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Assessment of Parent's Knowledge about Nutritional Status toward child with Autism spectrum disorder (ASD) at autism centers in Babylon Governorate

A Thesis Submitted to the Council College of Nursing ,University of Babylon in partial Fulfillment of the requirements for the Degree of Master in Nursing Sciences

By

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ذي علم عليم ﴾

صدق الله العظيم

سُورةُ يوسف أية (76)

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Dedication

I dedicate this work to :

All Iraqi Martyrs, the symbol of sacrifice.

Especially my father.

Dear mother, who never stop giving of herself in countless ways.

beloved brothers and sister,

I can't force myself to stop loving .

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Abstract:

Background: Autism Spectrum Disorder is a neurodevelopmental disorder triggered by several factors, including those of genetic and environmental nature. Autism can alter communication, behavior, and children's nutritional status, placing them at high risk for nutritional imbalances. Therefore, this study aims to assess of nutritional status among child with Autism spectrum disorder at autism centers in Babylon Governorate.

Material and Methods: A descriptive study design" was employed to assessment of Parent's Knowledge about Nutritional Status toward child with Autism spectrum disorder (ASD) at autism centers in Babylon Governorate. from 1st / November / 2021 to 26st June 2022. Convenience (non-probability) sample" consisted of (200) samples, which is chosen during the sampling process through the period from(27th January 2022 to 5th April 2022).

Results: showed that the majority of ages of sample were within the 25-36 years old category by about (49.0%). The majority of the study's participants (33.0% and 59.0%) were educated and in institute school respectively. there is statistically high significant relationship between Monthly Income and nutritional status (P-value = 0.036). Also there is statistically high significant relationship between educational level and nutritional status (P-value = 0.021).

Conclusion: The higher percentage of parents were educated, most of them were within (25-36 years) age group. Most of child in the current study were less than three years mean age were 2.93 most of them were

male. The majority of mothers reported a moderate level of nutritional status concerning their autistic children. There is a significant relationship between nutritional status with a parents' age, educational and monthly income.

Recommendation: The findings of the study point in the direction of the sign of need to educating and training parents regarding nutritional standards for their autistic children. Support governmental agencies and important stakeholders in improving the programs and facilities that will help to upsurge attentiveness and reinforce positive temperaments toward nutritional status for children with autism. Development and expansion of the Ministry of Health's educational training programmes for parents on the topic of nutritional status and Autism.

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List of Abbreviations

1.	**ASD**	Autism spectrum disorder
2.	**ABA**	Applied Behavioral Analysis
3.	**ABC**	Autism Behavior Checklist
4.	**ADI-R**	Autism Diagnostic Interview-Revised
5.	**ADOS-G**	Autism Diagnostic Observation Schedule-Generic
6.	**ARFID**	Avoidant/Restrictive Food Intake Disorder
7.	**BAMBI**	Brief Autism Mealtime Behavior Inventory
8.	**BMI**	Body mass index
9.	**BPFAS**	Behavioral Pediatric Feeding Assessment Score
10.	**CAM**	Complementary and alternative medicine
11.	**CARS**	Childhood Autism Rating Scale
12.	**CDC**	Centers for Disease Control
13.	**CNVs**	Copy number variations
14.	**DRB**	Difference Relationship-Based
15.	**DSM-V**	Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition
16.	**FFQ**	Food frequency questionnaire
17.	**GDS**	Gesell Developmental Scale
18.	**GFCF**	Gluten-free casein-free
19.	**MMWR**	Morbidity and Mortality Weekly Report

20.	**ND**	Neurotypical development
21.	**PDD**	Pervasive developmental disorders
22.	**PDD-NOS**	Pervasive developmental disorder not otherwise
23.	**PUFAs**	polyunsaturated fatty acids
24.	**RDI**	Relationship Development Intervention
25.	**TDC**	Typically developing children
26.	**WHO**	World health organization

Chapter One

Introduction

Chapter One

1.1 Introduction

Children with autism spectrum disease (ASD) have been found to have lower intake of key nutrients compared to children without ASD (Malhi, et al.2017). ASD children are more likely to be overweight and obese than those with neurotypical development (ND) (Kwon, et al. 2022), which increases their risk for additional comorbidities including lipid and metabolic disorders.

Feeding problems at mealtimes in autistic children occur much more frequently than in children with ND (McAuliffe, et al.2017). Some of the common feeding problems in ASD children include not chewing food, lack of appropriate for age self-feeding, eating inadequate amounts, and prolonged meal times (Malhi, et al.2017). Food selectivity and food aversions may also occur which may be a result of sensory issues(Bandini, et al.2019).

Studies have explored feeding problems in children with ND (Davis, et al. 2014 ; Bandini, et al.2019) as well as ASD children, but few have simultaneously evaluated feeding problems and nutrient intake (Allen, et al.2015 ; Castro, et al.2016).

Research evaluating the dietary intake and mealtime behaviors of ASD children is limited. Furthermore, only Castro et al., 2016, investigated such issues simultaneously (Castro, et al.2016) .

Autism Spectrum Disorder (ASD) a neurodevelopmental disorder that may cause difficulties in thinking, feeling, language, and other child's

ability to communicate to others. It is called spectrum, because the severity and type of symptoms experienced by autistic child varies widely. Impairment core areas include relationships, social interaction, imaginative playing and communications (verbal and nonverbal) (Chukwueloka, 2016).

World health organization stated that individuals with autism are often subjected to discrimination or stigma, including unequal excommunication of health, opportunities for involvement, education and participation in their communities(WHO, 2019).

The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-V) identifies three levels with ASD according to severity; specification in the first level through diagnosis of Asperger's disorder initiating difficult social interactions, lacking of interest in their social worlds, have difficulty switching between activities, and exhibiting inflexible behaviours. While level two includes those with deficiencies in communication (verbal and nonverbal), and having repetitive behaviours. Level three includes those with severe deficiencies in communication skills (verbal and nonverbal), providing least response to others, having sever difficulties in handling change, when changing tasks, signs of sever distress appear and displaying restricted and repetitive behaviors (Lonnie Zwaigenbaum, MD et al., 2019).

There is no exact cause of ASD but genes can interact with environmental influences to impact development in a way that may contribute to autism. Certain factors increase the availability of developing autism includes: having a sibling (sister or brother) with autism, having a parents with autism, having assured genetic conditions (fragile X syndrome, Down

syndrome) and very low birth weight (Simonstein & Mashiach-Eizenberg, 2016).

Early signs of ASD can be detected earlier in children in age (6-18) months old, when a child fixes objects or does not react to his parents or people. Toddlers and older babies may not be react to his names, avoiding of eye contact, lose mutual attention or repetitive movements like arm flapping or rocking. He may play with the toys abnormally, such as lining the toy up or concentrating on a part of it more than the whole. If parents or caregiver see these signs, they must be contact the paediatricians or psychologist to make a developmental screening (Chuthapisith & Ruangdaraganon, 2011).

The American Academy of Pediatrics recommends the routinely checkup of all children for ASD as a part of well-child examinations for (18-24) months. International opinion prefers early diagnosis of ASD as this enables the child to receive early management to achieve their developmental mialstone (Samadi & McConkey, 2015).

The early screening tools aid for early detection of ASD, but not diagnostic confirmation, it primarily based on clinical evaluation. In general children aged 18 months and more who considered risky for ASD should be examined early for any symptoms or signs of ASD (Samadi & McConkey, 2015).

All ethnic, racial, socio- economic, and social groupings have ASD diagnoses. Males are 5 times more likely than females to be affected by it (CDC, 2014). Given the intricacy of the illness and the paucity of study, the genesis of an ASD is still a mystery. ASD is regarded as a complex condition that may be impacted by genetics, environment, and immunologic factors

even if its exact etiology is still unknown (Bölte et al., 2019). According to Meltzer, A., & Van de Water (2017), some researchers feel that an ASD is brought on by an immune system assault, whereas others think it is brought on by environment exposures (Meltzer, A., & Van de Water. 2017).

One of the most fundamental human activity is eating, which is required for both good growth and the continuation of life. In this context, several studies that have been conducted have noted behavioral issues, involving food selection, at lunchtimes in ASD children. However, the term food selectivity is used in the literature to describe a variety of ideas, like food rejection, a small number of acceptable foods, frequent consumption of a single food, excessive consumption of a small number of foods, or selective consumption of particular food classifications (like carbohydrate, fat, or protein) (Attlee et al., 2015).

The evaluation and comparing of the findings from various research are made more difficult by the lack of agreement on the concept of selective. Consequences of both excessive and inadequate intakes are implied by irregular feeding behavior patterns, the adoption of intentional dietary restriction, and the peculiar style of life of people with ASD (characterized by differences in activity levels as well as idiosyncratic social skill and poor social interaction) (Christensen., et al.2019).

The occurrence of important comorbid chronic health conditions in the 3rd or 4th decade of life (like osteoporosis, dyslipidemia, hypertension, diabetes, and cardiovascular disease), or even earlier, may have adverse effects on anthropometric development, including unhealthy weight and/or BMI (menstrual disorder, sleep apnea, or psychosocial disorder). According

to a comprehensive review by (Mar-Bauset et al. 2014), studies on growth in ASD children that were insufficient to date and has produced conflicting, if not contradictory, findings. Food selection was defined by Levin and scientists as a diet that is deficient in a range of food items and that people reject new meals when presented with them (Mar-Bauset et al. 2014).

Picky meal is typical in early children, but it seems that ASD youngsters may be more choosy, and it could even persist into adulthood. Although there is little scientific proof, there are many reported cases and a lot of anecdotal evidence that suggests that food selection in kids with ASD is a concern. These atypical food patterns may make it difficult for the youngster to get the variety and quantity of food they need for optimal growth and development. ASD children may have vitamin deficiencies to a greater extent than children who are usually developed, according to some research (Kral., et al.2015).

ASD children are often labeled picky eaters and have been found to have more problematic mealtime behaviors compared to children with ND. Picky eating has various definitions and may include the limited variety (Zimmer, et al.2012) or quantity of the foods consumed by the child,39 limited vegetable intake, and include selectivity and resistance to try new foods due to specific textures and colors (Bandini, et al.2015).

Studies that have used the Behavioral Pediatrics Feeding Assessment Scale (BPFAS) have reported that parents of ASD children overall reported more feeding-related difficulties with their child based on scores compared to parents of children with ND and all questions related to

food acceptance were a concern for parents (Allen, et al.2014 ; Castro, et al. 2016).

A meta-analysis of research examining food issues and nutritional intake in ASD children found that ASD children are 5 times more likely to have a feeding issue than their counterparts with ND. ASD children are thus more likely to have dietary deficits (Sharp, et al.2013 ; Bicer, et a .2013).

