0	2.60	Severe
		Rarely	3	15.0			0	0		
		Sometimes	1	5.0			8	40.0		

		Always	0	0			12	60.0		
		Total	20	100.0			20	100.0		
6.	Smells or inhales things such as toys, hands, hair, etc.	Never	10	50.0	0.55	No	1	5.0	2.05	Moderate
		Rarely	9	45.0			5	25.0		
		Sometimes	1	5.0			6	30.0		
		Always	0	0			8	40.0		
		Total	20	100.0			20	100.0		
7.	It rotates quickly or moves in the form of circles.	Never	18	90.0	0.15	No	0	0	2.15	Moderate
		Rarely	1	5.0			6	30.0		
		Sometimes	1	5.0			5	25.0		
		Always	0	0			9	45.0		
		Total	20	100.0			20	100.0		
8.	It works to rotate things that were not originally designed for this, such as dishes, cups, cups, and others	Never	10	50.0	0.55	No	0	00	2.25	Moderate
		Rarely	9	45.0			3	15.0		
		Sometimes	1	5.0			9	45.0		
		Always	0	0			8	40.0		
		Total	20	100.0			20	100.0		
9.	He rocks or rocks back and forth when he's sitting or standing	Never	18	90.0	0.15	No	0	0	2.70	Severe
		Rarely	1	5.0			0	0		
		Sometimes	1	5.0			6	30.0		
		Always	00	0			14	70.0		
		Total	20	100.0			20	100.0		
10.	It moves quickly like an arrow when moving from one place to another	Never	3	15.0	0.95	Mild	1	5.0	1.90	Moderate
		Rarely	15	75.0			5	25.0		
		Sometimes	2	10.0			9	45.0		
		Always	0	0			5	25.0		
		Total	20	100.0			20	100.0		
11.	He walks on tiptoes when moving from one place to another	Never	19	95.0	0.10	No	9	45.0	1.10	Mild
		Rarely	0	0			1	5.0		
		Sometimes	1	5.0			9	45.0		
		Always	0	0			1	5.0		
		Total	20	100.0			20	100.0		
12.	He flapped his arms or even his fingers	Never	18	90.0	0.15	No	1	5.0	2.30	Severe

		Rarely	**1**	**5.0**			**1**	**5.0**		
		Sometimes	**1**	**5.0**			**9**	**45.0**		
		Always	**0**	**0**			**9**	**45.0**		
		Total	**20**	**100.0**			**20**	**100.0**		
13.	**Makes sharp sounds with high tones such as (I abuse) or utters loud sounds in order to achieve self-stimulation**	**Never**	**18**	**90.0**	**0.20**	**No**	**20**	**100.0**	**2.85**	**Severe**
		Rarely	**1**	**5.0**			**0**	**0**		
		Sometimes	**0**	**0**			**3**	**15.0**		
		Always	**1**	**5.0**			**17**	**85.0**		
		Total	**20**	**100.0**			**20**	**100.0**		
14.	**He tries to harm himself in various ways, such as electrocuting himself, hitting his head on something, or biting himself.**	**Never**	**18**	**90.0**	**0.15**	**No**	**0**	**0**	**2.15**	**Moderate**
		Rarely	**1**	**5.0**			**6**	**30.0**		
		Sometimes	**1**	**5.0**			**5**	**25.0**		
		Always	**0**	**0**			**9**	**45.0**		
		Total	**20**	**100.0**			**20**	**100.0**		

Severity of Stereotype Behaviors: ***M.S.*** **No problem**= (0-0.75), **Mild**= (0.76-1.5), **Moderate**= (1.6-2.25), **Severe**= (2.26-3).

The (table 4.18) shows that the removal of some stereotypical behaviors and the reduction of some of them as a result of the effectiveness of the behavioral treatment program for study group of Children with ASD in (Post-Test-II), which measured in light of four categories (Severity of Stereotype Behaviors).

Table 4.19: Distribution of the experimental & control groups regarding to their overall Stereotype Behaviors Dimension in (Post-Test-II):

Dimension	Level	Experimental G. Post-Test-II				Control G. Post-Test-II			
		F.	%	M.	Ass.	F.	%	M.	Ass.
A- Stereotype Behaviors	No Stereotype Behaviors	19	95.0	0.3929	No	0	0	2.2750	Severe
	Moderate Stereotype Behaviors	1	5.0			8	40.0		
	Severe Stereotype Behaviors	0	0			12	60.0		
	Total	20	100			20	100.0		

Severity of Stereotype Behaviors: ***M.S.*** **No problem**= (0-0.75), **Mild**= (0.76-1.5), **Moderate**= (1.6-2.25), **Severe**= (2.26-3).

The (table 4.19) shows that the Severity of Stereotype Behaviors responses of both control and study group of Children with ASD in (Post-Test-II) regarding behavioral problems, which measured in light of four categories (Never, Rarely, Sometime, and Always).

In detail, the responses of sample to the first domain of stereotype behaviors which includes behavioral problems of children with ASD was **No** assessment with mean score (0.3929) for Experimental group and **Severe** with mean score (2.2750) for Control group.

Table 4.20: Distribution of the experimental & control groups regarding to their overall Communication Dimension in (Post-Test-II):

Dimension	Level	Experimental G. Post-Test-II				Control G. Post-Test-II			
		F.	%	M.	Ass.	F.	%	M.	Ass.
B- Communication	No Communication Problems	4	20.0	1.1393	Mild	0	0	2.3964	Severe
	Mild Communication Problems	11	55.0			0	0		
	Moderate Communication Problems	5	25.0			5	25.0		
	Severe Communication Problems	0	0			15	75.0		
	Total	20	100.			20	100.0		

Severity of Communication: ***M.S.*** **No problem**= (0-0.75), **Mild**= (0.76-1.5), **Moderate**= (1.6-2.25), **Severe**= (2.26-3).

The (table 4.20) shows that the Severity of Communication Skills responses of both control and study group of Children with ASD in (Post-Test-II) regarding Communication and language problems, which measured in light of four categories (Never, Rarely, Sometime, and Always).

Also, this dimension (communication) had includes language and communication problems of children with ASD was **Mild** assessment with mean score (1.1393) for Experimental group and **Severe** with mean score (2.3964) for Control group.

Table 4.21: Distribution of the experimental & control groups regarding to their overall Social Interaction Dimension in (Post-Test-II):

Dimension	Level	Experimental G. Post-Test-II				Control G. Post-Test-II			
		F.	%	M.	Ass.	F.	%	M.	Ass.
C- Social Interaction	No Social Interaction Problems	5	25.0	0.9607	Mild	0	0	2.3214	Severe
	Mild Social Interaction Problems	14	70.0			0	0		
	Moderate Social Interaction Problems	1	5.0			11	55.0		
	Severe Social Interaction Problems	0	0			9	45.0		
	Total	20	100			20	100.0		

Severity of Social Interaction Dimensions: ***M.S.*** **No problem**= (0-0.75), **Mild**= (0.76-1.5), **Moderate**= (1.6-2.25), **Severe**= (2.26-3).

The (table 4.21) shows that the Severity of the social interaction impairment responses of both control and study group of Children with ASD in (Post-Test-II) regarding social interaction problems, which measured in light of four categories (Never, Rarely, Sometime, and Always). In addition, this dimension (social interaction) had includes social interaction problems of children with ASD was **Mild** assessment with mean score (0.9607) for Experimental group and **Severe** assessment with mean score (2.3214) for Control group.

Table 4.22: Distribution of the Experimental & Control groups regarding to their overall Developmental Disorders Dimension in (Post-Test-II):

Dimension	Level	Experimental G. Post-Test-II				Control G. Post-Test-II			
		F.	%	M.	Ass.	F.	%	M.	Ass.
D- Developmental Disorders	Moderate Developmental Disorders	10	50.0	0.7036	Severe	15	75.0	0.6500	Moderate
	Severe Developmental Disorders	10	50.0			5	25.0		
	Total	20	100			20	100		

Severity of Developmental Dimension: ***M.S.*** **Mild**= (0-0.33), **Moderate**= (0.34-0.66), **Severe**= (0.67-1).

The (table 4.22) shows that the Severity of developmental disorders responses of both control and study group of Children with ASD in (Post-Test-II) regarding developmental problems, which measured by two categories (Positive and Negative).

Thus, this domain (developmental disorders) had includes developmental problems of children with ASD was **Severe** assessment with mean score (0.7036) for Experimental group and **Moderate** assessment with mean score (0.6500) for Control group.

Table 4.23: Overall of the Gilliam Autism Rating Scale regarding to experimental & control groups in (Post-Test-II).

GARS	Level	Experimental G. Post-Test-II				Control G. Post-Test-II			
		F.	%	S	Ass.	F.	%	M.	Ass.
Gilliam Autism Rating Scale (Severity of ASD)	Very High = (More Than 131)	1	5.0	87.15	Below Average	3	15.0	123.55	High
	High = (121 – 130)	0	0			8	40.0		
	Above Average = (111 – 120)	0	0			9	45.0		
	Average = (90 – 110)	4	20.0			0	0		
	Below Average = (80 – 89)	12	60.0			0	0		
	Low = (70 – 79)	2	10.0			0	0		
	Very Low = (Less Than 69)	1	5.0			0	0		
	Total	20	100			20	100		

Severity of ASD Children by Gilliam: Very High = (More Than 131), **High =** (121-130), **Above Average** = (111 – 120), **Average** = (90 – 110), **Below Average** = (80 – 89), **Low** = (70 – 79), Very Low = (Less Than 69). According to Summation of Standard Scores of GARS (**Appendix C**).

The table (4.23) shows that the overall of Gilliam Autism Rating Scale (Four Dimensions) of experimental and control group of children with ASD in Post-test-II toward severity of ASD were **Below Average** assessment with total of score (87.15) for experimental group and (123.55) were **High** for control group.

Table 4.24: Comparing overall Stereotype Behaviors Dimension among Experimental and Control groups in (over three tests).

Test	Experimental (n=20)		Control (n=20)		Levene's Test		Independent t-Test	df	P-value (Sig)
	Mean	SD	Mean	SD	F	Sig.			
Pre- test	2.6286	0.19194	2.5750	0.20529	0.042	0.838	0.852	38	**0.399**
Post-test-I	0.3214	0.12372	2.2893	0.33701	12.516	0.001	-24.514	38	**0.000**
Post- test -II	0.3929	0.44366	2.2750	0.33041	0.385	0.539	-15.216	38	**0.000**

The existing table shows that Stereotype Behaviors among children with ASD between control and experimental groups in (Pre-Test) exam significantly not different at (P-value > 0.05). However, the Independent t-Test in both (in Post-I and Post-II) exposes highly statistical significance in Stereotype Behaviors Dimension at P-value (≤ 0.05) between control and experimental groups, through the decrease in the mean of stereotypical behaviors after implementing the program.

Table 4.25: Comparing overall Communication Dimension among Experimental and Control groups in (over three tests).

Test	Experimental (n=20)		Control (n=20)		Levene's Test		Independent t-Test	df	P-value
	Mean	SD	Mean	SD	F	Sig.			
Pre- test	2.5214	0.30047	2.2964	0.30505	0.028	0.868	2.350	38	**0.024**
Post-test-I	1.1536	0.40225	2.4000	0.32888	2.548	.119	-10.728-	38	**0.000**
Post- test -II	1.1393	0.46028	2.3964	0.33138	3.835	.058	-9.913-	38	**0.000**

The existing table shows that Communication among children with ASD between control and experimental groups in (Pre-Test) exam significantly different at (P-value ≤ 0.05). However, the Independent t-Test in both (in Post-I and Post-II) exposes highly statistical significance in Communication Dimension P-value (≤ 0.05) between control and experimental groups.