Eating behavioral problems, including picky eating, resistance to new foods, and limited food variety, are common mealtime behaviors in ASD children that may be problematic in reducing the variety of foods consumed by this population, ultimately affecting the overall nutritional quality of their diet. Focusing on the preschool and school-age years, compared to children with ND, ASD children have been found to have inadequate intakes of protein, calcium, phosphorus, vitamin D, A, K, C, B12, potassium, zinc, and fibers (Malhi, et al.2017).

1.2 The Important of study

An investigation of eating issues and nutritional evaluation in children with autism was carried out in the Iraqi province of Babylon, according to this study. Children with autism reported overweight or obese in more than half of cases. Men are impacted more often than women. There is no conclusive link between the method of feeding during the first 6 months of life, weaning age, and hunger cues, and the nutritional health of autistic children. All of the underweight autistic children had a history of feeding issues, such as choosing food based on kind or texture, acting out while eating, having food allergies, and experiencing diarrhea. The obese autistic children had a history of eating when sitting down, eating more than three times daily, and eating for more

than 30 minutes at a time. In children with autism, pica is typical (Wtwt, et al.2015).

It was noted that the motivation behind various decisions (Stough,et a;.2015). ASD children will also have their anthropometric measurements examined. This is because, according to studies, ASD children tend to weigh more and have higher BMI values than children with typically developing bodies (Shmaya,et al.2015).

The food intake of ASD children may be impacted by abnormal feeding behaviors. When comparing to age- and sex-matched normally developing children (TDC), ASD children demonstrated considerably worse self-feeding, greater food anti - social behavior, and more food neophobia, the 2008 research found (Martins, Young & Robson). In addition, compared to parents of TDC, parents of 5- to 12-year-old ASD children report greater too much feeding issues, including food refusal, needing particular utensils or presentation of food, having to accept just meals with low texture, like pureed food, and having to eat a restricted variety of foods (Schrek, Williams & Smith, 2004).

Parents of ASD children may be more likely to experience parental stress due to feeding challenges, which may exacerbate other difficulties for the parent, particularly around mealtimes (Curtin et al., 2005), which can have a detrimental impact on the life (Postorino et al.2015).

To ensure that their children consumes a nutritious diet and engages in the required amount of physical exercise, parents of ASD children must overcome a variety of obstacles, some of which are unique to children with special needs (Meral, B. F. 2015). There has been little study on the

connection between obesity and a decline in physical exercise (Hawamdeh, K. Y., & Skrypnyk, C. 2013).

Children with an ASD tend to consume a different diet than children who are usually developing (Herndon et al., 2009). Despite the fact that nutritional consumption seems to vary among ASD children and generally developing youngsters, research has produced inconsistent findings (Zimmer and Hart, 2012).

Numerous studies have noted problematic eating and mealtime behaviour in kids with PDD. In a prior study, it was shown that ASD children had greater rates of eating issues than their peers due to intestinal disorders and repeated dislike of new meals (Johnson, et al.2014). Additionally, disrupting behaviors including not sitting down at the table and getting up mid-meal have been linked to uncomfortable meals and home life in high levels of ASD children (Volkert, et al.2010).

Households with children identified with a neurodevelopmental disorder were negatively impacted by the dysfunctional and stressed mood more than normal families. These Higher rates of parenting stress and dietary deficits brought on by sensory food phobias like meal neophobia and food selection have been linked to eating issues in ASD children. The feeding style of the caregiver has an impact on the eating habits, dietary choices, and consumption habits of the child(Watson, et al.2011).

Additionally, the interest, eating patterns, attitude, and understanding of parents directly affect the nutritional intake of children, in addition to the mother's educational level, employment position, and food managements abilities. According to research by Joo et al. (2019), organic diseases account

for between 80percent and 90percent of the food intake issues seen in children with PDD, but there may also be other factors at play, such as how families react to their child' dietary issues(Joo et al. 2019).

Families of children with PDD often have less positive views of their children's eating patterns, preference for particular meals, rejection of novel foods, and selected behaviour that varies from that of children who are growing regularly. Just a few research has been carried in this field, despite the fact that primary caregivers' actions and impact have a significant impact on children's nutritional intake, eating habits, and behavior (Nadon, et al.2011).

1.3 Statement of the Problem

Assessment of Nutritional Status among child with Autism spectrum disorder (ASD) at autism centers in Babylon Governorate

1.4 Objectives of the Study

- Assessment of Parent’s Knowledge about Nutritional Status toward child with Autism spectrum disorder (ASD) at autism centers in Babylon Governorate.
- Identify relationship between the children with ASD demographic data and nutritional status.
- Identify the association between parents’ demographic data and nutritional status of autistic children .

1.5 Definition of Terms

1.5.1 Autism spectrum

Theoretical Definition: is a complicated development disorder that impairs connection and communication. Children with autism may struggle with issues including general behavior, language development, and social skills and nutritional behaviors(Pennington., et al.2014).

Operational Definition: is a developmental condition involving persistent challenges with social communication, restricted interests, and repetitive behavior. While autism is considered a lifelong disorder, the degree of impairment in functioning because of these challenges varies between individuals with autism.

1.5.2 Nutritional status

Theoretical Definition: State of the body in relation to the consumption and utilization of nutrients(Zhang., et al.2017).

Operational Definition: It is the condition in which autistic patients have nutritional behaviors in terms of types, quantities, and meals.

Chapter Two

Review of Literatures

Review of Literatures

2.1 Autism Spectrum

2.1.1 Historical overview

The word "autism," originally comes from the Greek word "autos," meaning "self." The earliest known documented case of autism was in the court case of Hugh Blair of Brogue. In 1747, Blair's younger brother appeared in court for a decision on Hugh's mental capacity to contract a marriage. He successfully petitioned the annulment of his marriage so that he can gain his brothers inheritance. Hugh's argument was that his brother was mentally unstable (Atkins Jr, 2011). There was no proof that Hugh had autism but there was clear evidence that he showed traits of autism. A Swiss psychiatrist, named Eugen Bleuler, first used the term in 1911. He described the symptoms of mental illnesses into a category. The term was then confused with emotional problems and schizophrenia until 1943 (Suh., et al.2014).

During the 1940s, the two pioneers Leo Kanner and Hans Asperger described children with the characteristics we recognize today as being autistic. Autistic became "autism" in 1943 when John Hopkins University Psychiatrist Leo Kanner identified it as a distinct neurological condition without a specific cause. At that time Kanner invented a new diagnostic category called "Early Infantile Autism", sometimes referred to as the Kanner Syndrome In 1944, Hans Asperger, an Austrian Pediatrician in Vienna, published a 5 doctoral thesis and described patients also using the term "autistic." He and Kanner both described similar characteristics of impaired communication and social interaction. Although both doctors described a

broad range of symptoms, it was Kanner's description that became the most widely recognized(Gupta., et al.2022). The term "Asperger's syndrome" became worldwide when it was made public in 1981, as a condition previously described by Hans Asperger (Baron-Cohen, 2015).

Autism spectrum disorder (ASD) is a neurodevelopmental syndrome marked by repeated, stereotyped behaviours, poor language skills, and impaired social-emotional compatibility. In the previous several years, its frequency has considerably grown (Matson and Kozlowski, 2011).

Autism, also known as Autistic Disorder, is included in the group of conditions known as development impairments. Eugen Bleuler (1857–1939), who conducted study with schizophrenia patients who had some of the traits currently linked with autism, first used the term autism in 1911. In an effort to describe patients with schizophrenia's violent relapse into their own fantasy world in response to overpowering outside perceptions or abilities, he derived the term autism from the Greek word autos, which means self (Jackson, 2016).

The term autism was given its modern meaning in 1938 while Hans Asperger presented Bleuler's idea of autistic psychopaths in a German lecture on child psychology, according to Chukwueloka (2016). Study on the autism spectrum condition is continuing (ASD). ASD has been researched for the last 60 years. Furthermore, throughout time, both the definition and categorization of autism have changed (Chukwueloka,2016).

2.1.2 Characteristics of Autism

The disorders autistic disorders, aspergers syndrome, and pervasive developmental disorders are together known as autism (Carter, Davis, Klin,

Volkmar, 2005). Children with asperger syndrome have the same problems with autism, but cognitive function remains unimpaired and language abilities develop more typically. Children with asperger syndrome have unusual interests that they pursue with intensity (Carter, Davis, Klin, Volkmar, 2005).

One of the three ASDs and one of the 5 illnesses included in the PDD classification are a condition known as a pervasive developmental disorder not otherwise defined (PDD-NOS). PDD-NOS is a diagnosis that can be used whenever repetitive behaviors, interest, and hobbies are observed but the criteria are not satisfied for a particular PDD, there is a significant and persistent impairments in the development of reciprocity social contact or linguistic and non-verbal communication abilities as per DSM-IV (The Fourth Edition of the Diagnostic and Statistical Manual for Mental Disorders). It is often referred to as atypical autism. A child with PDD-NOS may have unusual symptoms or begin to exhibit symptoms after Thirty months old (Tanguay, 2000).

According to the DSM-IV, Rett syndrome and childhood disintegrative disorder (CDD) are considered to be a subset of autism spectrum disorders. But it is not obvious if rett syndrome and autism are related (Ozonoff, 2003).

2.1.3 Diagnosis of Autism spectrum

2.1.3.1 Early detection

Families often become aware of the signs of autism very early on. In retrospect, 83.3 percent of parents believed their kid experienced signs before the age of 2 (Jo'nsdo'ttir, Saemundsen, Antonsdo'ttir, Sigurdardo'ttir, & O' lason, 2011). The majority of parents (76.2 percent) expressed worries before

the child turned three. In a different survey, 50percent of families expressed worries before their baby became one year old (Kishore & Basu, 2011).

And according to Planche (2010), some signs that are apparent at birth may go unnoticed for several times. Unfortunately, even when parents are worried, many do not seek professional assistance until several months have passed (Planche, 2010). This has prompted some experts to advise physicians to be more watchful for developmental problems and fundamental characteristics of autism during normal visits (Mandell et al., 2010).

The timing of diagnosis varies by kind of autism spectrum condition, with autism being identified five months sooner than Asperger Syndrome or PDD-NOS. This probably happens because the symptoms of autism are more obvious and severe than those of Asperger Syndrome or PDD-NOS. A cohort of kids with autism was evaluated for possible cultural influences, and it was discovered that the average age of symptoms awareness did not match a prompt diagnosis. Instead, there was a 32-month gap between the discovery of symptoms and the confirmation. The author also raises a crucial point on the value of multidisciplinary cooperation. The family doctor is nearly always the first point of contact, even if a child clinical psychologist or psychiatrist is likely to establish the diagnosis. As a result, the paediatrician has to be aware of the symptoms to check for and have reliable referral sources (Mandell et al., 2010).

The diagnosis is made more difficult by the symptoms' variability and the associated skill that are also compromised. For instance, (Kalb, et al. 2010) saw children with autistic regress, autistic children who impairments had reached a plateau (paused developing abilities), and children who shown

usual growth. Although children who regressed showed greater skill growth than autistic children who abilities reached a plateau, the regress group was shown to have the worse outcome over the long run. Children were also evaluated in combination with core autistic symptoms in terms of collateral abilities. Using the Vineland Adaptive Behavior Scale and the Bayley Scales of Infant and Toddler Development, Ray-Subramanian (Matson et al., 2010) investigated 125 children with autism (aged 23–39 months). They point out that developmental deficits might be seen as early as age 2. These findings supported those of Matson and colleagues, who had previously discovered comparable outcomes in infants as early as 17 month old. Moreover, once present, these indications seem to be persistent (Chawarska, Klin and Paul. 2007).

2.1.3.2 Methods of early identification

Autism has been detected early on using a variety of techniques. Some techniques, including watching home recordings and doing tests to see how toddlers respond to stimuli, have proved useful in informing clinician and researcher about the validity of certain diagnosis. For early detection and diagnosis of autistic children, several approaches have been utilised, notably those that are experimentally generated and tried.

2.1.3.2.1 Contents of diagnosis

A relatively early age allows for direct observations of autistic youngsters in home films (Chawarska et al. 2009). Furthermore, such home movies often lack systematic evaluation. The amount of persons in the video, its length, location, and the chores or activities the youngster participated in while it was being shot are just a few of the numerous variables that may

change. Furthermore, the kid's speech could be hard to hear, and there may be times throughout the video when the youngster is seen from behind, making it impossible to analyse facial expression or eye movement. However, these statistics have helped some in recognising early signs. Although this technique of evaluation and diagnosis is unlikely to be successful, it should be helpful in the development and improvement of assessment tools that may be utilised for these people. Home movies showing the vast majority of kids who were subsequently diagnosed with autism show a variety of abnormal behaviours, such as bad mimicry, poor joint attention, poor eye tracking, and poor mood (Maestro et al., 2001).

. Children with autism were observed to detach from visual attentions to other people's faces considerably more easily. Eye tracking technology has been used to assess pupillary reactions of a landscape utilising time management, overall time constant focus, and average length of fixation as outcomes measures. The author draw the conclusion that children with autism are less interested and involved in this very important socialisation interaction. The autistic toddlers, who were on mean 49 months old, had significantly less pupil response activity than classmates who were usually developed (Anderson et al; 2006).

2.1.4 Prevalence of ASD

Global health issues like autism are not affected by country, socioeconomic class, or race. The prevalence estimates for autism and ASD are 1-2 per 1,000 and 6 per 1,000, respectively, with around four times as many men as girls. The following countries have approximative prevalence estimates of autistic children: “Australia: 6,25 per 1000; Canada: 1,154;

China: 1,1 per 1000; Denmark: 9, 833; Finland: 1, 833; Iceland: 1, 769; India: 1, 250; Japan: 3, 1000; Mexico: 2 to 6 per 100; Philippines: 500,000 children overall; Sweden: 1,188; US: 1,110" (Buie, T ,2013). Among earlier investigations, it was discovered in households with high socio-economic status, there were more persons with ASD. The socioeconomic status of the families does not, however, seem to matter, according to recent research. Males are three to five times more likely than females to have autism. As per statistics from 2011, there are 150 people worldwide who have autism (Adams et al ;2013). As per to research from 2013, there are one in 88 children worldwide who have autism (Buie, T ,2013).

2.1.5 Etiology of ASD

2.1.5.1 Genetic Anomalies

Deletions, copy number variations (CNVs), gene mutations, and other genetic variables all have a connection to autism. Three times as many men as women suffer from autism (Kidd, 2002).

Autism is thought to have genetic components as well. According to sibling and twin research, there is a 3 percent chance that a kid may have ASD if a sibling or twins do. According to this statistic, these kids have always had an ASD prevalence that is 50 times higher than that of typical kids. Additionally, there was no evidence of a causal link between ASD and any prenatal, perinatal, or postnatal condition (Kidd, 200).

2.1.5.2 Abnormal Brain Development

ASD sufferers' brains function differently than those of healthy people. The CNS has an anomaly. It is believed that the chemical routes that carry

message have an excess or a deficit. A behavioural disorder is autism. Epileptic seizures and loss of function are two physiologic causes of autism. Methods such MRI and PET are applied in these situations. In addition, it is believed that the neurocognitive hypothesis contributes to ASD(Li., et al.2014).

Memory is normal in kids with ASD unless there is a severe emotional problem. The temporal lobe is believed to be the crucial brain region in this illness. Children should get training at a young age to help with the development of this area of the brain. The brain and inner ear are not communicating well with one another. As a result, instability and amyosthenia (muscle relaxation) may be present. Movements problems and a lack of motor planning in the cerebellum may both be evident at the same time. Additionally, due to aberrant motor abilities, autistic children have trouble jumping and balancing on one foot (Geschwind,2011).

2.1.6 Treatment of Autism spectrum

Since there is currently no cure and little accessible study, there is much disagreement and controversy surrounding the management of ASDs. Even though there is no treatment, there are several available treatments. Therapies have included occupational therapy, speech therapy, traditional and complementary medicines, educational, psychological, nutritional, and pharmaceutical interventions. In a study of 552 parent conducted by Green et al. in 2004, it was discovered that the average number of interventions families engaged in for their kid at any one moment was 7 (Green et al.,2004).

The most frequent kind of intervention was speech therapy, which was then accompanied by visual schedule, integrated behaviour analysis, and

occupational therapy (Green etal.,2004). Professionals generally believe that intense development therapy, specialised instruction, and behavioural managements constitute the optimum form of treatments (Levy et al., 2002).

2.1.6.1 Therapeutic and behavior-based interventions

ASD children may benefit from a variety of developmental and behavioural therapies that are designed to reduce symptom. The Denver model, the Relationship Development Intervention (RDI) model, the Developmental Individual Difference Relationship-Based (DIR) model, and the Applied Behavioral Analysis (ABA) model are often used models. With the appropriate training and ongoing supervision, members of the family may handle these model or experts can (Geschwind,2011).

A scientific method for examining behaviour and behaviour changes is the Applied Behavioral Analysis (ABA) paradigm. ASD-related undesirable and desired behaviours are assessed, treated, and prevented using a number of ideas, principles, and approaches under the umbrella title of "ABA." The direct use of behaviourism to alter and enhance human behaviour is known as ABA (Axelrod et al., 2012). The ABA principles have received scientific support for treating ASD symptoms over the last 60 years (Green et al., 2004). Since ABA focuses on skill learning related to the underlying deficiencies of an ASD, it is one of the most successful ways to treat an ASD . ABA concepts are used by skilled professionals to establish communication, social interaction, and play schemas in early development (National Research Council, 2001)., ASD children who got 40 hour of direct ABA training had IQ scores over 100 as well as improvement in their language and behaviour. The subject was not randomly assigned to the experimental or control groups,

the sample size was limited, and maturity was not taken into account, among other restrictions. Today, ABA treatment is seen to be very helpful for those who have been confirmed with an ASD, and it often results in improvement in the fundamental deficiencies of an ASD (Axelrod et al., 2012).

The Early Start Denver Model (Rogers et al., 2009) focuses on addressing basic weaknesses by utilising imitation, emotional sharing, theory of mind, and social awareness via the inclusion of play, interactions, and activities that develop symbolic cognition (Gutstein et al., 2002). The latter style encourages the youngster to take part in routine tasks like cleaning the kitchen floor, breaking egg for a cakes, and setting up playtime with members of the family or other close friends(Axelrod et al., 2012).

Table 2.1: Types of early interventions commonly used to treat symptoms of ASD(Shi., et al.2021).

Applied behavior analysis	Scientific approach to the study of behavior and behavior changes.
The early start Denver model	Focuses on remediating core deficits by using imitation, emotion sharing, theory of mind, social perception using play.
DIR floor time	Focuses on play season in order to enhance relationships and emotional and social interactions.
Relationship development intervention (RDI)	Focuses on activities that interactive behaviors with the goal on increasing the child's desire to be connected with people.

2.1.6.2 Pharmacological Interventions

Psychotropic drugs are often prescribed to reduce undesirable behaviours, reduce anxiety, maintain emotional stability, and enhance social skills. To address the signs and symptom of impulsive, hyperactivity, and short attention span, a variety of stimulant drugs are often used. Similar to those without an ASD, people with an ASD use antidepressant and antianxiety medicines. If someone has digestive issues due to yeast overgrowth, traditional and complementary medicine practitioners commonly recommend antifungals to address the condition (Wink et al., 2011).

2.1.6.3 Complementary and Alternative Medical Interventions

Western culture has seen a steady rise in the use of complementary and alternative medicine (CAM), particularly among children. Families that are caring for an autistic kid have been observed to use CAM therapies up to 85% of the time (Wong, V.C.N., 2009). Despite the dearth of evidence-based research, these therapies are becoming more and more well-liked among families and healthcare professionals. ASDs are being treated with a variety of CAM therapies, including dietary modifications, biomedical treatments, minerals and vitamins, chelation, music therapy, cranial-sacral, acupuncturist, and hyperbaric oxygen chamber. Through the internet, the media, anecdotal tales, and autism support groups, families have learned about CAM therapies (Levy and Hyman, 2002). Natural disease prevention or treatment, enhancing general wellbeing, and treating ASD symptom are the main objectives of complementary and alternative medicine (CAM) therapies.

2.1.7 Characteristics of ASD

As it is well known, ASD is a complex behavioural condition that typically develops during the first three years of life and has a wide range of effects on the normal growth of psychological health. The effects and intensity of ASD symptom, as well as the kind and complexity of behaviour, differ from individual to individual. Restricted and repetitive behaviours (RRB) might range from barely strict sport actions to higher-order behaviours, including equality standards. Verbal or non - verbal intelligence (IQ) ratings vary substantially in ASD (Munson et al.2008). Among the postulated causes of ASD are very potent genetic factors, the likelihood of which passing down through generations has been estimated to range from 60percent (Gaugler et al. 2014; Huguet et al. 2013) to more than 80percent. (Sandin et al.2017).

In addition to genetic factors, environmental factors that may increase the risk of ASD include air pollution, insecticide exposure, infections during pregnancy, nutritional factors, gestational diabetes, anxiety, any treatments, unanticipated infection, inflammatory conditions, or antibiotic use during pregnancy (Raz et al. 2015). Prenatal and perinatal folate and iron status, as well as the mother's consumption of polyunsaturated fatty acids (PUFAs), are only a few examples of potential nutritional risk variables (DeVilbiss et al.2015).