Table 4.26: Comparing overall Social Interaction Dimension among Experimental and Control groups in (over three tests).

Test	Experimental (n=20)		Control (n=20)		Levene's Test		Independent t-Test	df	P-value
	Mean	SD	Mean	SD	F	Sig.			
Pre- test	2.2821	0.52360	2.2349	0.40296	1.759	0.193	.320	38	**0.751**
Post-test-I	0.9357	0.33893	2.3214	0.35260	0.098	0.756	-12.671-	38	**0.000**
Post- test -II	0.96071	0.431988	2.32143	0.352603	0.110	0.741	-10.913-	38	**0.000**

The table shows that Social Interaction among children with ASD between control and experimental groups in (Pre-Test) exam significantly not different at (P-value > 0.05). However, the Independent t-Test in both (in Post-I and Post-II) exposes highly statistical significance in Social Interaction Dimension P-value (≤ 0.05) between control and experimental groups.

Table 4.27: Comparing overall Developmental Disorders Dimension among Experimental and Control groups in (over three tests).

Test	Experimental (n=20)		Control (n=20)		Levene's Test		Independent t-Test	df	P-value
	Mean	SD	Mean	SD	F	Sig.			
Pre- test	0.6679	0.13958	0.6857	0.16123	0.933	0.340	-.374-	38	**0.710**
Post-test-I	0.7036	0.16268	0.6500	0.13293	3.264	0.079	1.140	38	**0.261**
Post- test -II	0.7036	0.16268	0.6500	0.13293	3.264	0.079	1.140	38	**0.261**

The existing table shows that Developmental Disorders among children with ASD between control and experimental groups in (Pre-Test) exam significantly not different at (P-value > 0.05). However, the Independent t-Test in both (in Post-I and Post-II) exposes no significance different in Developmental Disorders Dimension P-value (> 0.05) between control and experimental groups.

Table 4.28: Comparing overall Severity of ASD with children by GARS among Experimental and Control groups in (over three tests).

Test	Experimental (n=20)		Control (n=20)		Levene's Test		Independent t-Test	df	P-value
	Mean	SD	Mean	SD	F	Sig.			
Pre- test	128.35	9.906	125.90	9.313	0.037	0.849	0.806	38	**0.425**
Post-test-I	86.75	8.416	123.75	7.518	0.048	0.828	-14.663-	38	**0.000**
Post- test -II	87.15	12.881	123.55	7.451	0.229	0.635	-10.939-	38	**0.000**

The existing table shows that the Gilliam Autism Rating Scale among children with ASD between control and experimental groups in (Pre-Test) exam significantly not different at (P-value > 0.05). However, the Independent t-Test in both (in Post-I and Post-II) exposes highly statistical significance in total ASD severity P-value (≤ 0.05) between control and experimental groups, through the decrease in the mean of stereotypical behaviors after implementing the program. Where the mean in the pre-test was (128.35), while in the post-test two after program implementation was (87.15), and represents low of average of ASD severity.

Table (4.29): Association between the children's socio-demographical characteristics and their severity of ASD related overall of Gilliam Autism Rating scale dimensions for Experimental group (Post II).

N.	Demographic data	Rating and intervals	Overall Gilliam Autism Rating scale							Total	Chi-square value	d.f.	p-value
			Very High	High	Above Average	Average	Below Average	Low	Very Low				
1.	Chronological Age	- (3 - 6) years	0	0	0	4	5	0	1	10	14.722	8	0.065 N.S.
		- (7 - 10) years	0	0	0	0	5	2	0	7			
		- (11 - 14) years	1	0	0	0	2	0	0	3			
		Total	1	0	0	4	12	2	1	20			
2.	Gender	Male	0	0	0	3	9	2	1	15	4.000	4	0.406 N.S.
		Female	1	0	0	1	3	0	0	5			
		Total	1	0	0	4	12	2	1	20			
3.	Child Schooling	- No Schooling	1	0	0	4	12	2	1	20	-	-	-
4.	Child Sequence	- First	1	0	0	4	8	2	1	16	3.333	12	0.993 N.S.
		- Second	0	0	0	0	2	0	0	2			
		- Third	0	0	0	0	1	0	0	1			
		- Seventh	0	0	0	0	1	0	0	1			
		Total	1	0	0	4	12	2	1	20			

NS: Non-Sig. at P>0.05, S: Sig. at P<0.05, HS: high significant at p-value less than 0.01.

This table (Table 4.29) explains that the all demographical characteristics of Children have a no statistical significant association with their GARS dimensions for Experimental group's (Post-Test II) toward Severity of ASD children.

Table (4.30): Association between the demographical characteristics of Parents of children with ASD and severity of ASD related overall of Gilliam Autism Rating scale dimensions for Experimental group (Post II).

N.	Demographic data	Rating and intervals	Overall Gilliam Autism Rating scale							Total	Chi-square value	d.f.	p-value
			Very High	High	Above Average	Average	Below Average	Low	Very Low				
1.	Residency Area	- Urban	1	0	0	4	11	2	1	19	0.702	4	0.951 N.S.
		- Rural	0	0	0	0	1	0	0	1			
		Total	1	0	0	4	12	2	1	20			
2.	Father Job	- Employed	0	0	0	3	6	1	0	10	8.722	8	0.366 N.S.
		- Free work	1	0	0	0	5	0	1	7			
		- Workless	0	0	0	1	1	1	0	3			
		Total	1	0	0	4	12	2	1	20			
3.	Father's Educational level	Literate (read & write)	0	0	0	2	2	0	0	4	14.984	16	0.526 N.S.
		Graduate of Primary School	0	0	0	1	5	1	0	7			
		Graduate of Intermediate/Secondary School	0	0	0	1	3	0	1	5			
		Graduate of Institute/ College	1	0	0	0	1	1	0	3			
		Graduate of High Education	0	0	0	0	1	0	0	1			
		Total	1			4	12	2	1	20			
4.	Mother Job	- Employed	1	0	0	3	9	1	1	15	4.222	8	0.837 N.S.
		- Free work	0	0	0	0	2	0	0	2			
		- Housewife	0	0	0	1	1	1	0	3			
		Total	1	0	0	4	12	2	1	20			

5.	**Mother's Educational level**	Illiterate	0	0	0	0	2	0	0	2	13.056	20	0.875 N.S.
		Literate (read & write)	0	0	0	1	3	0	0	4			
		Graduate of Primary School	0	0	0	0	2	0	0	2			
		Graduate of Intermediate/Secondary School	1	0	0	2	1	1	1	6			
		Graduate of Institute/ College	0	0	0	0	2	1	0	3			
		Graduate of High Education	0	0	0	1	2	0	0	3			
		Total	1	0	0	4	12	2	1	20			
6.	**Marital Status**	- Married	1	0	0	4	11	2	0	18	20.648	8	**0.008 H.S.**
		- Divorced	0	0	0	0	1	0	0	1			
		- Widowed	0	0	0	0	0	0	1	1			
		Total	1	0	0	4	12	2	1	20			
;	**Monthly Income**	- Sufficient	1	0	0	4	6	2	0	13	8.051	8	0.428 N.S.
		- Barely sufficient	0	0	0	0	4	0	1	5			
		- Insufficient	0	0	0	0	2	0	0	2			
		Total	1	0	0	4	12	2	1	20			

NS: Non-Sig. at P>0.05, S: Sig. at P<0.05, HS: high significant at p-value less than 0.01.

This table (Table 4.30) reveals that Marital Status for parents have a highly statistical significant association with their Severity of ASD children (x^2 = 20.648, P-value = 0.008), while there is no significant association with remaining social-demographic variables for study group's (Post-Test II) toward Severity of ASD children.

Table (4.31): Association between the Clinical characteristics of the children with ASD and severity of ASD related overall of Gilliam Autism Rating scale dimensions for Experimental group (Post II).

N.	Demographic data	Rating and intervals	Overall Gilliam Autism Rating scale							Total	Chi-square value	d.f.	p-value
			Very High	High	Above Average	Average	Below Average	Low	Very Low				
1.	Age of child at diagnosis	- Less than 3 years	0	0	0	2	7	2	1	12	3.681	4	0.451 N.S.
		- (4 - 6) years	1	0	0	2	5	0	0	8			
		Total	1	0	0	4	12	2	1	20			
2.	There is autistic children in family	- No	1	0	0	3	11	2	1	18	1.481	4	0.830 N.S.
		- Yes one Child	0	0	0	1	1	0	0	2			
		Total	1	0	0	4	12	2	1	20			
3.	There is autistic children in siblings (Consanguinity)	- No	0	0	0	2	7	1	0	10	2.333	4	0.675 N.S.
		- Yes one Child	1	0	0	2	5	1	1	10			
		Total	1	0	0	4	12	2	1	20			
4.	Speak of the first word at	Less Than 1 Year	0	0	0	1	3	0	0	4	5.727	8	0.678 N.S.
		(1-2) Years	0	0	0	1	3	0	1	5			
		More Than 2 Years	1	0	0	2	6	2	0	11			

		Total	1	0	0	4	12	2	1	20			
5.	**Mental Age in Pretest**	- (Less Than 3) years	1	0	0	4	6	0	1	12	7.500	4	0.112 N.S.
		- (3 - 6) years	0	0	0	0	6	2	0	8			
		Total	1	0	0	4	12	2	1	20			

This table (Table 4.31) explains that the all Clinical characteristics have a no statistical significant association with their GARS dimensions for Experimental group's (Post-Test II) toward Severity of ASD children.

Table (4.32): Comparison between Mental Age of Children with ASD (Before & after Implementation of Behavioral Therapy Program) for Experimental group.

n.	Case Number	Chronological Age (Year)	Mental Age (Pre-Test) (Year. Month)	Mental Age (Post-Test-II) (Year. Month)
1.	Case -1	13	2.4	4.6
2.	Case - 2	9	4.8	7.2
3.	Case - 3	13	5.8	6.3
4.	Case - 4	3	1.5	2.0
5.	Case - 5	4	1.7	2.8
6.	Case - 6	13	1.5	1.7
7.	Case - 7	8	4.1	6.8
8.	Case - 8	5	1.8	3.2
9.	Case - 9	9	4.2	5.5
10.	Case - 10	4	2.0	3.1
11.	Case - 11	7	2.7	4.4
12.	Case - 12	4	1.6	3.4
13.	Case - 13	4	1.6	2.8
14.	Case - 14	8	5.1	5.7
15.	Case - 15	9	4.5	6.7
16.	Case - 16	9	4.7	6.1
17.	Case - 17	3	1.8	2.3
18.	Case - 18	4	1.4	2.5
19.	Case - 19	6	4.2	5.4
20.	Case - 20	6	2.3	3.0

The table (4.32) reveals that there is good progression in the mental age of children with ASD after Implementation of Behavioral Therapy Program for Experimental group. Among these cases is the case number (1, 2, 5, 7, 8, 9, 10, 11, 12, 13, 15, 16, 18, and 19).

Table (4.33): Comparison between Mental Age of Children with ASD (Before & after Implementation of Behavioral Therapy Program) for Control Group

n.	Case Number	Chronological Age (Year)	Mental Age (Pre-Test) (Year. Month)	Mental Age (Post-Test-II) (Year. Month)
1.	**Case -1**	20	4.8	5.0
2.	**Case - 2**	6	3.2	3.2
3.	**Case - 3**	5	4.5	4.5
4.	**Case - 4**	4	2.1	2.3
5.	**Case - 5**	6	3.5	3.1
6.	**Case - 6**	3	2.0	2.1
7.	**Case - 7**	4	1.9	2.2
8.	**Case - 8**	5	2.1	2.4
9.	**Case - 9**	5	2.2	2.3
10.	**Case - 10**	10	3.3	3.4
11.	**Case - 11**	4	3.5	3.7
12.	**Case - 12**	14	4.3	4.4
13.	**Case - 13**	10	5.2	5.5
14.	**Case - 14**	8	4.3	4.6
15.	**Case - 15**	4	1.9	2.1
16.	**Case - 16**	7	5.2	5.2
17.	**Case - 17**	5	3.2	3.2
18.	**Case - 18**	6	2.3	2.6
19.	**Case - 19**	6	2.8	3.0
20.	**Case - 20**	5	2.6	2.8

The table (4.33) illustrates that there are no progression in the mental age of children with ASD after Implementation of Behavioral Therapy Program for control group.

Chapter Five

Discussion

Chapter Five

Discussion of the Results

The current study intended to implement an interventional program to improve and modify the behaviors of children with ASD.

5. 1. The General Description of the Socio demographical characteristics of the child: (Table 4.1)

Age: The socio demographic characteristics were shown in table (4.1) that shows chronological age, sex, the child schooling, and child sequence. The present study findings indicated that the study sample was a total of (40) child with ASD were included in the study, and divided equally into Control and Experimental group (20 child in each group), and show that the mean Chronological age was (2.935±1.5479, 3.245±1.1330) for experimental and control group. Whereas, the age stages were half percentage (50%) of ASD children were within the age group of (3-6) years for experimental group, and two thirds percentage (70%) was in the age group (3-6) years for control group. This finding supports by Williams and Williams, (2019) that half of participants Chronological age were (3-6) years, and comes along with Erasmus, Kritzinger and Van Der Linde, (2018), the results indicated that the child's age at parental concern influenced the age at the first assessment (on average 34.75 months), and supported by Fakher & Musa, (2016), who found that the half of study sample (53%) were of age (2-4) years, and reported by Sachit and Obaid, (2018), who conducted a research to assess the age of study sample was at (2-4) years with percent (72%). This result actually confirmed and is consistent with studies that the age is an appropriate for early detection and intervention of the symptoms of ASD (behavioral problems), was considered the perfect time for identifying behavioral problems and diagnosing autism spectrum disorder, so many children with ASD do not

diagnosed until reaching school age and this may elevate the severity of ASD and complicates the process of rehabilitation and treatment with children of the ASD.

Sex: The results revealed that the sex variable was three quarters of the study sample were male for both experimental and control group, and (25%) were female for both experimental and control group. This result may be because study sample in this time found male child were more than the female child. This findings was in agreement with Tofani *et al.*, (2023), who found that (79%) of his sample were male and (21%) of them were females, and Iraqi study by Samadi *et al.*, (2022), reported the sex ratio for the children with ASD was 78% male vs. 22% female. Moreover, another research agreed with current result, where Al-Hamdan et al., (2018) reported that Male children with ASD were more than female. Where the researcher chooses this ratio to be compatible with DSM-5-TR (2022) approximately 4:1 male to female.

Child Schooling: Regarding the Child Schooling the table shows that (100%) of sample (both groups) have no school attending, this result may be because the families admit their children to institutes specific to their conditions because they fear for their children to go to normal school. This result goes with Samadi, (2022), who found that most children with ASD do not have the academic and learning skills to engage in the school. Samadi, (2022), who agreed with existing fact and exposed, "some governmental and private training and rehabilitation centers are available, but there is no child schooling and a shortage of special education services for different age groups. Based on academic regulation, public and private schools accept children with high-functioning ASD or other milder forms of DDs. This result is evidence that most children with ASD do not have the academic and learning skills to engage in the school". Also, from the researcher's point of view, believes when the child with ASD is in the

school, the learning classes can be considered part of the rehabilitation and behavioral therapy, and this is what conflicts and interferes with the implementation of the program.

Child sequence: Regarding child sequence the result shows that (80%) of the experimental group and (50%) of control group were from first order. This result is consistent with Faruk *et al.*, (2023), who reveals that more than three quarters are first order. Other research supported present work by Jumaa *et al.*, (2022), who found that (45%) of autistic children were in first order. Which, the reason for the large percentage of the first child in the family having autism spectrum disorder, is due to the nature of the parents' dealings with the first child in the family, as the nature of most world families gives absolute freedom to the child by using digital screens for long periods, and by eating a lot of food, which contain a high percentage of sugars and Preservative agents (Sodium nitrate), and this increases the child's exposure to stereotypical behavioral problems and the acquisition of symptoms associated with autism spectrum disorder. This has been proven by many previous studies, such as the study of Tan et al., (2022), and (Bjørklund et al., 2018; Yao et al., 2021).

5. 2. The General Description of the Socio demographical characteristics of the parents (Table 4.2)

Regarding residency area, the study result shows that majority of the ASD children family participate in the study (95%) were urban residents, while only (5%) of them were rural residents. This result matches with the result of (Hajiahmadi et al., 2022), reported same outcome. This makes sense because rural area in Iraq had less chances than urban area in completing rehabilitative and therapy program especially in districts and sub-districts due to customs and traditions of society regarding autistic child (no speak, no attention … etc.) symptoms of ASD and the lack of

awareness previously about the importance of early detection and intervention. Also this could be because most centers of autism and intervention site was located in the center of the city, and more families prefer to care near or in the same area.

Regarding the Father Job half of the experimental group were employed while (60%) of the control group were employed, whereas the mothers' job was three quarters (75%) Employed for experimental group and more than half (55%) are employed for control group. This result might come consistent with Alghurabawi, (2022), which more than 70% of parents of children with ASD that they Employed. Most of the parents of autistic children are employees and always busy at work, and there is no one to take care of him due to the weak financial aspect of bringing a nursemaid into the house. This reduces the interaction and communication between the child and the parents, so pushing him to return in his own world. This contributes to the increase in behavioral and stereotypical problems and the weakness of social communication for the autistic child.

Concerning the level of educational, the present study illustrates that the highest percentage of the study sample was fathers graduate from Primary School and mothers who had graduated from Intermediate/ Secondary School. Regarding the fathers 35% of children fathers had graduate from Primary School followed by 25% graduate from Intermediate/intermediate school for experimental group and 45% of children fathers had graduate from Intermediate/ Secondary School followed by 20% graduate from Institute/ College for control group, whereas the mothers' educational level was (30%) graduate from Intermediate/Secondary School followed by (20%) Literate (read & write) for the experimental group and 45% of children mothers had graduate from Institute/ College followed by 30% graduate from Primary School for the control group. This result indicated the low educational level of parents in

this region, which indicates that most children with ASD, increases the severity and exacerbation of behavioral symptoms in children with ASD. Faruk *et al.*, (2023), agreed with the current study, they reported that the majority of parents were from low levels educational, observed that only 3.5% less than a secondary level, 44.6% graduates, and 20.3% of them higher education. Through continuous work with children on the autism spectrum and their families, we found that one of the parents, when his educational level is high (Bachelor's or higher degree), has a direct impact on the child in terms of early diagnosis and early intervention, and this is what reduces the severity of autism spectrum disorder in the future and improve quality of life, and the opposite when the level of educational is very low, so the educational level of parents is very important

The results illustrated that a large percentage of the Marital Status for parents' vast majority of parents were married for the experimental group and the control group were (95%) of parents were married. This result was in agreement with Sachit and Obaid, (2018), who reported the mother's and father social status was majority of the sample were married and they accounted for (90.0%) of the whole sample. The daily life requirements of an autistic child are many, and this requires the cooperation, intensification, and efforts of the father and mother together in caring for the child. Although there are great family problems (domestic family), and emotional problems, but as a result of the child's need for them, they remain married despite the suffering.

Concerning monthly income, the highest percentage of study is recorded less than two thirds of parents were Sufficient for the experimental group and two fifth of parents were Sufficient for the control group replied that income of their families was barely enough. Similar results reported by Al-Mossawy and Al-Dujaili, (2017), Alghamdi *et al.*, (2022), Guller and Yaylaci, (2022), He *et al.*, (2022), where their results

presented that the high percentage of the monthly income of caregivers or caregivers less than half (44.1%) was sufficient (high level). It was known that most of the parents of autistic children suffer from great financial hardship, as a result of their continuous financial care for their child, and this care costs them a lot of money in order for their child to improve and become a normal child, but the family that continues and follows to care for their children through intervention in behavioral therapeutic programs are the families who have Good financial ability, since most of the behavioral treatment programs are very expensive, compared to the Iraqi economic status of the families.

5. 3. Clinical Child's Characteristics:

Table 4.3 shows the clinical variables, the Age of the child at diagnosis was approximately, more than half (60%) were less than three years for the experimental group and three quarters (75%) were less than (3) years for control group. These results come along with Zhang *et al.*, (2022), who claimed a total of 12 children with negative screening results were diagnosed with ASD at the age of 30 months. On the other hand, a study in the United States, in 2018 at (11) Sites, by (Shaw et al., 2023), found children aged 4 years with ASD, (72%) had a first evaluation at age ≤36 months. Another study in Iraq country, by Al-Mossawy and Al-Dujaili, (2017), found that the majority of children at diagnosis (10.5%) were between the ages of (7-9) and less than half (67.1%) were under 3 years old. After the early 21st century, people became aware of and general information about autism spectrum disorder (ASD) and what are the main features of the autistic child, and therefore most families of autistic children were able to identify their child whether he had autism spectrum or not, through some common signs, which are (not speaking after the school age, The child does not pay attention when we call him, does not interact, and

does not have a social smile), and this is what prompted them to pay attention, detect and intervene early.

Relative to the autistic children in the family majority of them (90%) haven't other autistic children one quarter 10% was (yes have one child) for the experimental group and Three quarters (75%) haven't other autistic children and one quarter (25%) was (yes have one child) for the control group. Regarding the variable of There were autistic children in siblings (Consanguinity) Half sample (50%) was haven't other autistic children and half sample about 50% was (yes have one child) for experimental group, whereas the control group, less than two thirds about (65%) was haven't other autistic children and one third (35%) was (yes have one child). Jumaa *et al.*, (2022), disagreed with the present study and reported a high percentage of the study found that 68.2% of children have a positive family and sibling history for the development of ASD. Other studies by Albahri *et al.*, 2023; Bay *et al.*, 2023; Cirnigliaro *et al.*, 2023; Genovese and Butler, 2023; Mai *et al.*, 2023; Wolstencroft *et al.*, 2023; Constantino *et al.*, (2010), agree with the present study and reported a total of families met these inclusion criteria of study, there is no genetic indicator from the family or relatives. The opinions and results of research on genetic indicators of autism spectrum disorder vary in the world, as there are hypotheses that indicate the presence of a positive indicator of a genetic factor, and there is the opposite, because there is no indicator of heredity in the family and relatives, Consequently, the findings of the present investigation were consistent with one group but inconsistent with another group.

About other clinical variables; More than half (55%) of the sample, as shown in the table (4.3), speak about the first word and More Than 2 Years for the experimental group and about less than half (40%) was More Than 2 Years for control group. These results come along with

Rong, (2023), who claims that the twenty-seven autistic children average age (6.86) and receptive vocabulary matched TD children average age (5.82) were recruited. Zhukova *et al.*, (2023), a clinical case of an 11-year-old Russian kid with ASD who spontaneously acquired the English language was reported in his research. The youngster had linguistic deficiencies in English; yet, the boy spontaneously learnt the English language. One of the common signs among children with ASD is lack of speech until the age of two years, so the result appeared in a high percentage for children who spoke one or two words at the age after two years.