It is simple to uncover food limitations, dietary issues, and digestive disorders among the numerous conditions linked to ASD. Actually, kids with autism tend to be highly fussy eaters. (Selective Eaters) The end outcome is an eating disorder called Avoidant/Restrictive Food Intake Disorder (ARFID).

It is common to see challenges like select food intake, intermittent fasting, and excessive anxiety around food and mealtimes. The majority of them exhibit dislike to particular food flavours, texture, smells, or other eating issues (Cermak et al.2010). This has an immediate influence on the impact of poor food quality, vitamin deficiencies, and the makeup of the gut flora. Because of this, families, carers, and the affected persons commonly report experiencing stress, worry, a sense of powerlessness, and guilt. With the correct help, these diseases may be managed reasonably easily for some people, but for others, eating disorders can have long-lasting, stressful effects that lead to weight loss and/or malnutritions, increasing loneliness, lack of social engagement, and stigma. Consequently, many people with autism now qualify for an additional ARFID diagnosis. This may help to improve understanding of the dietary issues and increase support from experts in the area (Cermak., et al.2010).

2.1.7.1 Diagnostic Criteria for ARFID

A feeding or eating disorder is characterised by a sustained inability to meet adequate nutritional and/or efficiency requirements in relation to one (or more) of the ones that follow: an evident lack of confidence in having eaten or food; prevention based on the factor properties of food; and worry about the adverse effects of feeding (Widiger., et al.2013).

• Considerable weight loss (or failure to achieve expected weight gain or faltering growth in children).

Serious nutrient insufficiency.

Dependency on enteral nutrition or dietary supplement taken orally.

Prominent disruption of psychological functioning.

The absence of food or a related, accepted cultural practice are not better explanations for the disruption.

The feeding disorder is not due to a simultaneous medical condition or is not best explained by some other mental illness (McElhanon., et al.2014).

The feeding disorder does not really occur exclusively during anorexia nervosa or bulimia nervosa, and that there is no indication of a disorder in how one experiences their body weight or form. Whenever a food problem coexists with some other ailment or disorders, its intensity surpasses that which is typically associated with the problem or disorders and calls for further professional care.

The majority of people with ASD who also have GI issues may well be impacted by special dietary intakes that exacerbate ASD symptomatology (McElhanon., et al.2014). Additionally characteristic in those with ASD, immune dysfunction and GI inflammation increase the intricacy of behaviours (Mead., et al.2015). Numerous ASD children were also found to have anomalies in GI processes, such as excessive intestinal permeability, overall microbiota alteration, and intestinal infections with the cresol-producing Clostridium difficile (De Magistris et al. 2010, De Angelis et al. 2013, Parracho et al. 2005). (Parracho et al.2005).

The gut-brain axis, which comprises the immune system, hormone, brain tissue, and metabolic functions, has been demonstrated to have a strong association with brain and intestine processes as a result of ongoing study on the human microbiome (Berding et al.2016). As it has been proposed that cytokines from infections within the digestive tract also may furthermore

cross the blood-brain barrier and trigger an immune reaction (come back) within the nervous system, which in turn may affect behaviour, the gut-brain axis also may contribute to the symptom that are associated with ASD (De Theije et al.2011).

2.1.7.2 Parenting in ASD

The method of nourishing and promoting a child's intellectual, non-cognitive, interpersonal, cultural, and physical growth from infancy to maturity is known as parenting. Parenting encompasses all aspects of raising a kid, not only those related to a biological bond (Brooks,2012).

A convoluted history of raising ASD children may be traced back to the 1943 belief that mothers were to blame for their child's autism (Narayanan, 2021). According to such theories, the emotionless and indifferent Refrigerator Mother mothers were the likely cause of autism (Narayanan, 2021).

Other well-known researchers in the subject, Bettelheim being the most well-known, have acknowledged the Refrigerator Mother notion. There is no scientific proof that mothers' lack of sensitivity, insensitivity to children's need, and sluggish response to their children's emotion is what causes their children to have autism (Keen et al.2007).

It is now well accepted that mothers are not the cause of their children's autism. Parents of ASD children have grown very concerned with their child's therapy, and in some circumstances, they serve as the first and crucial source for providing the treatments (Coolican et al.2010; Hardan et al.2015).

Parent participation is essential since having a child with ASD presents a variety of difficulties for the family unit. For instance, family planning is more flexible because of the transition issues that many ASD children experience, and because parent frequently lose their cool over their children's misbehaviour. (voluntarily or unwillingly) are compelled to stay away from social events; they often have to take on parental obligations, which might interfere with those tasks and have an adverse effect on family finance (Myers et al.2009).

There are many additional difficulties for the families to overcome as the child with ASD grows and develops. These difficulties have a significant negative influence on the mental health of the parent, their social and emotional well-being, and the functionality and closeness of the family (Gray et al. 2006).

2.2 Nutritional Condition of the Child with ASD

Gastrointestinal discomfort and challenging eating habits are 2 of the most prevalent issues among kids with Autism. Up to 90percent of ASD children were observed to have disrupted lunchtime behaviours, enhanced food choice (e.g., fussy eating), and food rejection as earlier as 1979. (Ahearn, et al; 2001; DeMeyer, 1979).

More lately, cross-sectional statistics from the 2003–2004 National Survey of Children's Health show that obese ASD children were 40percent greater probable than typically developing children (TDC) to have a BMI over the 95th percentile for their age (Curtin, Anderson, Must, & Bandini, 2010).

These statistics are especially concerning given the elevated risk of negative health impacts and chronic illnesses linked to obesity. An expanding area of inquiry examines the dietary habits and nutritional value of children with developmental difficulties, particularly those with ASD. A limited number of researchers (Raiten & Massaro, 1986; Klein & Nowak, 1999; Williams, et al., 2000; Ahearn et al., 2001) and anecdotal evidence/case reports indicate that picky eaters with ASD exhibit intolerances to particular textures, smells, colours, temperature levels, and trade marks of food products, all of which can negatively impact dietary quality. Furthermore, sensory oversensitivity to the flavour, texture, or aroma of certain meals may contribute to food choice in ASD children (Cermak, Curtin, & Bandini, 2010; Horvath & Perman, 2002). ASD children are more likely to have nutritional inadequacies due to mealtime issues, which can impose a load on parent and other caregiver (Bandini., et al.2010)

Nutritional therapies have gained popularity amongst family of ASD children during the last ten years. According to survey findings, between 15 and 38 percent of families have used or are actively utilising a nutritional treatment to assist address ASD symptoms (Green et al., 2004). The majority of dietary treatments for ASD manifestations entail removing at minimum one or more food groups from the child's diet, including grain (gluten), milk (casein), soya, additive, sugars, egg, and yeast (Cornish, 2002). Dietary interventions using a gluten- and casein-free (GFCF) diet are the most popular. Family may learn about food and dietary therapy from other families, websites, unpublished resources, organisations for people with autism, and alternative medicine practitioners (Arnold et al., 2003). Even though there is little to no evidence to substantiate or contradict the usefulness and

effectiveness of several nutritional therapies, they are nonetheless becoming more and more prevalent. Additionally, there is some evidence connecting the GFCF diet to poor bone growth, especially to a reduction in bones cortical thickness (Mulloy et al., 2010). The financial strain, time commitment, and potential increase in public isolation brought on by food limitations are all factors that contribute to the family's stress during certain dietary treatments (Mulloy., et al., 2010).

2.2.1 Eating Behaviors in ASD children

People with ASD children have particular difficulties at mealtime. When it comes to mealtime, certain inflexible rituals and behaviours that appear in ASD children may place restrictions on where, when, and what kinds of meals may be ingested. ASD children were demonstrated to have eating issues from an early age. According to results from a longitudinal research (Emond., et al. 2010), children who have been later diagnosed with Autism were much more probable to be slow eaters at six months of age and NT have difficulties switching to solid meals than TDC children. ASD children have been reported as being difficult to feed and picky eaters as they got older (15 to 54 months). At 38 and 54 months of age, they also had a considerably higher incidence of pica (i.e., seeking and ingestion of nonfood items) than TDC (typically developing children). Feeding issues in ASD children are concerning as they not only put caregivers under more stress, but also place them at a higher risk for nutrient problems that might harm their development and growth (Emond., et al.2010).

2.2.2 Picky Eating and Food Selectivity

Picky eaters are a trait often mentioned by parents of ASD children. The intake of a small variety (Carruth et al., 1998; Pliner & Hobden, 1992; Potts & Wardle, 1998) or amount (Rydell, Dahl, & Sundelin, 1995) of food and enhanced food choice, which may have been followed by frequent food rejection, are among the descriptions for fussy eating that vary (Bandini et al., 2010). Food choice was already demonstrated to relate to a food's texture and colour in addition to particular food kinds (Johnson, Handen, et al, 2008).

Particularly in comparison to families of children with TDC, families of ASD children have been significantly more likely to experience their children as picky eaters (79 versus 16 percent), reluctant to try new food (95 versus 47 percent), and less probable to consume food (16 versus 58 percent) in a study with 19 3- to 5-year-old kids (Lockner, Crowe, & Skipper. 2008). Similar to the previous research, another one revealed that ASD children rejected much more items as a proportion of those provided than did TDC (42 vs 19percent) depending on parental reporting using a customized food frequency questionnaire (Bandini et al., 2010). This conclusion was particularly relevant to veggies.

Another research found that, comparing to age- and sex-matched TDC, Two to 12-year-old ASD children had substantially worse self-feeding abilities, greater food avoidance behaviours, and more food neophobia (Martins, Young, & Robson, 2008). Furthermore, there was no discernible difference between children with TDC and ASD in terms of how much ritualistic feeding behaviour they exhibited . In conclusion, ASD children often exhibit picky eating and enhanced food choice. Almost all of these

eating habits have the potential to be harmful since they may limit the range of foods that are necessary for a healthy diet (Emond., et al. 2010).

2.2.3 Limited Food Variety

Children who are more picky eaters may have a diet with little diversity and face long-term nutritional difficulties. In a research without a TDC comparison group, 57 percent of kids with ASD or PDD-NOS showed preference for certain food types, such as protein, carbohydrate, fruits, or vegetables, or certain food textures, such as pureed vs nonpureed (Ahearn et al., 2001).

In addition, compared to families of TDC, parents of 5- to 12-year-old ASD children consistently reported more feed intake issues, including food refusal, needing particular utensils or presentation of food, accepting only foods with low texture, like carrot puree food products, and eating a restricted range of food (Schreck, Williams, & Smith, 2004). In a different research, families of children aged 3 to 11 with or without ASD were instructed to perform 3-day food diaries outlining their kids' nutritional consumption (Bandini., et al. 2010). The information revealed that, on general, ASD children consumed considerably fewer types of foods than their normally developing classmates (19 versus 23 foods) (Bandini., et al. 2010).