Relative to the Mental Age in the Pretest period approximately, more than half (60%) were less than 3 years for the experimental group and more than half (55%) were (3-6) years for the control group. This result was consistent with (Bhat, 2023; Bottema-Beutel et al., 2019; Eisenmajer et al., 1996; Isralowitz et al., 2023; and McCormick et al., 2016), this researches stated that the mental age of Autism spectrum disorder in children, a large percentage of whom are less than 50% of their chronological age, as the majority of the sample in this study have mental age less than the chronological age by 50%. The mental age and the chronological age of the child are different, this indicates that they have the motor, behavioral, cognitive, and social skills of a healthy child, whereas the opposite is with the autistic child, he has great problems with these developmental skills and their acquisition, and therefore the chronological age and the mental age are not equal, as the mental age is less than the chronological age according to severity Autism spectrum disorder, so the mental age of children with ASD appears to be very low, much less than 50% of the chronological age.

5. 4. Overall of Children with Autism

The current study shows the Severity of ASD responses of both the control and the study groups of Children with ASD in the (**Pre-test**) regarding behavioral problems and the four dimensions of stereotype behaviors, communication, social interaction and developmental disorders items toward autism spectrum disorders, where the three dimensions (stereotype behaviors, communication, and social interaction) measured in light of four categories (Never, Rarely, Sometime, and Always) and developmental disorders measured by two categories (Positive and Negative). The table (4.12) reveals the overall Gilliam Autism Rating Scale (Four Dimensions) of the experimental and the control group of children with ASD in the Pre-test toward severity of ASD were High assessment with total of score (128.35) for experimental group and (125.90) were High for control group, which indicates a necessary need for applying behavioral therapy program because the severity of ASD children of both control and study group had no differences in their severity and behavioral problems level regarding autism spectrum disorder at base level of study. This interpretation was supported by Karbasi et al., 2023; Metwally et al., 2023; Samadi & McConkey, 2014; Yerkes et al., 2023; M. Zhang et al., (2023), stated that there is a high probability of developing autism spectrum disorder in all children with many stereotypical behavioral problems. Children who have many stereotypical behavioral problems, in addition to the high severity of autism spectrum disorder, were taken to intervene and following with it through the behavioral therapy program, there were no differences in the level of severity of autism and behavioral problems comparing the experimental and control groups to demonstrate the program's efficacy.

Table (4.17) shows the overall of Gilliam Autism Rating Scale (Severity of ASD) of the experimental and control groups of children with

ASD in **Post-test-I** toward the severity of ASD was Below Average assessment with a total of the score (86.75) for the experimental group and (123.75) were High for the control group. This result is supported by "Behav. Interv. Young Child. with Autism A Man. Parents Prof.," 1996; Bejnö, 2021; Dawson et al., 2012; Karadaş et al., 2023; Karbasi et al., 2023; Lovaas, 1987; Lovaas & Buch, 1997; Tian et al., 2023; Vismara & Rogers, 2010; الطنطاوي et al., (2021), those who claimed that there is an improvement and a good effect in the behavior of autistic children after behavioral intervention programs with them. After two months of implementing the program and evaluating the children of the control and experimental groups, it was found that there was a clear improvement for children in the severity of autism spectrum disorder in general and stereotypical behavioral problems in particular, through the Gilliam scale to measure the severity of ASD and the level of stereotypical behaviors, while the control group did not have any change or improvement in stereotypical behaviors and severity of ASD, but some cases had an increase in the severity of ASD.

The study shows that the findings the overall of Gilliam Autism Rating Scale of experimental and control group of children with ASD in **Post-test-II** after follow up toward severity of ASD were Below Average assessment with total of score (87.15) for experimental group and (123.55) were High for control group (Table 4.23). This result comes along with Eikeseth et al., 2002; Lickel et al., 2012; Lovaas & Smith, 1988; Makrygianni et al., 2018; Smith et al., 2021; Volkmar et al., 2014; Walker, 2017; Williams & Williams, (2019), where they revealed that follow-up, immediate intervention, and continuous guidance for family and children exposed to the behavioral therapy program is more beneficial and lasting for the rehabilitation of autistic children and increases their independence in life. The program has proven its real effectiveness towards children with autism, after three months from the first evaluation (Post-test) of the

implementation of the behavioral program through follow-up, supervision and continuous rehabilitation, this is what enhances the behavioral intervention with autistic children continuously, and achieving integrated rehabilitation to reach the highest rate of improvement.

In reality, few studies used 3 phase interventional therapy program with two groups (experimental & control) toward behavioral problems, while most programs satisfied with an experimental group with two phases of testing using paired t-test to measure their program effectiveness. Likewise, behavioral therapy is a broad term that includes different types of interventions all aimed at increasing desirable behaviors and at the same time reducing the maladaptive behaviors.

5. 5. Effectiveness of Interventional Program:

Through this section, the importance of the Interventional program will be discussed and whether it is necessary to implement it or not.

The table (4:24) shows that Stereotype Behaviors among children with ASD between control and experimental groups in (Pre-Test) exam significantly not different at (P-value > 0.05). However, the Independent t-Test in both (in Post-I and Post-II) exposes highly statistical significance in Stereotype Behaviors Dimension P-value (≤ 0.05) between control and experimental groups, through the decrease in the mean of stereotypical behaviors after implementing the program experimental group only. This results consistent with Gitimoghaddam et al., (2022), reported When compared to a control group who did not receive behavioral therapy intervention, the effectiveness of behavioral intervention for those with ASD was examined across 22 included studies with respect to as many outcomes as possible, including behavioral correction, also language development, social functioning, intellectual functioning, and daily living skills. The differences between the means (level of stereotypical behaviors)

of the three tests (Pre-test, Post-test I, Post-test II) in the experimental group are obviously, furthermore the mean decreased significantly in the first test (Post-test I) and the second test (Post-test II), and this indicates a decrease in stereotypical behaviors among children in the experimental group, as a result of the behavioral therapy program for them.

The table (4.28), shows that the Gilliam Scale among children with ASD between control and experimental groups in (Pre-Test) evaluation significantly not different at (P-value > 0.05). However, the Independent t-Test in both (in Post-I and Post-II) exposes highly statistical significance in total ASD severity P-value (≤ 0.05) between control and experimental groups, through the decrease in the mean of stereotypical behaviors after implementing the program. Where the mean in the pre-test was (128.35), while in the post-test-II after program implementation was (87.15), and represents low of average of ASD severity. This findings compatible with Cavalli et al., 2022; Dawson et al., 2012; Gitimoghaddam et al., 2022; Makrygianni et al., 2018, 2018; Walker, (2017), where reported the behavioral intervention by ABA was effective with autistic children for improvement of behavioral problems and other skills. The study showed that there are significant differences between the severity of ASD in the first test and the second test, after implementing the program and following them up. Moreover, this leads to that program was effective in informing participants toward ASD severity and needs more development and application on larger group at different conditions to get huge effect.

Not much research has been found to prove the failure of interventional programs (behavioral therapy) in increasing normal behaviors and improving behavioral problems toward autistic children and stereotypical behaviors. On the contrary, many researchers have shown

improvement in behavioral problems toward autistic children and stereotypical behaviors, ranging from medium to high effectiveness.

5. 6. Discussion of Relationships between the participants' Characteristics of study group and their severity of ASD

With respect to current findings (Table 4.29, 4.30, 4:31) there was no significant relationships found between severity of ASD children of experimental group in posttest (Post-Test II) with their characteristics (Chronological age, sex, Child Schooling, child sequence, residency area, Father & mother Job, parents' educational level, family income, Age of child at diagnosis, autistic children in family and siblings, Speak of the first word, and Mental Age in Pretest), except the Marital Status for parents (x^2 = 20.648, P-value = 0.008).

For the relationship of experimental group ASD severity with their socio-demographic and clinical characteristics all respondents had positive outcomes thus all categories had the same response so the chi-square test did not apply.

In contrast, a study done by (Makrygianni et al., 2018), had statistically substantial improvement in each factor that contributed to a particular outcome.which found significant relationship between behavioral therapy to ASD severity of children with their participant characteristics.

Iraqi research, conducted in Babylon province had consistent findings with present study, in which no significant relation was appeared among program's post-test behavioral therapy with participants characteristic (Alghuraibawi, 2022).

The table (4.32), reveals that there is good progression in the mental age of children with ASD after Implementation of Behavioral

Therapy Program for Experimental group. Among these cases is the case number (1, 2, 5, 7, 8, 9, 10, 11, 12, 13, 15, 16, 18, and 19).

Previously, the Mental Age in Pretest phase approximately, More than half (60%) are Less Than 3 years for experimental group and More than half about (55%) are (3-6) years for control group. Regarding Mental Age in Post-Test II phase approximately, More than half (60%) are (3-6) years for experimental group and More than half about (55%) are (3-6) years for control group. However, after the implementation of the behavioral therapy Program, these results changed through direct intervention with behavioral problems. Moreover, it is clear that the mental age of children with ASD increased after implementing the behavioral therapy program for them, and this indicates that the behavioral treatment program not only affects the improvement of repetitive and stereotypical behaviors (Behavioral Problems), but also improves or progress the mental age for them. Consistently, Bhat, 2023; Bottema-Beutel et al., 2019; Isralowitz et al., 2023; McCormick et al., (2016), agreed with existing outcome, where mental age and behavioral therapy program have a direct relationship and are affected by each other in the decrease or increase direction.

The table (4.33) illustrates that there are no progression in the mental age of children with ASD after Implementation of Behavioral Therapy Program for control group. This finding confirmed that the behavioral treatment program did not increase the mental age of the control group, who were not exposed to it. On the contrary, with the experimental group that implemented the behavioral treatment program, there was a clear progression in the mental age.

Chapter Six

Conclusions

&

Recommendations

Chapter Six

Conclusions and Recommendations

6. 1 Conclusions

Based on the discussion of results and interpretations, throughout this chapter of the current research, the conclusions reached after the application of the behavioral program and considered most important will be addressed, and recommendations of interest to several sides regarding the stereotypical behaviors and intervention will be mentioned, it can be concluded that:

6.1.1. Specific Conclusions:

1. The overall children are homogenous and equally in their behavioral problems concerning severity of Autism Spectrum Disorder in both groups (Control and Experimental group) at "pre-program test" and they relatively had the same clinical data (age of child at diagnosis, speak of the first word, and mental age) and socio-demographic characteristics (child age and sex).

2. Large percentages of children with ASD haven't the academic and learning skills to engage school. Therefore Child Schooling in this study was all children (100%) are No Schooling for both experimental and control group.

3. The rural area in Iraq had less chances than urban area in completing rehabilitative and therapy program especially in districts and sub-districts due to habits and traditions of society regarding autistic child, therefore the vast majority of the residency area was of children with ASD who participated in the study were urban residents.

4. High assessment of Gilliam Autism Rating Scale (Four Dimensions) for experimental and control group of children with ASD in Pre-test, which indicates a necessary need for applying behavioral therapy program.

5. The effectiveness of the behavioral therapy program after (2) months in **Post-test-I** phase**,** the severity of ASD were Below Average assessment for experimental group, whereas the other group (control) remained High assessment.

6. The effectiveness of the program was proven through the stability of the improvement after a period of (3) months from the first test (**Post-test-I)** and after follow up toward severity of ASD for autistic children in **Post-test-II** phase was Below Average assessment for experimental group and were high for control group.

7. The study has confirmed that the experimental group have improved in the behaviors and increased in their mental age, in the second and third phases of the interventional program.

6.1.2. Major Conclusions:

The program was effective in removing or reducing the behavioral problems of autistic children, and there was a significant difference in stereotypical behaviors, communication, and social problems between children with ASD who attended to program sessions (experimental group) comparing to those who not attended program sessions (control group).

The results of second posttest (posttest-II) prove the effectiveness of the interventional program in decreasing the stereotypical behaviors by behavioral therapy program after (3) months of first posttest (posttest-I).

6. 2. Recommendations

Depending on the findings and conclusions of the study, the study recommends the following:

6. 2. 1. General Recommendations:

1. Intervention and rehabilitation (Behavioral Therapy) with the autistic child it better be through short-term and long-term treatment plans that target behavioral problems and are assessed monthly.

2. The nurse, family and therapists cooperate to detect what exact behavioral and psychological problems are facing family and child with ASD and give proper "intervention" & "rehabilitation".

3. A study can be implement to assess the behavioral problems (autistic symptoms) which are affecting on general child condition.

4. It is very necessary to train psychiatric nurses and therapists from other similar specialties about behavioral treatment for autistic children and methods for early detection of autism spectrum disorder, to cover the gap in the assessment and rehabilitation of autistic children through therapists.

5. Focus on children with ASD in rural and remote areas to offer more opportunities for that children to participate in behavioral therapy sessions.

6. Construct a behavioral program early intervention guidelines for therapists and families about early detection of behavioral problems and intervening with it particularly stereotypical behaviors to help the parents and therapists how to intervene and improve from ASD symptoms with autistic children.

7. Follow-up and early intervention among children with ASD. This can be helpful in reducing the stereotype behaviors and preventing the occurrence of high severity of behavioral problems among autistic children. It improves other dimensions of the child's behavioral and psychological state.

6. 2. 2. Recommendations to Families of Children with ASD:

1. Encouraging families to participate in behavioral therapy programs that is focusing on the promotion of behavioral problems among ASD children, creating an appropriate behavioral plan and focusing on prevention of stereotype behaviors.

2. Children with ASD have significant risk factors such as the male sex, so the child must be shown during regular visits to the pediatrician or child psychiatrist to check the normal and psychological development.

3. Careful monitoring of a child by the parents in search of any abnormal behavioral changes early in the child's life, such as frequent crying, repetitive words or actions, and introverted behaviors, and because this early diagnosis is associated with a better outcome.

6. 2. 3. Recommendations to the Ministry of Work and Social Affairs:

1. Cooperation between the Ministries of Health and Labor and Social Affairs and under the supervision of specialists from the Ministry of Scientific Research and Higher Education for the purpose of appointing specialists or providing one psychiatrist nurse (trained on behavioral therapy) for each center of caring or at least one psychiatrist nurse for each sector for enable therapist to support the

caring centers with modern behavioral therapy methods. This step is necessary to enhance behavioral intervention that focus on promoting the stereotype behaviors and on how to deal with them.

2. It is necessary to form an integrated team for the initial diagnosis and early intervention and write a therapeutic rehabilitation plan for the child, which stay away from personal opinions and individual judgments, regarding assessment and treatment of ASD, where the rehabilitation and intervention should be carried out in a standard manner in accordance with the standards that developed countries.

3. The Ministry of work and Social Affairs implement of the recommendations of this study to follow up on care centers for children with special needs, especially children with ASD and how to apply the therapeutic behavioral plan with the child, through the constructing and applying behavioral therapy programs in most Iraqi centers.

6. 2. 4. Recommendations to Ministry of Higher Education and Scientific Research:

1. Further studies with large sample size of similar studies involving the efficacy of behavioral therapy program to target the largest possible number of behavioral problems in children with autism spectrum disorder.

2. The Ministry of Higher Education have an integrated or supervisory and intervention role on care centers for children with ASD, to implement the approved international standards in behaviorally rehabilitating children with ASD. Whereas, most of the behavioral rehabilitation programs and methods used in the centers are not approved and do not belong to international sources and are based on

the personal judgments of the therapists (This is not the fault of the therapist, but rather the lack of proper qualification and training for the therapist to deal with an autistic child).

3. Conducting studies concerned with the effectiveness of behavioral therapeutic programs based on the ABA technique, and its relationship to other variables that hinder the application and implementation of the program.

4. Conduct comparative studies to compare between the autistic children who were exposed to the approved behavioral therapy program and autistic children who were exposed to other random behavioral programs or were not exposed at all.

5. The study recommends establishing a behavioral rehabilitation advisory unit in the College of Nursing to assist care centers for autistic children in writing a behavioral treatment plan in accordance with approved international standards in intervention and behavioral treatment. The ASD in the stage of continuous research and discovery to determine the factors contributing to treatment and rehabilitation, and there is a need to conduct permanent researching on behavioral treatment for autistic children, this is the role of the Ministry of Higher Education in serving the community.

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Appendices

Appendix - A -

Panel of Experts

ت	اسم الخبير	اللقب العلمي	مكان العمل	الاختصاص الدقيق
.1	أ.د. امين عجيل ياسر الياسري	استاذ	جامعة بابل/ كلية التمريض	تمريض صحة المجتمع
.2	أ.د. سلمى كاظم الابراهيمي	استاذ	جامعة بابل/ كلية التمريض	تمريض صحة المجتمع
.3	أ.د. علي كريم خضير	استاذ	جامعة كربلاء/ كلية التمريض	تمريض الصحة النفسية
.4	أ.د. محمد فاضل خليفة	استاذ	جامعة بغداد/ كلية التمريض	تمريض صحة المجتمع
.5	أ.د. محسن فاضل الميالي	استاذ	جامعة الكوفة/ كلية التربية	علم النفس
.6	أ.د. عبد المهدي عبد الرضا	استاذ	جامعة بابل/ كلية التمريض	تمريض الصحة النفسية
.7	د. هناء محسن العكيلي	أستاذ متمرس	جامعة الكوفة/كلية الحاسوب والرياضيات	الإحصاء الحياتي
.8	د. سليمان عبدالواحد يوسف	استاذ	جامعة القناة السويس/ كلية التربية	علم النفس/ صعوبات التعلم
.9	د. رائد رضا محمد عمران	استاذ	جامعة الكوفة/ كلية الطب	طب اطفال
.10	د. علي جراد اليوسف	أستاذ	جامعة الكوفة/ كلية التربية للبنات	علم النفس التربوي
.11	د. منى طلعت	استاذ	جامعة القاهرة/ كلية التمريض	تمريض الصحة النفسية
.12	د. كريم رشك ساجت عباس	أستاذ مساعد	جامعة بغداد/ كلية التمريض	تمريض الصحة النفسية
.13	د. حسام مطشر زان	أستاذ مساعد	جامعة الكوفة/ كلية التمريض	تمريض الصحة النفسية
.14	د. حيدر حمزة علي الحدراوي	أستاذ مساعد	جامعة الكوفة/ كلية التمريض	تمريض الصحة النفسية
.15	د. وليد خالد عبدالحميد	استاذ مساعد	جامعة لندن/ كلية الطب	الطب النفسي
.16	د. محمد مهدي حسين الاعرجي	استاذ مساعد	جامعة الكوفة/ التربية للبنات	علوم تربوية و نفسية
.17	د. اشوان عبدالزهرة هاشم الجنابي	أستاذ مساعد	جامعة الكوفة/ كلية الطب	الطب النفسي
.18	د. حسن علي حسين عبدالرزاق الزيدي	أستاذ مساعد	جامعة بغداد/ كلية التمريض	تمريض الصحة النفسية
.19	د. قحطان قاسم محمد رضا الخزرجي	أستاذ مساعد	جامعة بغداد/ كلية التمريض	تمريض الصحة النفسية
.20	د. بهاء حميد حميدي	أستاذ مساعد	جامعة الكوفة/ كلية الطب	طب اطفال
.21	د. حيدر طارق البزون	أستاذ مساعد	جامعة بابل/ كلية التربية الاساسية	علم النفس السريري
.22	د. نليان نوروز	استاذ مساعد	جامعة القاهرة/ كلية التمريض	الصحة النفسية والعقلية
.23	د. نيبال الحاج محمد	استاذ مساعد	الجامعة اللبنانية / كلية الصحة	علم النفس السريري

Appendix - B -

Questionnaire

Part I: Child's Characteristics:

A. Child's Socio-demographic Characteristics:

1. Gender : - Male ☐ Female ☐
2. Age : ☐ years
3. Child order in family (Sequence) (Birth order) :- ☐
4. The Child Schooling :- attending school ☐ no ☐

B. Parent's Socio-demographic Characteristics:

1. **Residency Area** Urban ☐ Rural
2. **Father Job :-** employed ☐ free work ☐ unemployed ☐
3. **Father's Educational level** Illiterate ☐
   Literate (read & write) ☐ Graduate of Primary School ☐
   Graduate of Intermediate/ Secondary School ☐ Graduate of Institute/ College ☐
   Graduate of High Education ☐
4. **Mother Job :-** employed ☐ housewife ☐ Free work ☐
5. **Mother's Educational level:** Illiterate ☐ Literate (read & write) ☐
   Graduate of Primary School ☐ Graduate of Intermediate/ Secondary School
   Graduate of Institute/ College ☐ Graduate of High Education ☐
6. **Marital Status**: - Married ☐ - Divorced ☐ - Widowed ☐
7. **Monthly Income**: - Sufficient ☐ - Barely sufficient ☐ - Insufficient ☐

C. Child's Clinical Characteristics:

1. **Age of child at diagnosis :-** ☐ **year**
2. **There is autistic children in family :-** **yes** ☐ **no** ☐
3. **There is autistic children in siblings (Consanguinity) :-** **yes** ☐ **no** ☐
4. **Speak of the first word at:** ☐ **year**
5. **Mental Age in Pretest:** ☐ **year**

Part II: Behavioral Problems Scales:

A. Gilliam Autism Rating Scale (GARS-2):

stereotypical :First behaviours

n.	Item	Yes	S ometimes	Rarely	No
1.	He avoids that his eyes meet with others (he looks away when someone talks to him and looks at him).				
2.	He stares at the hands, objects, or those elements that are present in the environment for a period of at least five seconds at least (as if he takes a mental picture of the thing).				
3.	Tapping or tapping lightly and quickly with the finger in front of the eye for five seconds or more.				
4.	He only eats a certain food and refuses to eat what most people usually eat.				
5.	He licks or feels certain things that are not eaten, such as hands, toys, books, etc., for example				

6.	Smells or inhales things such as toys, hands, hair, etc.				
7.	It rotates quickly or moves in the form of circles.				
8.	It works to rotate things that were not originally designed for this, such as dishes, cups, cups, and others.				
9.	He rocks or rocks back and forth when he's sitting or standing				
10.	It moves quickly like an arrow when moving from one place to another.				
11.	He walks on tiptoes when moving from one place to another.				
12.	or He flapped his arms even his fingers.				
13.	Makes sharp sounds with high tones such as (I abuse) or utters loud sounds in order to achieve self-stimulation.				
14.	He tries to harm himself in various ways, such as electrocuting himself, hitting his head on something, or biting himself.				

Secondly: Communication

N.	Items	Yes	some times	Rarely	no
15.	Repeats (echoes) words verbally or with signs				
16.	Repeats words out of context.				
17.	Repeats words or phrases over and over.				
18.	Speaks or signs with flat tone or with dysrhythmic patterns				
19.	Responds inappropriately to simple commands (Stand, Sit).				
20.	Looks away or avoids looking at speaker when name is called.				
21.	Does not ask for things he or she wants				
22.	Does not initiate conversations with peers or adults				
23.	Uses “yes” and “no” inappropriately.				
24.	Uses pronouns inappropriately				
25.	He repeats unclear and incomprehensible sounds over and over again.				
26.	Uses pronouns inappropriately (referring to himself as he or she, for example)				
27.	Uses gestures instead of speech or signs to obtain objects				
28.	Inappropriately answers questions about a statement or brief story				

Third: Social communication

N.	Items	Yes	some times	Rarely	no
29.	Avoids eye contact; looks away when someone looks at him or her.				
30.	Stares or looks unhappy or unexcited when praised, humored, or entertained.				
31.	Resists physical contact from others.				
32.	Does not imitate other people when imitation is required or desirable, such as in games or learning activities.				
33.	Withdraws, remains aloof, or acts standoffish in group situations.				
34.	Behaves in an unreasonably fearful, frightened manner				
35.	Is unaffectionate; doesn’t give affectionate responses.				
36.	Shows no recognition that a person is present (i.e: looks through people).				
37.	Laughs, giggles, cries inappropriately.				
38.	Uses toys or objects inappropriately.				
39.	Does certain things repetitively, ritualistically.				
40.	Becomes upset when routines are changed.				