Likewise, results from a 174-item food frequency questionnaire used to evaluate children's food intake above a prolonged period of time (the past 12 month) revealed that ASD children ingested significantly fewer different types of food per month and thus displayed less food variety than their typically developing peer (34 versus 55 foods) (Zimmer et al., 2012).

Finally, results from a research of 7 to 10 year old boys with ASD and boys without ASD revealed that boys with ASD had a less diversified diet and focused their meal selections more on food texture than boys without ASD (Schmitt, Heiss, & Campbell, 2008). Furthermore, there were no significant differences in the boys' total nutritional status. Overall, these findings imply that, comparing to TDC, ASD children choose a smaller range of foods, that might affect the calibre of their nutrition.

2.2.4 Diet Quality

ASD children may be more prone to dietary deficits and poor food quality due to increased fussy feeding and a lack of dietary diversity. The information on macronutrient, food category, and micronutrient consumption in kids with ASD is included in the sections that follow.

Kim et al. (2014) studied changes in how vegetables and fruit are consumed by children between the ages of 2 and 18. Consuming more vegetables and fruit makes diets more nutritionally adequate, lowers the chance of contracting diseases and dying from them, and aids in weight control. To predict trend lines in children's fruits and vegetables intake in cup-equivalents for every 1,000 calories (CEPC) and trends by gender, age, racial group, economic status to poverty incidence, and overweight condition, the CDC analysed 1 day of 24-h diet and nutrition recounts from the National Health and Nutrition Examination Surveys from 2003 to 2010. Fruit juice and whole fruits made up the total amount of fruit (from 100 percent juices, food, and other beverage). White potatoe, all other vegetable, and the vegetable recommended in the 2010 Dietary Guidelines for Americans have been included in the total amount of fruits and veggies. The average yearly change

in CEPC each year was determined utilizing regression analysis and was given as a percent to assess patterns in fruits and vegetables intake. T-tests have been performed to analyse sociodemographic changes in fruits and vegetables sub- groups between 2009 and 2010. Children's total fruit fruit consumption consumption grew from 0.55 CEPC in 2003–2004 to 0.62 CEPC in 2009–2010 as a result of notable increases in whole fruits consumption (0.24 to 0.40 CEPC). Fruit juice consumption drastically dropped during this time (0.31 to 0.22 CEPC). No difference in total vegetable consumption was observed (0.54 to 0.53 CEPC). As a result of the rising in whole fruits eating, children's overall fruits intake rose, but their total vegetables intake stayed the same.

2.2.4.1 Macronutrient and Food Group Intake

Concerning macronutrient consumption, numerous researchers suggest no appreciable difference between ASD children and TDC in complete consumption of carbohydrates (Emond et al., 2010; Herndon et al, 2009; Johnson et al., 2008; Zimmer et al., 2012), fat (Emond et al., 2010; Herndon et al., 2009; Johnson et al., 2008; Zimmer et al., 2012). While statistics from one research (Zimmer et al., 2012) had shown significantly decreased proteins intake for 8-year-old ASD children comparision to TDC, statistics of another research (Herndon et al., 2009) exhibited significant more proteins servings each day for 2- to 8-year-old ASD children than TDC. Identical findings were made by Levy et al. (2007) in their research of 3- to 8-year-old ASD children, who discovered that most of their sample surpassed the daily recommended requirements for proteins. Neither of the aforementioned investigations discovered any significant variations in daily calorie consumption between TDC and ASD kids.

Comparing the consumption of different food groups by ASD children and TDC is difficult due to a lack of data. According to data from a cross-sectional research (Herndon et al., 2009), children in both groups did not vary significantly in their everyday intake levels of the majority of other food groups, such as vegetables and sweets/empty calorie foods, despite the fact that ASD children consumed significantly fewer servings of dairy than TDC. In this research, older ASD children (4 to 8 years old) ingested more daily portions of fruit than TDC in the same age range. To uncover possible sub-groups of food which ASD children could be hesitant to consume, more research that do a more in-depth investigation of consumption of certain types of food within food categories are required. To check for possible nutritional deficiencies, it is crucial to look at children's micronutrient consumption in addition to their intake of macronutrients and dietary groups (Herndon et al., 2009).

2.2.4.2 Micronutrient Intake

Research has found little significant between-group variations in the nutritious sufficiency of children's foods, regardless of the fact that it has been discovered that fussy eaters with Autism usually exhibit more levels of selectiveness in their dietary choices than TDC. Consumption of 7 mineral, 9 vitamin, fatty acids, and fibre did not change statistically significantly across groups in a research that comprised a sample of children with Autism and TDC with an average age of three years (Johnson et al., 2008). Furthermore, when utilising information from 24-h meal recall, vitamin K consumption was considerably lower for kids with Autism. Furthermore, utilising information from a meal frequency questionnaires in the same research, there was just a tendency for a change in vitamin K consumption.

One research revealed that ASD children and TDC consumed equivalent amounts of nutrients (Lockner et al., 2008). Even so, the researchers did note that, comparison to TDC (20percent), a higher percentage of ASD children (53percent) had intakes of vitamin A that were below the approximate annual requirements, that is described as providing sufficient nutrients for 50percent of the population. Regrettably, it is still unknown whether this variation was statistically significant. Additionally, comparing to TDC, more ASD children received vitamins and minerals supplement, according to this research. The scientists ascribed this, in least, to families of picky eaters or children who regularly reject meals having a higher awareness for nutrition sufficiency (Lockner et al., 2008).

ASD children and TDC may both be at risk, according to studies that did identify specific dietary deficits. ASD children and TDC had similar average nutritional intake, according to a research that evaluated the nutritional status of Two to 8-year-old kids (Herndon et al., 2009). Their findings revealed that a significant majority of kids in both groups did not consume enough fibre, iron, calcium, vit E, or vit D to fulfil the dietary reference intake (DRI) guidelines. Compared to TDC, ASD children ingested much more vitamin B6 and E but significantly lesser calcium. The installation of a special diet (e.g., gluten-free, casein-free) by parents of ASD children who feel that such special diets can assist enhance their children's ASD symptom is credited by the researchers for some of the nutritional variations between the 2 categories. According to a recent comprehensive analysis of gluten-free and/or casein-free (GFCF) foods, there is currently no proof that the GFCG diet helps reduce the symptom of ASD (Mulloy et al., 2010).

Three-days food record were used to assess the nutritional consumption of children aged three to eleven, and the results revealed that ASD children are more likely than TDC children to have insufficient intake of vit D, A and calcium. (Bandini et al., 2010). Researchers also found that kids with a limited range of meal options were more willing to consume insufficient amounts of nutrients.

According to evidence from a different research (Zimmer et al., 2012), ASD children who exhibit a high level of food choices may be more susceptible to nutritional deficits than other children. In that research, a semi-quantitative food frequency questionnaires was used to evaluate nutritional consumption in ASD children and TDC who had an average age of eight years. According to the findings, choose eaters with ASD and TDC had a higher risk of not getting enough nutrients than non-selective eaters with ASD and TDC. Particularly, choosy eaters with ASD were more likely to have nutritional deficits, which were indicated by failing to achieve the EAR standards for zinc, calcium, vitamin D, and B12 (Zimmer et al., 2012).

2.3 Investigating a Nutritional Connection in Children with an ASD

Children with an ASD tend to consume a different diet than children who are usually developed (Herndon et al., 2009). Despite the fact that nutritional consumption seems to vary between ASD children and generally developed children, the study has produced inconsistent findings (Zimmer et al., 2012).

Children who have been delivered between April 1992 and December 1999 and resided in Avon, England were the subjects of a prospective research by Emond and colleagues (2010) that used a population-based

dataset to assess eating habits, nutrition, and growth. The pregnant women (n=14,541) enrolled while they were expecting. 12,901 children who had been usually developed and 79 children with an Autism have been enrolled in the research. Each mother filled out a form on their demographics, their health, and a food frequency questionnaire (FFQ). The FFQ findings showed that, in comparison to normally developed children, children with an ASD ingested less fresh fruits, vegetable, and salad (p.05), but also less sugar and carbonated drinks. When compare these two groups' consumption of total macronutrients (total carbs, total proteins, and total fats), there have been no significant variations (Emond et al., 2010).

As per Johnson and colleagues (2008), there have been no significant changes in the consumption of macronutrients between children with an ASD (n=19) and normally developed children (n=15). A Feeding Assessment Survey, a Food Frequency Questionnaire (FFQ), a 24-h food consumption questionnaire, and a Child Behavior Checklist were among the questionnaires given to enrolled parents (Achenbach. 2000). While there were variations in the sorts of meals that the two groups preferred, four out of the ten feeding assessment items revealed significant difference in eating patterns between the ASD children and the kids who were growing normally. According to parent accounts, children with an ASD tossed food more frequently (p=.03), rejected meals of a particular texture, colour, and category more frequently (p.008, p.000), and did so more frequently than children who had been usually developed (Johnson et al., 2008).

All three sensory assessments showed significant differences between group in terms of mean score, with the ASD group exhibiting the greatest sensory disparities (p =.001). The BAMBI total score revealed significant

variations across the groups as well (p =.001). In contrast to the TD group, which had a BAMBI score of 30, the ASD group had a grade of 44.39, showing that ASD children experienced greater issues with their conduct during meals. Therefore, independent-samples t tests revealed that the ASD group had considerably more sensory impairments and behavioural issues during meals than the TD group. For every group, correlational tests were carried, and for the ASD group, moderate to substantial connections between eating habits and the sensory measurements were found. With all SSP subscales, a 2 x 7 ANOVA found a significant differences in between groups (p .001). In order to reduce possible bias and improve objectivity, future research must incorporate more quantitative and qualitative data collected on every subject, including more direct evaluation and inspection of prospective feeding and tactile patterns.

In conclusion, ASD children are more likely to exhibit repetitive behaviours, sensory impairments, and greater food avoidance behaviours, as well as have more difficult mealtimes. Additionally, GI issues, such as anomalies in intestinal permeability, are more common in ASD children. Therefore, some of these nutrition-related issues might lead to dietary deficits, endangering healthy growth and development (Eaves and Ho, 2008).

2.4 Previous Studies:

2.4.1 First study

"Nutritional Status of Pre-school Children and Determinant Factors of Autism: A Case-Control Study". (Alkhalidy et al,. 2021)

This research compared the nutritional health of preschool-aged autistic children to those of typically developing (TD) child their age. The research

also identified some of the Jordanian population's ASD risk factors. It took into account socio- demographic, maternity, and nutritional aspects of the 2 groups, ranked by sex, that include 52 ASD and 51 TD child (ages 3-6). An extensive questionnaires, a 3-day food journal, as well as anthropometric and biochemical measures were used to assess nutrient intake. The study found few differences in biochemical-nutritional deficiencies and inadequate nutrient intake between ASD children and TD, but it did find gender-based differences. When compared to TD kids, autistic boys were more likely to have inadequate vitamin E, K and fluoride consumption, while autistic girls were more likely to have inadequate carbohydrate consumption. Compared to TD children, more autistic children reported they were receive postnatal care in newborn care facilities.