41.	Responds negatively or with temper tantrums when given commands, requests, or directions.				
42.	Lines up objects in precise, orderly fashion and becomes upset when the order is disturbed.				

Fourthly: Developmental disorders

N	Items	Yes	no
43.	Did the child sit, stand, then walk, following this same sequence?	-	+
44.	Did the child walk during the first fifteen months of his life?	-	+
45.	Did the child develop a certain skill, such as walking, for example, but then suffer a relapse later, such as if he stopped walking and then returned to crawling, for example?	+	-
46.	Did the child spend a large portion of time shaking or swaying when he was awake, such as shaking his body for five minutes or more, many times during the day?	+	-
47.	Did the child begin to have any developmental delays or was he diagnosed as suffering from them before he reached the age of thirty-six months (3 years)?	+	-
48.	Did the child extend his hand to his father when his father was about to leave him and leave the house, or did the child prepare himself and prepare for his father to take him with him?	-	+
49.	Did the child smile at his father or sisters when he played with them?	-	+
50.	Did the child scream or cry during the first year of life when approached by an unfamiliar person?	-	+
51.	Was the child able to imitate another person before he reached the age of three, such as imitating him while playing, imitating his voice, etc.?	-	+
52.	Did the child show happiness when someone hugged him or carried him during the first thirty-six months (3 years) of his life?	-	+
53.	Did the child use speech to communicate during the first thirty-six months (3 years) of his life?	-	+
54.	Did the child seem deaf to some sounds while hearing others?	+	-
55.	Was the child able to follow some simple commands, such as understanding us when we told him to stop, sit, come here, etc., for example, and then carry out what we asked of him?	-	+
56.	Was it possible for the child to remember different things, where he put his favorite toy, or what happened in some places and situations, such as his visit to the doctor, for example?	-	+
Total			

Appendix - C -

Gilliam Autism Rating Scale (GARS-2)

(Convert raw scores into standard scores and percentages)

ملحق (أ)

تحويل الدرجات الخام إلى الدرجات المعيارية والنسب المئوية

(لكل الأعمار والجنسين معاً)

الدرجة المعياري	الأبعاد الفرعية				النسبة المئوية
	السلوكيات النمطية	التواصل	التفاعل الاجتماعي	اضطرابات النمو	
١	١		١		< ١
٢	٢		٣-٢		< ١
٣	٣	٢-١	٥-٤		١
٤	٥-٤	٥-٣	٨-٦	١	٢
٥	٦	٦	١٠-٩		٥
٦	٨-٧	١٠-٧	١٤-١١	٢	٩
٧	١١-٩	١٢-١١	١٨-١٥	٣	١٦
٨	١٤-١٢	١٥-١٣	٢١-١٩	٤	٢٥
٩	١٧-١٥	١٧-١٦	٢٤-٢٢	٥	٣٧
١٠	٢١-١٨	٢٢-١٨	٢٧-٢٥	٧-٦	٥٠
١١	٢٤-٢٢	٢٥-٢٣	٢٩-٢٨	٨	٦٣
١٢	٢٦-٢٥	٢٨-٢٦	٣٢-٣٠	٩	٧٥
١٣	٢٩-٢٧	٣٠-٢٩	٣٤-٣٣	١٠	٨٤
١٤	٣٣-٣٠	٣٤-٣١	٣٧-٣٥	١١	٩١
١٥	٣٤	٣٦-٣٥	٣٨		٩٥
١٦	٣٦-٣٥	٣٨-٣٧	٣٩	١٢	٩٨
١٧	٣٨-٣٧	٤٠-٣٩	٤٠		٩٩
١٨	٤٠-٣٩	٤٢-٤١	٤١		> ٩٩
١٩	٤٢-٤١		٤٢	١٣	> ٩٩
٢٠				١٤	> ٩٩

ملحق (ب)

تحويل مجموع الدرجات المعيارية إلى معامل التوحد والنسبة المئوية

معامل التوحد	مجموع أربع أبعاد فرعية	مجموع ثلاث أبعاد فرعية	مجموع بعدين فرعيين	النسبة المئوية
١٦٥	-	-	-	> ٩٩
١٦٤	-	٦٠	-	> ٩٩
١٦٣	-	-	٤١	> ٩٩
١٦٢	-	٥٩	-	> ٩٩
١٦١	-	-	-	> ٩٩
١٦٠	٧٦	٥٨	٤٠	> ٩٩
١٥٩	-	-	-	> ٩٩
١٥٨	٧٥	٥٧	-	> ٩٩
١٥٧	٧٤	-	٣٩	> ٩٩
١٥٦	-	٥٦	-	> ٩٩
١٥٥	٧٣	-	-	> ٩٩
١٥٤	-	٥٥	٣٨	> ٩٩
١٥٣	٧٢	-	-	> ٩٩
١٥٢	٧١	-	-	> ٩٩
١٥١	-	٥٤	٣٧	> ٩٩
١٥٠	٧٠	-	-	> ٩٩
١٤٩	-	٥٣	-	> ٩٩
١٤٨	٦٩	-	٣٦	> ٩٩
١٤٧	٦٨	٥٢	-	> ٩٩
١٤٦	-	-	-	> ٩٩
١٤٥	٦٧	٥١	٣٥	> ٩٩
١٤٤	-	-	-	> ٩٩
١٤٣	٦٦	٥٠	-	> ٩٩
١٤٢	٦٥	-	٣٤	> ٩٩
١٤١	-	٤٩	-	> ٩٩
١٤٠	٦٤	-	-	> ٩٩
١٣٩	-	٤٨	٣٣	> ٩٩
١٣٨	٦٣	-	-	> ٩٩
١٣٧	٦٢	-	-	> ٩٩
١٣٦	-	٤٧	٣٢	> ٩٩
١٣٥	٦١	-	-	> ٩٩
١٣٤	-	٤٦	-	٩٩

معامل التوحد	مجموع أربع أبعاد فرعية	مجموع ثلاث أبعاد فرعية	مجموع بعدين فرعيين	النسبة المئوية
١٣٣	٦٠	-	٣١	٩٩
١٣٢	٥٩	٤٥	-	٩٩
١٣١	-	-	-	٩٩
١٣٠	٥٨	٤٤	٣٠	٩٨
١٢٩	-	-	-	٩٧
١٢٨	٥٧	٤٣	-	٩٧
١٢٧	٥٦	-	٢٩	٩٧
١٢٦	-	٤٢	-	٩٦
١٢٥	٥٥	-	-	٩٥
١٢٤	-	٤١	٢٨	٩٥
١٢٣	٥٤	-	-	٩٤
١٢٢	٥٣	-	-	٩٣
١٢١	-	٤٠	٢٧	٩٢
١٢٠	٥٢	-	-	٩١
١١٩	-	٣٩	-	٩٠
١١٨	٥١	-	٢٦	٨٩
١١٧	٥٠	٣٨	-	٨٧
١١٦	-	-	-	٨٦
١١٥	٤٩	٣٧	٢٥	٨٤
١١٤	-	-	-	٨٢
١١٣	٤٨	٣٦	-	٨١
١١٢	٤٧	-	٢٤	٧٩
١١١	-	٣٥	-	٧٧
١١٠	٤٦	-	-	٧٥
١٠٩	-	٣٤	٢٣	٧٣
١٠٨	٤٥	-	-	٧٠
١٠٧	٤٤	-	-	٦٨
١٠٦	-	٣٣	٢٢	٦٥
١٠٥	٤٣	-	-	٦٣
١٠٤	-	٣٢	-	٦١
١٠٣	٤٢	-	٢١	٥٨
١٠٢	٤١	٣١	-	٥٥
١٠١	-	-	-	٥٣
١٠٠	٤٠	٣٠	٢٠	٥٠
٩٩	-	-	-	٤٧

معامل التوحد	مجموع أربعة أبعاد فرعية	مجموع ثلاثة أبعاد فرعية	مجموع بعدين فرعيين	النسبة المئوية
٩٨	٣٩	٢٩	-	٤٥
٩٧	٣٨	-	١٩	٤٢
٩٦	-	٢٨	-	٣٩
٩٥	٣٧	-	-	٣٧
٩٤	-	٢٧	١٨	٣٥
٩٣	٣٦	-	-	٣٢
٩٢	٣٥	-	-	٣٠
٩١	-	٢٦	١٧	٢٧
٩٠	٣٤	-	-	٢٥
٨٩	-	٢٥	-	٢٣
٨٨	٣٣	-	١٦	٢١
٨٧	٣٢	٢٤	-	١٩
٨٦	-	-	-	١٨
٨٥	٣١	٢٣	١٥	١٦
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٨٣	٣٠	٢٢	-	١٣
٨٢	٢٩	-	١٤	١٢
٨١	-	٢١	-	١٠
٨٠	٢٨	-	-	٩
٧٩	-	٢٠	١٣	٨
٧٨	٢٧	-	-	٧
٧٧	٢٦	-	-	٦
٧٦	-	١٩	١٢	٥
٧٥	٢٥	-	-	٥
٧٤	-	١٨	-	٤
٧٣	٢٤	-	١١	٣
٧٢	٢٣	١٧	-	٣
٧١	-	-	-	٣
٧٠	٢٢	١٦	١٠	٢
٦٩	-	-	-	٢
٦٨	٢١	١٥	-	١
٦٧	٢٠	-	٩	١
٦٦	-	١٤	-	١
٦٥	١٩	-	-	١
٦٤	-	١٣	٨	< ١

معامل التوحد	مجموع أربعة أبعاد فرعية	مجموع ثلاثة أبعاد فرعية	مجموع بعدين فرعيين	النسبة المئوية
٦٣	١٨	-	-	< ١
٦٢	١٧	-	-	< ١
٦١	-	١٢	٧	< ١
٦٠	١٦	-	-	< ١
٥٩	-	١١	-	< ١
٥٨	١٥	-	٦	< ١
٥٧	١٤	١٠	-	< ١
٥٦	-	-	-	< ١
٥٥	١٣	٩	٥	< ١
٥٤	-	-	-	< ١
٥٣	١٢	٨	-	< ١
٥٢	١١	-	٤	< ١
٥١	-	٧	-	< ١
٥٠	١٠	-	-	< ١
٤٩	-	٦	٣	< ١
٤٨	٩	-	-	< ١
٤٧	٨	-	-	< ١
٤٦	-	٥	٢	< ١
٤٥	٧	-	-	< ١
٤٤	-	٤	-	< ١
٤٣	٦	-	-	< ١
٤٢	٥	٣	-	< ١
٤١	-	-	-	< ١
٤٠	٤	-	-	< ١
٣٩	-	-	-	< ١
٣٨	-	-	-	< ١
٣٧	-	-	-	< ١
٣٦	-	-		< ١
٣٥	-	-	-	< ١

Appendix - D -

Administrative Agreements

University of Babylon
College of Nursing
Research Ethics Committee

جـــامـعة بـابـل
كـلية التمريـض
لجنة اخلاقيات البحث العلمي

Issue No:

Date: 7/ 8 /2022

Approval Letter

To.

Dhafer Ameen Jabbar

The Research Ethics committee at the University of Babylon, college of Nursing has reviewed and discussed your application to conduct the research study entitled " **Effectiveness of Behavioral Therapy Program on Children with Autism Spectrum Disorders** "

The Following documents have been reviewed and approved:

1. Research protocol
2. Research instrument/s
3. Participant informed consent

Committee Decision:

The committee approves the study to be conducted in the presented form. The Research Ethics committee expects to be informed about any changes occurring during the study, any revision in the protocol and participant informed consent.