2.4.2 Second study

"Dietary Patterns, Eating Behavior, and Nutrient Intakes of Spanish Preschool Children with Autism Spectrum Disorders". (Plaza-Diaz et al.2021)

In this research, preschool-aged Spanish ASD children were compared to normally developing control children to establish their DPs and macro- and micronutrient intake. The Diagnostic Manual-5 criteria have been used to diagnose 54 Autism patients between the ages of 2 and 6, while 57 normally developing children between the same ages were used as a control group. Utilizing a standard FFQ, three non-consecutive 24-hour dietary registration were utilised to estimate the consumption of calories and nutrient. Autistic children showed a DP with high energy and fats intake and low intake of fruit and vegetable. Similarly, increased consumption of fishes and fat intake were

linked to meat consumption of any kind, including lean and fatty meat. Additionally, there was a correlation between rising dairy product consumption and rising cereal and pasta consumption. Furthermore, they regularly consumed produced foods with low nutritional value, such as drinks, candies, snacks, and bakery goods. When compared to control children, the percentages of ASD children who met the recommended nutritional intake have been greater for calories, fat content, calcium, and vitamin C, and decreased for iodine, iron, and vitamin of group B.

2.4.3 Third study

Characteristics of autistic children's diet and nutritional status.

The study's objective was to examine the eating patterns of kids with ASD. In Autism, disordered eating and disease of the GIT coexist with physical developmental problems that affect body weight both upwards and downwards. Inflammation and function of GIT abnormalities, immune system alterations, alterations in the nervous system's autonomic state, and alterations in the microbiome of the GIT are all linked to gastrointestinal system disorders. The development of the GIT problems is accelerated and the dietary health of ASD children who have eating disorder is negatively affected. An overabundance of calorie in the food (or a dramatic fall in it), an increased intake of fats, sugars, and salts, a lack of vitamin, carotenoids, and mineral substances are all signs of poor nutrition in ASD children (calcium in 45.1 percent , lithium in 30-35 percent , potassium in 70 percent of ASD children). Dietary deficits in ASD have been reported to make the neuropsychiatric symptom worse. Vitamin deficiency causes metabolic abnormalities, slowed growth in both the physical and mental realms,

excessive weariness, endocrine malfunction, and worsening of ASD symptom.

2.4.4 Forth study

"Chinese preschoolers with autism spectrum disorder's nutrition and symptom were compared in two centers in the provinces of Chongqing and Hainan". (Zhu et al,.2020)

The study's objectives were to assess the nutrition and Autistic characteristics of preschoolers from 2 areas of China with ASD and to examine the relationship between the two. Methodologies: From Chongqing and Hainan in China, 302 normally developing (TD) children and 738 Autistic children have been selected for this cross-sectional research. The Autism Behavior Checklist (ABC), Social Responsiveness Scale (SRS), and Childhood Autism Rating Scale were used to assess Autistic characteristics in youngsters (CARS). The Gesell Developmental Scale was used to measure the neurodevelopment of ASD children (GDS).

Anthropometric measurements, biochemical micronutrient identification, and giving questionnaires and food frequency questionnaires (FFQ) to caregiver were used to assess nutrition. Results: In both locations, when ASD children were compared to local TD children, ASD children consumed less whole grain, dairy foods, bean and soy protein, vegetable, and fruit. Folate, vitamin B12 (VB12), and vit D blood concentrations were markedly lower in ASD kids in both areas. ASD children in Chongqing exhibited significantly greater mean CARS, SRS, and ABC scores than those in Hainan when comparing the two areas' ASD populations. Compared to those in Hainan, the Chongqing ASD kids eat less fruits, whole grains, and seafood. ASD children

in Chongqing had lower blood levels of ferritin, vit A , VB12, and VD than that in Hainan, and they had elevated levels of zinc, ferritin, VA, and VD insufficiency than ASD children in Hainan. A negative correlation between the blood levels of VA, VD, and folate and the symptom ratings of ASD children were observed. The GDS score of ASD children showed a favourable correlation with VD and zinc concentrations.

2.4.5 Fifth study

"A meta-analysis of variations in food intake and nutrient requirements between children with autism spectrum disorders and normally developing kids". (Esteban-Figuerola et al.2019)

The objectives of this meta-analysis are to ascertain the overall variances in dietary habits and food intake between ASD children and control (TD) children, as well as to ascertain the degree to which the dietary guidelines are followed by autistic children. ASD children ingest fewer proteins ("standardised mean difference = -0.27, 95 percent confidence interval (-0.45, -0.08)), calcium (-0.56 (-0.95, -0.16), phosphorus (-0.23 (-0.41, -0.04), selenium (-0.29 (-0.44, -0.13), vitamin D (-0.34 (-0.57, -0.11)), thiamine (-0.17 (-0.29, -0.05), ribofla. In addition, autistic children consume more fruit and vegetables (0.35) and less omega-3 fatty acids (-0.83 (-1.53, -0.16)") than control children. However, these findings should be interpreted cautiously due to the small number of research included in the assessment and the high degree of heterogeneity. The findings also point to lower-than-recommended consumption of calcium, vit D, and dairy products and higher-than-recommended consumption of fruits, vegetable, proteins, phosphorous, thiamine, selenium, riboflavin, and vitamin B12.

2.4.6 Sixth study

Children with Autism Spectrum Disorder and Excessive Food Selectivity: A Review of Electronic Medical Records on Dietary Intake, Nutrient Uptake, and Growth Parameters. (Sharp et al.2018)

The goal of this research was to assess the anthropometric measurements, risk factors for nutrient deficiencies, dietary diversity, and problematic mealtime behaviours in a group of kids with extreme food selection associated with ASD. Design: A cross-sectional examination of electronic medical records was conducted for the research. A methodical process was followed for data extraction. Results: Of the 279 patients tested over the course of 24 months, 70 kids with significant food selectivity and ASD satisfied the criteria for inclusion. Vitamin D (97 percent of the sample), fibre (91 percent), vitamin E (83 percent), and calcium were at risk for particular deficiencies (71 percent). A higher likelihood of unfavourable comments during meals was seen in children (n=55) with 5 or more dietary deficiencies (P 0.05). Obesity or stunted development was not linked to severe dietary selectivity.

2.4.7 Seventh study

Egyptian children with autism spectrum disorders and healthy, growing youngsters were compared for dietary sufficiency (Meguid et al.2017)

There were significant positive connections between blood levels of magnesium, iron, calcium, vitamin B12, and folate and their dietary intake. These findings supported the observation of several dietary deficiencies in autistic Egyptian youngsters. According to the information presented in this research, it is advised to evaluate ASD children's nutrient intake for nutrient

sufficiency in order to correct any nutritional deficiencies by diet or by giving them the proper vitamins and minerals supplementation.

2.4.8 Eighth study

"Nutritional Survey of Children with Autism Spectrum Disorder in Chongqing, China, 2016: Correlation between Nutrition and Symptoms".

The anthropometric measurements, nutritional evaluations, and questionnaires concerning participants' eating habits and gastrointestinal symptoms were all performed on each participant. ASD children had substantially lower ZHA, ZWA, and ZBMIA scores than children without ASD. Additionally, the percentages of kids who showed extreme selective eating and severe aversion to trying new food, as well as those who reported feeling generally constipated and having severe eating issues, were greater among kids with ASD. Compared to the kids without ASD, these kids ingested a lot less macronutrients. Iron insufficiency was the second most common nutritional shortfall among ASD children. The content of vitamin A was shown to be adversely linked with the CARS score after correcting for sex. There was no connection between the CARS score and the levels of ferritin, folate, vit D, or vitamin B12. According to these findings, ASD children often have lower macronutrient intakes, significant eating behaviour problems, constipation, and vit A deficiencies.

Chapter Three
Methodology

Chapter Three

Methodology

3.Methodology

This chapter explains the study design used for this research, which begin with the study design, ends with limitations of study.

3.1 Design of the Study :

A descriptive design of the study was used to assessment of parent's knowledge about nutritional status toward child with autism spectrum disorder (ASD) at autism centers in Babylon Governorate. from 1st / November / 2021 to 26st June 2022.

3.2 Administrative Agreements :

A series of arrangements and approvals have been done for the current study to obtain official consents and facilities include the following:

1. The first permission was gained from the "Babylon University/college of Nursing " to the Higher studies Committee by discussing the first seminar and obtaining approval to study the problem(Appendix A).
2. Research Ethical Committee at Faculty of Nursing/ University of Babylon's , to obtain approval of the ethical procedures and instruments used in the study (Appendix B).
3. An official permission, approval has been received from "Ministry of Health" /Babylon health directorate/ "Administrative orders to the following autistic centers in Babylon province; for collecting the study sample(Appendix C).

4. The Faculty of Nursing University of Babylon's authorization to the Babylon General Health Directorate (Appendix D).

3.3 The settings of the study :

The existing study is directed at Babylon province at private autism centers that comprised of :

1. Babylon Autism center – Al-Ataba Al-Abaseia.
2. Babylon specialized center for autism and speech therapy
3. Almusayeb Autism center
4. Al-Rahma Autism center
5. Amal Autism center.

3.4 Study Population :

The population is gathered from the settings in Babylon province as shown in table below:

Percentage of study sample selection" in Babylon province centers :

No	Autism centers	Total NO. of admitted children	Frequency	Percentage 100 %
	Babylon Autism center – Al-Ataba Al-Abaseia.	150	45	30%
	Babylon specialized center for autism and speech therapy.	125	37	33.37%
	Almusayeb Autism center	150	45	30%
	AL-Rahma Autism center.	130	39	30%
	Amal Autism center.	115	34	30%
	Total Of Sample	670	200	30%

Convenience (non-probability) sampling consisted of (200) samples, which is chosen during the sampling process through the period from(27^{th} January 2022 to 5^{th} April 2022).

Children's age who included in this study where ranged from (1-6) years old.

3.5 The Study Instrument:

Study questionnaire in order to implement this study and reach all its objectives. A food frequency questionnaire (FFQ) \ Dietary pattern in recent 24 hours was prepared and modified after a thorough review of the relevant literature. The final study the questionnaire covers four parts. Study questionnaire in order to appliance of the current study and achieve the specified goals, through constructed and modified tool from literatures and articles appraisal, the final copy of the tool covers four parts as follows: (Appendix F).