Prof. Dr. Salma K. Jenad
Chair Committee
College of Nursing
Research Ethical Committee
7 / 8/2022

Ministry of Higher Education and Scientific Research
وزارة التعليم العالي والبحث العلمي
جمهورية العراق
University of Babylon
College of Nursing
جامعة بابل
كلية التمريض
لجنة الدراسات العليا

العدد : ٢٦٢٦
التاريخ : ٧ / ٨ / ٢٠٢٢

Ref. No. :
Date: / /

الى /دائرة الرعاية وذوي الاحتياجات الخاصة / النجف الاشرف
م/ تسهيل مهمة

تحية طيبة :

يطيب لنا حسن التواصل معكم ويرجى تفضلكم بتسهيل مهمة طالب الدكتوراه
(ظافر امين جبار عبد الرضا) لغرض جمع عينة دراسة الدكتوراه والخاصة بالبحث الموسوم :

(فاعلية برنامج العلاج السلوكي لدى الاطفال المصابين باضطرابات طيف التوحد) .

(Effectiveness of Behavioral therapy program on children with Autism spectrum Disorders).

... مع الاحترام ...

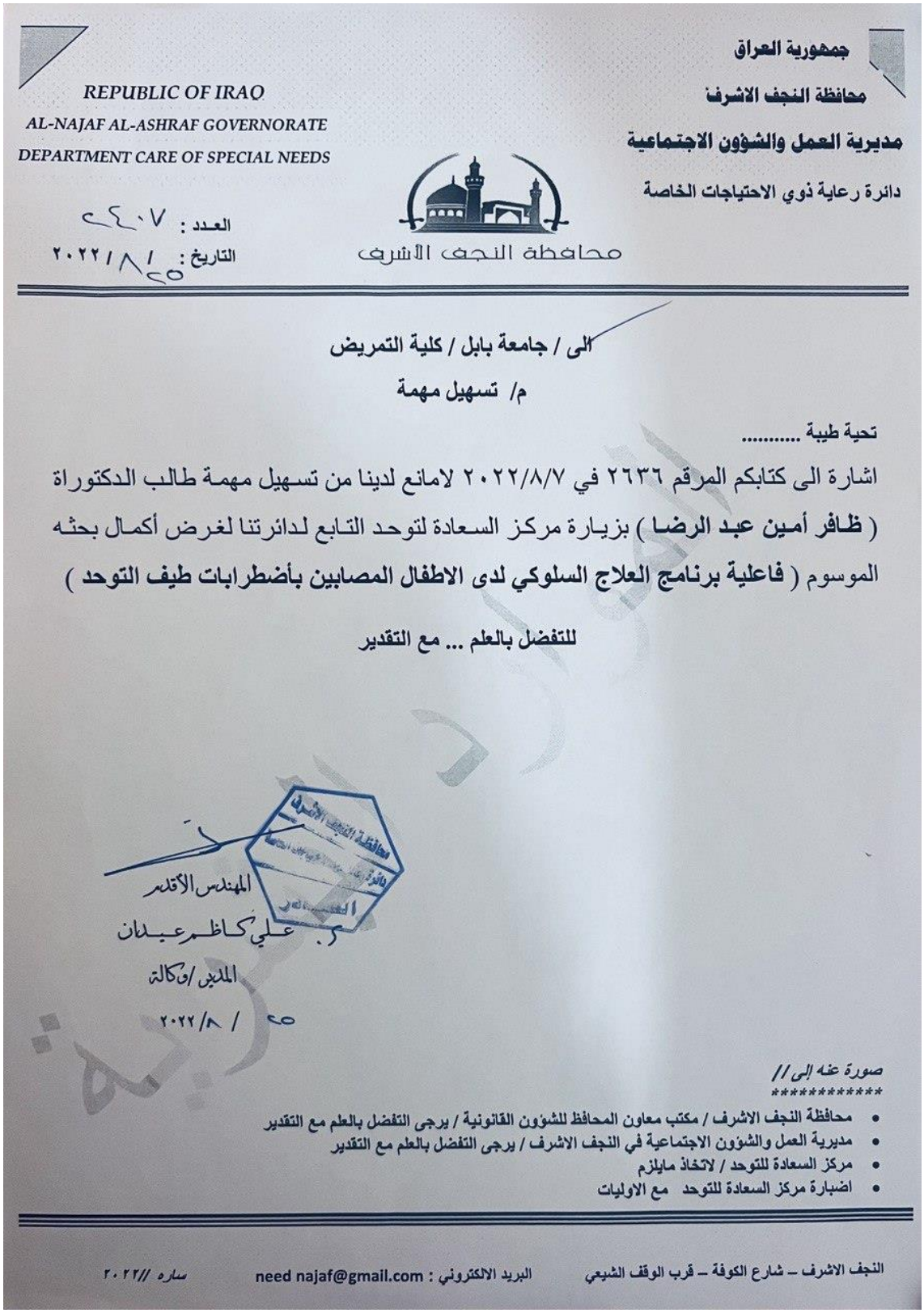
المرافقات //
- بروتوكول .
- استبانة

الاستاذ الدكتور
امين عجيل الياسري
العميد
٢٠٢٢ /٨ /

صورة عنه الى //
- مكتب السيد العميد للتفضل بالاطلاع مع الاحترام .
- لجنة الدراسات العليا
- الصادرة .

*بسمة ٧/ ٨

E-mail:nursing@uobabylon.edu.iq
وطني 07711632208
المكتب 009647711632208
www.uobabylon.edu.iq



جمهورية العراق
محافظة النجف الاشرف
مديرية العمل والشؤون الاجتماعية
دائرة رعاية ذوي الاحتياجات الخاصة

REPUBLIC OF IRAQ
AL-NAJAF AL-ASHRAF GOVERNORATE
DEPARTMENT CARE OF SPECIAL NEEDS

محافظة النجف الأشرف

العدد : ٤٠٧
التاريخ : ٢٠٢٢/٨/٥

الى / جامعة بابل / كلية التمريض
م/ تسهيل مهمة

تحية طيبة .....

اشارة الى كتابكم المرقم ٢٦٣٦ في ٢٠٢٢/٨/٧ لامانع لدينا من تسهيل مهمة طالب الدكتوراة (**ظافر أمين عبد الرضا**) بزيارة مركز السعادة لتوحد التابع لدائرتنا لغرض أكمال بحثه الموسوم (**فاعلية برنامج العلاج السلوكي لدى الاطفال المصابين بأضطرابات طيف التوحد**)

للتفضل بالعلم ... مع التقدير

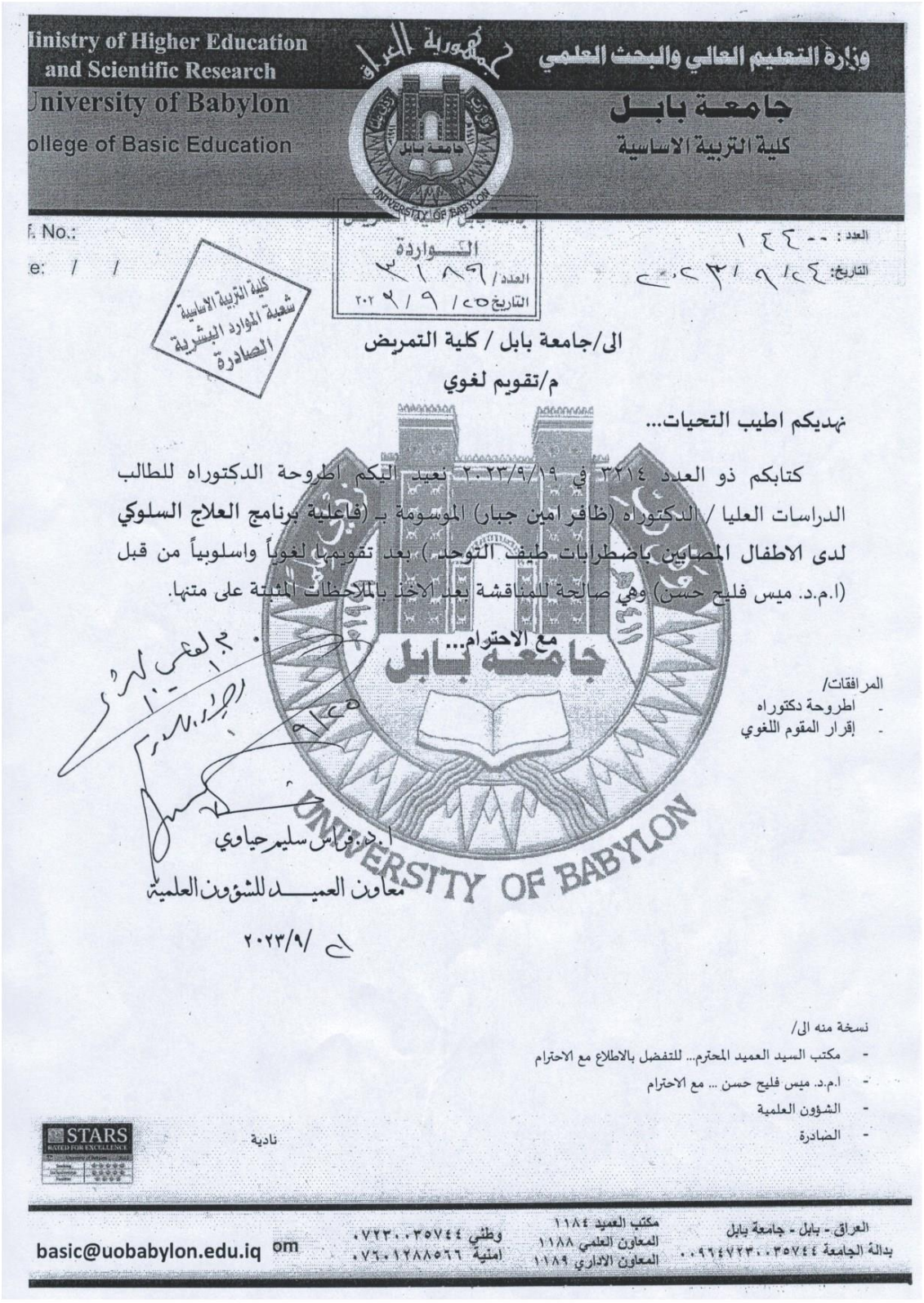
المهندس الأقدم
علي كاظم عيدان
المدير /وكالة
٢٠٢٢/٨/٥

صورة عنه إلى //
****
- محافظة النجف الاشرف / مكتب معاون المحافظ للشؤون القانونية / يرجى التفضل بالعلم مع التقدير
- مديرية العمل والشؤون الاجتماعية في النجف الاشرف / يرجى التفضل بالعلم مع التقدير
- مركز السعادة للتوحد / لاتخاذ مايلزم
- اضبارة مركز السعادة للتوحد مع الاوليات

النجف الاشرف – شارع الكوفة – قرب الوقف الشيعي البريد الالكتروني : need najaf@gmail.com ساره //٢٠٢٢

Appendix - E -

Linguist Expert Certification



وزارة التعليم العالي والبحث العلمي
جامعة بابل
كلية التربية الاساسية

Ministry of Higher Education and Scientific Research
University of Babylon
College of Basic Education

جمهورية العراق

F. No.:
Date: / /

العدد: ١٤٤٠٠
التاريخ: ٢٠٢٣/٩/١٤

الواردة
العدد/ ٣٢١٨٩
التاريخ ٢٠٢٣/٩/١٥

كلية التربية الاساسية
شعبة الموارد البشرية
الصادرة

الى/جامعة بابل / كلية التمريض

م/تقويم لغوي

نهديكم اطيب التحيات...