Part 1: Demographical data : Personal information:

This section included the following ("age, gender, level of educational, economic status, marital status, child's gender, child's age").

Part 2: Child's Nutritional status .

This part consists of (General information about child's nutritional status regarding food and drinks, species and amounts, which involve of 15 items as multiple choice questions.

Part 3: Child's Physical activity

This part consists of (general information about child's physical activity which involve of 8 items, as multiple choice questions.

Part 4: Child's weight

This part consists of (general information about child's weight which involve of 14 items, as multiple choice questions.

3.6 Rating and Scoring :

The items were measured and scored in accordance with the following patterns:

1. Multiple choice questions are used to assess the nutritional status of children with autism for rating the items as true or false. The points are scored in as (1) for false and (2) for true and scored according to number of items.
2. Three levels Likert scales used to assess the nutritional status of children with autism for rating the items as never, sometimes, and always. The three points are scored in positive items as (1) for never, (2) for sometimes, and (3) for always, in negative items as (3) for never, (2) for sometimes, and (1) for always.

3.7 Validity of the instrument of study:

Content validity has been determined for evaluation of the tool through a panel of ten experts, these experts are (10) experts acquired the acceptability of our generated questionnaire who had an experience of minimum three years in their distinct field. The professionals who contributed in this study included, one from College of Medicine, of Babylon University, six from University of Babylon\ Nursing College, two joined from the University of Baghdad\ Nursing College, one from College of Nursing, Al-

Amid university college\Karbala. The mechanism was approved o be vibrant, sufficient and relevant by most of them. Amendments were made centered upon the recommendation and propositions of the connoisseurs.

The expert's opinion after revising and evaluating the study questionnaire which publicized that all of them approved upon the items; contents, clarity, relevance, adequacy, with minor modification made and done depending on the experts comments and suggestion (Appendix E)

3.8 Pilot of the study:

A systematic random sample of (20) parents which represent (10%) of the total study population who are founded in mentioned autism centers in Babylon province, Iraq, which was excluded from original number of the study population as some changes were made to refine the tool. The study was conducted from the period of 10th to 28th January 2022.

Pilot study revealed that**:**

A- The validity of the instrument was determined.

B- The sections of the questionnaire are clear, simple to know and sufficient to implicit the study.

C- Few changes are made related to some items.

D- The rate time demand for each self-report is nearly (25-30 minute) for each participant.

3.9 Study instrument reliability:

The instrument reliability was found by measuring the device's internal consistency with the Alpha coefficient of correlation (Cronbach's Alpha) as electronic (SPSS) program.

The reliability finding of the instrument was statistically acceptable on level (0.68); it means the instrument internal consistency and validity in measurability.

3.10 Methods of data collection:

Throughout the use of the questionnaire and the self-report, the data collected from those parents who were coming to the autism centers. The data collected on individual base for filling the questionnaire by parents themselves under the researcher supervision and each self-report takes between (25-30) minutes. The data collection was carried out for the period of (27^{th} January 2022 to 5^{th} April 2022).

3.11 Data Analysis Approach:

Analysis of the data in the current study was obtained by SPSS version 26. The frequency, percentage, mean, and SD have been used for descriptive statistics of the data. Independent t test, Chi-Square, and Pearson correlation were used for inferential statistics. The outcomes have been considered statistically significant when the P-value = 0.05.

3.11.1 Descriptive Statistics Analysis:

The continues (quantitative), variables presented as mean, standard deviation and range, while the categorical (qualitative) variables presented as frequency and percentages.

Chapter Four

Results

Chapter Four

Results

This chapter explains the important outcomes of the collected sample's data of the present study by tables and figures that match our objectives as shown below:

Table (1): Distribution of the parents demographic data.

Demographical features		Freq.	%
Age Groups (Years)	<25	10	5.0
	25-36	98	49.0
	36-45	55	27.5
	46-55	24	12.0
	>55	13	6.5
	Total	200	100%
Education level	No reading	32	16.0
	Educated	66	33.0
	primary	20	10.0
	Secondary	23	11.0
	Institute and above	59	29.5
	Total	200	100%
Marital status	Married	159	79.5
	Widow	20	10.0
	Separated	16	8.0
	Divorced	5	2.5
	Total	200	100%
Monthly Income	Enough	88	44.0
	Enough to certain limit	87	43.5
	Not enough	25	12.5
	Total	200	100%
Gender	Male	126	63.0
	Female	74	37.0
	Total	200	100%

Table (1) shows that the majority of ages of sample were within the 25-36 years old category by about (49.0%). The majority of the study's participants (33.0% and 59.0%) were educated and in institute school respectively. See the figures (1 and 2).

In addition, this table shows that the majority of the study samples (79.5%) were married. See the figures (3).

Regard the Income, the table shows that more than half of the participants within the Enough to certain limit income. See the figures (4).

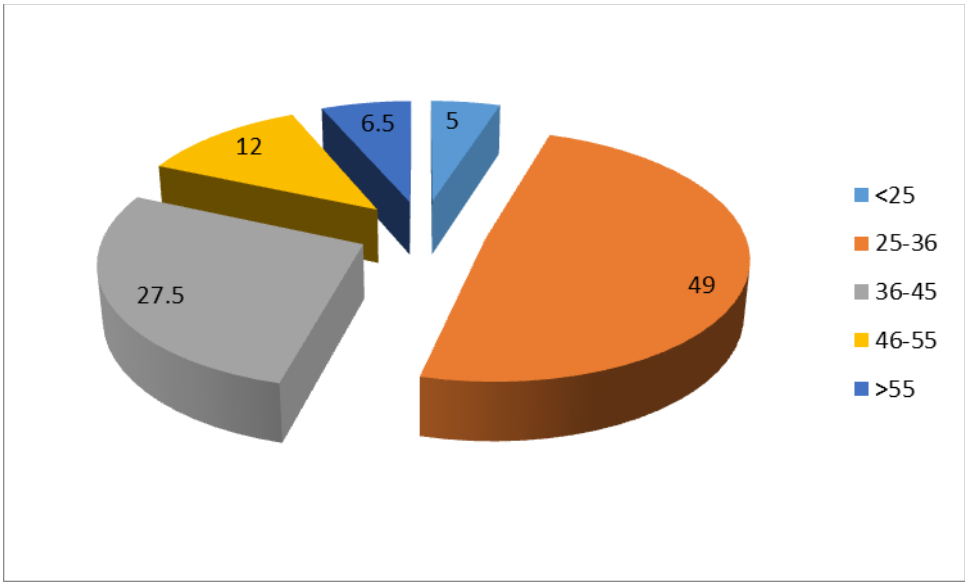

Figure (1): Bar Chart distributions of the study samples depending on Age Groups.

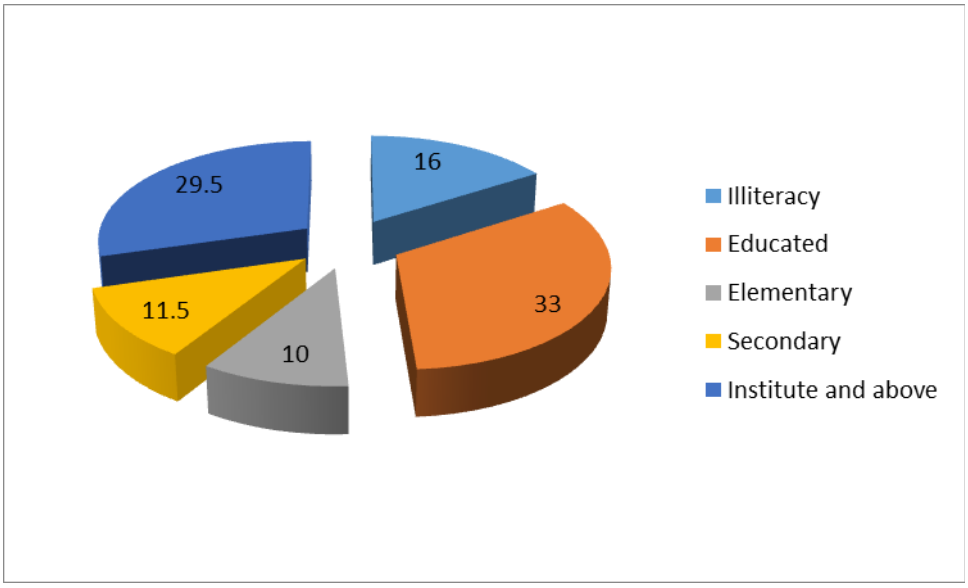

Figure (2): Bar Chart distributions of the study sample depending on Education.

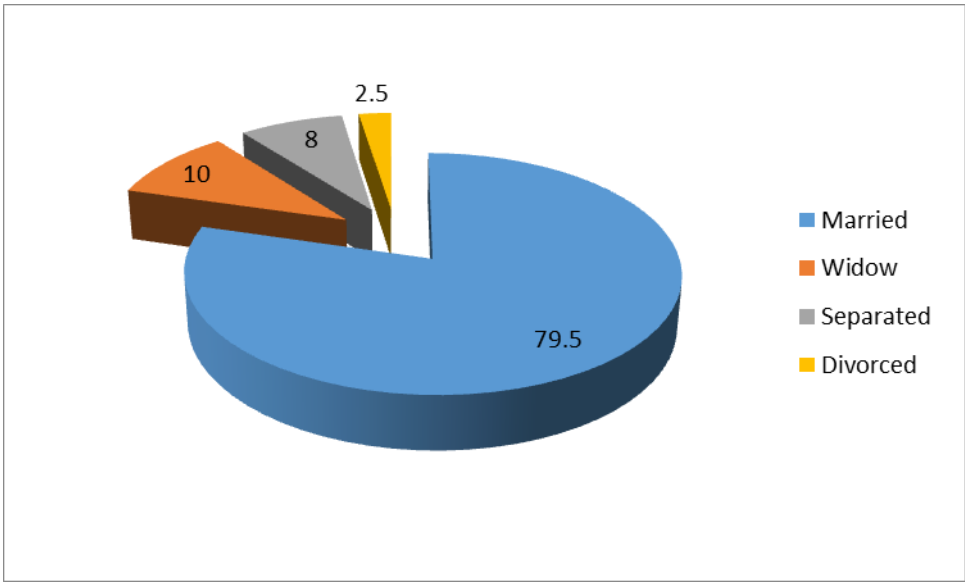

Figure (3): Bar Chart distributions of the study samples depending on Martial status.