كتابكم ذو العدد ٣٢١٤ في ٢٠٢٣/٩/١٩ نعيد اليكم اطروحة الدكتوراه للطالب الدراسات العليا / الدكتوراه (ظافر امين جبار) الموسومة بـ (فاعلية برنامج العلاج السلوكي لدى الاطفال المصابين باضطرابات طيف التوحد) بعد تقويمها لغوياً واسلوبياً من قبل (ا.م.د. ميس فليح حسن) وهي صالحة للمناقشة بعد الاخذ بالملاحظات المثبتة على متنها.

مع الاحترام...

جامعة بابل

UNIVERSITY OF BABYLON

المرافقات/
- اطروحة دكتوراه
- إقرار المقوم اللغوي

أ.د. فراس سليم حياوي
معاون العميد للشؤون العلمية

٢٠٢٣/٩/

نسخة منه الى/
- مكتب السيد العميد المحترم... للتفضل بالاطلاع مع الاحترام
- ا.م.د. ميس فليح حسن ... مع الاحترام
- الشؤون العلمية
- الصادرة

نادية

STARS RATED FOR EXCELLENCE

العراق - بابل - جامعة بابل
بدالة الجامعة ٠٠٩٦٤٧٢٣٠٠٣٥٧٤٤
مكتب العميد ١١٨٤
المعاون العلمي ١١٨٨
المعاون الاداري ١١٨٩
وطني ٠٧٢٣٠٠٣٥٧٤٤
امنية ٠٧٦٠١٢٨٨٥٦٦
basic@uobabylon.edu.iq om

Appendix - F -

Document of Supervision and Training

Ministry of Higher Education and Scientific Research
UNIVERSITY OF KUFA
Faculty of Nursing

وزارة التعليم العالي والبحث العلمي
جامعة الكوفة
كلية التمريض

Ref. :
Date: / /

العدد : ٢٤٧٢
التاريخ : ٢٩/ ١١/ ٢٠٢٢

(التطوع ... حياة)

الى/ دائرة رعاية ذوي الاحتياجات الخاصة / مركز السعادة للتوحد

م/ زيارة ميدانية

تحية طيبة..

اشارة الى كتاب مديرية العمل والشؤون الاجتماعية / دائرة رعاية ذوي الاحتياجات الخاصة المرقم **٢٦٥٢ في ٢٠٢٢/٩/٢٨** لا مانع لدينا من قيام المدرس (**ظافر أمين جبار**) التدريسي في كليتنا بزيارات ميدانية الى مركز السعادة للتوحد التابع الى دائرتكم لمساعدة الكادر الوظيفي لمركزكم بتشخيص حالات اضطراب طيف التوحد لمستفيدي المركز وبشكل دوري للنهوض بالواقع الصحي والخدمات المقدمة للمستفيدين .

...مع وافر الاحترام...

أ.د. راجحة عبد الحسن حمزة
العميد وكالة
٢٠٢٢/١١/٢٩

نسخة منه إلى //

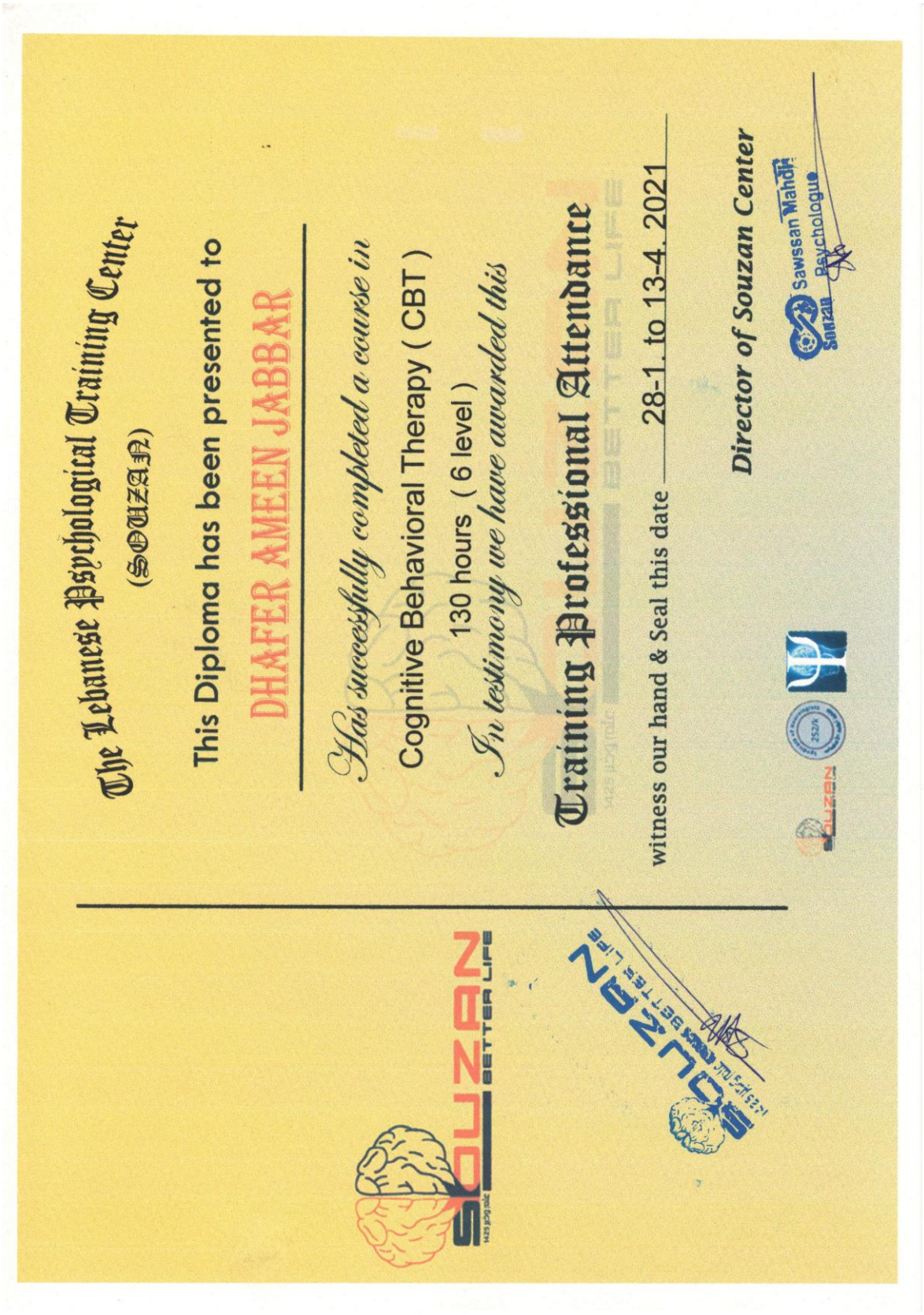
- فرع تمريض الصحة النفسية والعقلية مذكرتكم المرقمة ١٦ في ٢٠٢٢/١١/٢٣ للعلم مع وافر الاحترام .
- شعبة الشؤون الادارية / وحدة الافراد (ت) مع الاوليات .
- الصادرة .

www.uokufa.edu.iq

University of Kufa , Kufa , P.O.Box (21), Najaf Governorate , Iraq
E-mail:nurs@uokufa.edu.iq
E-mail:info@uokufa.edu.iq
T : +964(0)33 340952 F: +964(0)33 340951

Appendix - J -

Professional Competence and Qualification



TRAUMA AID UK
EMDR HUMANITARIAN ASSISTANCE PROGRAMMES

EMDR EUROPE

Certificate of Attendance

This is to certify that

has completed an On-line Part 1 of a 3 Part Training in
Eye Movement Desensitisation and Reprocessing - EMDR
organised by the Baghdad Center for Psychological-Social Support
on 3rd, 4th & 5th June 2021 (Total 22 hours)

This training is accredited by EMDR Europe Association

Signed: Sian Morgan
EMDR Europe Accredited Trainer & Consultant

وزارة التعليم العالي
والبحث العلمي
جامعة بابل
كلية التمريض

جامعة بابل

فاعلية برنامج العلاج السلوكي لدى الأطفال المصابين بإضطرابات طيف التوحد

أطروحة تقدم بها

ظافر امين جبار الموسوي

الى

مجلس كلية التمريض/ جامعة بابل
وهي جزء من متطلبات نيل شهادة الدكتوراه فلسفة في التمريض

بإشراف

أ.د. سجاء هاشم محمد الربيعي

صفر ١٤٤٥ ايلول ٢٠٢٣

الخلاصة

العلاج السلوكي هو برنامج تداخلي للطفل المصاب بأضطراب طيف التوحد، لتحسين السلوكيات المرغوبة وتقليل السلوكيات غير المرغوب فيها من خلال إستراتيجيات تعديل السلوك المبنية على مبادئ العلاج السلوكي التحليلي. حيث كان الهدف الرئيسي للدراسة هو تقييم مدى فاعلية برنامج العلاج السلوكي في تأهيل الطفل الذي يعاني من المشكلات السلوكية الخاصة بأضطرابات طيف التوحد.

تكونت عينة الدراسة من (٤٠) طفلاً من الأطفال المصابين بأضطراب طيف التوحد الذين شاركوا تطوعياً من قبل عوائلهم في الدراسة. تم اختيار الأطفال المصابين بأضطراب طيف التوحد من خلال عينة "غير احتمالية" (هادفة). استخدمت الدراسة تصميم الدراسة شبه التجريبية الذي تم تنفيذه من خلال تطبيق منهج القياس المتكرر والذي يتكون من ثلاثة تقييمات (اختبار ما قبل البرنامج، واختباران بعد البرنامج) الاختبار البعدي الأول، والاختبار البعدي الثاني لكل من مجموعات التجريبية والضابطة. تم إجراء الدراسة من خلال جلسات تدريبية بالعلاج السلوكي في الفترة ما بين (١ تشرين الاول، ٢٠٢١ و ٢٠ نيسان ٢٠٢٣) من خلال تطبيق الاختبار البعدي الاول بعد شهرين من الانتهاء من البرنامج التداخلي، وأما الفترة التالية لمدة (٣) أشهر كان هنالك تقييم شهرياً. التقييم من خلال GARS-٢ وتطبيق اختبار ما بعد الاختبار ٢ بعد ثلاثة أشهر من اختبار البعدي الاول. وقام الباحث بإنشاء متغيرات الاستبيان الفريدة لقياس مدى تأثيرها على فعالية البرنامج.

أظهرت نتائج الدراسة أن شدة اضطراب طيف التوحد لدى الأطفال للمجموعتين التجريبية والضابطة في الاختبار البعدي الثاني بعد متابعة شدة اضطراب طيف التوحد كانت أقل من المتوسط بمجموع درجات (٨٧,١٥) للمجموعة التجريبية، وكانت مرتفعة (١٢٣,٥٥) للمجموعة الضابطة.

وخلصت الدراسة إلى أن البرنامج أثبت فعاليته الحقيقية تجاه الأطفال المصابين باضطراب طيف التوحد، بعد ثلاثة أشهر من التقييم الأول (الاختبار البعدي) لتنفيذ البرنامج السلوكي من خلال المتابعة والإشراف والتأهيل المستمر، وهذا ما يعزز التداخل السلوكي مع الأطفال المصابين بالتوحد بشكل مستمر وتحقيق التأهيل المتكامل للوصول إلى أعلى نسبة من التحسن.

وأوصت الدراسة بأن التداخل والتأهيل بالعلاج السلوكي مع الطفل التوحدي يجب أن يكون من خلال خطط علاجية منظمة قصيرة وطويلة المدى تستهدف المشكلات السلوكية (السلوكيات المتكررة والنمطية) والتي يجب قياسها ومتابعتها شهرياً.