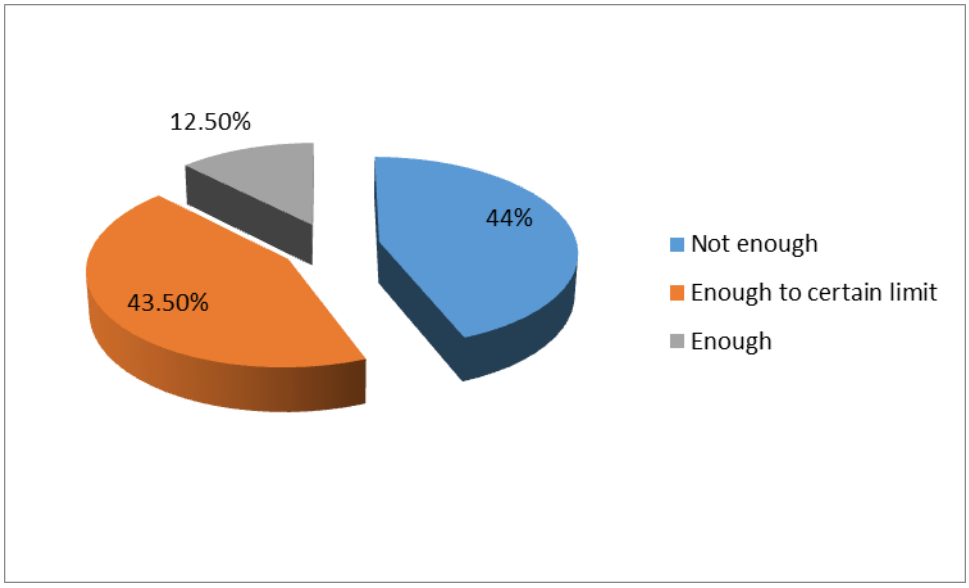

Figure (4): Bar Chart distributions of the study samples depending on Income.

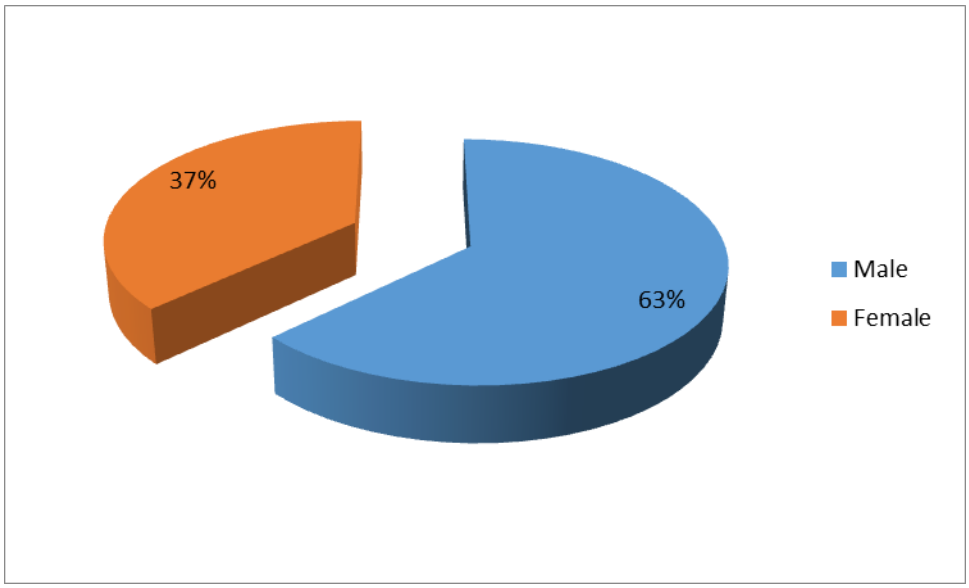

Figure (5): Bar Chart distributions of the study samples according to gender.

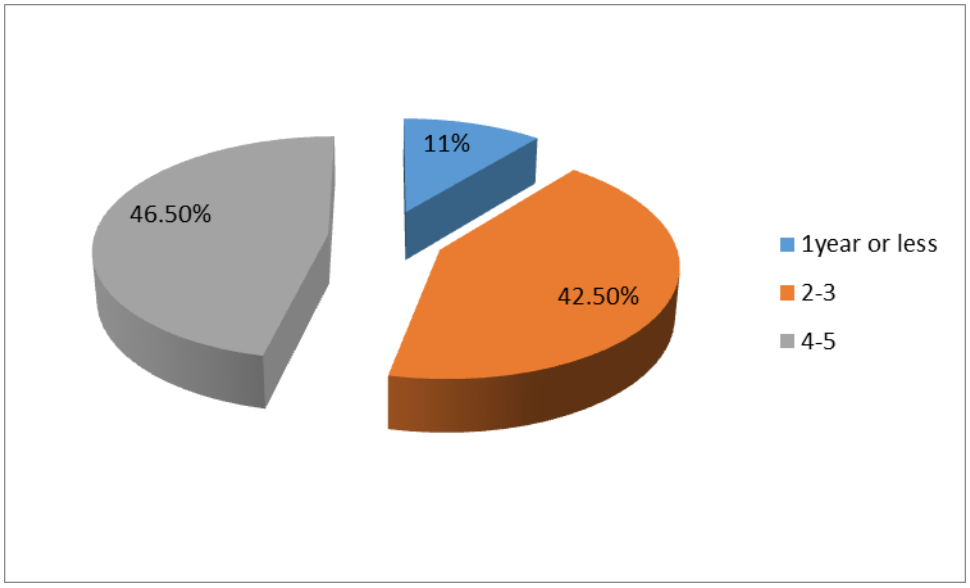

Figure (6): Bi Chart distributions of the study samples depending on the child age.

Table (2): Statistical distribution of nutritional status of children with autism spectrum disease.

Nutritional status -Items		Freq.	%	Mean ± SD	Asses
nutritional status balance	Balanced	137	68	1.33±0.5	Mild
	Unbalanced	63	31.5		
autism affect the nutritional behavior	Yes	98	49	1.66±0.74	Mild
	I don't know	73	36.5		
	No	29	14.5		
How autism affect the nutritional behavior	Selective	109	62.6	1.32±1.02	Mild
	Obsessed	53	30.5		
	Loss of appetite	12	5.2		
barriers or factor that	Vomiting	28	14	3.44±2.2	Severe
	Swallowing difficulty	65	32.5		
	Refuse to eat	40	20		

prevents your child from getting a balanced nutrition	Eats a lot	14	7		
	Insufficient eating	17	8.5		
	Carrying the food by mouth	9	4.5		
	Tingling and pain with eating	1	5		
	Nothing	26	13		
daily consumption of water	0-250 ml	79	39.5	2.47±1.11	Moderate
	250-500ml	79	39.5		
	500-750ml	39	19.5		
	750-1000ml	3	1.5		
fruit eaten (fresh or frozen, but not juiced?).	0	79	39.5	1.83±0.79	Mild
	1-2	79	39.5		
	3-4	39	19.5		
	5-6	3	1.5		
	6 or more	0	0		
vegetables (fresh, frozen or canned)	0	76	38	1.86±0.78	Mild
	1-2	78	39		
	3-4	44	22		
	5-6	2	1		
	6 or more	0	0		
dairy products (cow's milk or cheese) eaten?	0	65	32.5	1.93±0.76	Moderate
	1-2	84	42		
	3-4	51	25.5		
	5-6	0	0		
	6 or more	0	0		
milk substitute (soy milk, rice milk or almond milk)	0	48	24	2.06±0.74	Moderate
	1-2	93	46.5		
	3-4	58	29		
	5-6	1	5		
	6 or more	0	0		
meat (beef, chicken, turkey, fish, eggs).	0	75	37.5	1.87±0.77	Moderate
	1-2	76	38		
	3-4	49	24.5		
	5-6	0	0		

	6 or more	**0**	**0**		
other protein foods (nuts, better nuts, legumes).	**0**	**43**	**21.5**	**2.16±0.75**	**Moderate**
	1-2	**82**	**41**		
	3-4	**75**	**37.5**		
	5-6	**0**	**0**		
	6 or more	**0**	**0**		
cereals (bread, rice, noodles, crackers, burgers).	**0**	**36**	**18**	**2.29±0.75**	**Severe**
	1-2	**69**	**34.5**		
	3-4	**95**	**47.5**		
	5-6	**0**	**0**		
	6 or more	**0**	**0**		
sweets (chocolate, candy, ice cream, cookies).	**0**	**38**	**19**	**2.29±0.76**	**Severe**
	1-2	**66**	**33**		
	3-4	**96**	**48**		
	5-6	**0**	**0**		
	6 or more	**0**	**0**		
fats (butter, margarine, vegetable oil, olive oil).	**0**	**26**	**13**	**2.39±0.70**	**Severe**
	1-2	**70**	**35**		
	3-4	**104**	**52**		
	5-6	**0**	**0**		
	6 or more	**0**	**0**		
fast food (cheeseburger, chicken strips, pizza).	**0**	**45**	**22.5**	**2.12±0.74**	**Moderate**
	1-2	**85**	**42.5**		
	3-4	**70**	**35**		
	5-6	**0**	**0**		
	6 or more	**0**	**0**		

In regard to the Nutritional status Items, the table (2) reveals that the subjects' responses were severe at many items (means of scores were 2.246 and more).

Table (3): Statistical distribution of overall nutritional status domain

Nutritional status Domain		Freq.	%	Mean ± SD	Assess.
Nutritional status	Mild	5	33.33	2.068±0.51	Moderate
	Moderate	6	40		
	Severe	4	26.66		

Abbreviation: SD=Standard Deviation, "Mild" when Mean of score (<=1.86), "Moderate" when Mean of score (1.86-2.246), and "Severe" when Mean of score (2.246 and more).

Concerning the Nutritional status Domain, the table (3) reveals that the subjects' responses were Moderate at overall domain (means of score was 2.068).

Table (4): Distributions of physical activity Items

Physical activity		Freq.	%	Mean ± SD	Assess
child's physical activity attendance	Active	82	41	1.68±0.68	Moderate
	Inactive	118	59		
When you think of a routine week, how many days is your child active? _____ days a week	3.01±1.87				Severe
days is your child most active	Weekdays	134	67	1.53±1.06	Mild
	Weekends	48	24		
	Never	18	9		
4. Does autism	Increase	97	48.5	1.67±0.75	Mild
	Decrease	67	33.5		

affect the level of physical activity of your child?	**No effect**	**34**	**17**		
Using electronic devices	**Yes**	**149**	**74.5**	**1.3±0.54**	**Mild**
	No	**51**	**25.5**		
Time spent on electronic devices	**Long**	**64**	**32**	**1.9±0.77**	**Moderate**
	Fair	**92**	**46**		
	Short	**40**	**20**		
The most used devices Electronic (TV, mobile, computer) is for:	**Video games**	**94**	**47**	**1.7±0.74**	**Moderate**
	Learning	**72**	**36**		
	Entertainment	**34**	**17**		
Do your child's special needs increase or decrease the time of physical inactivity?	**Increase**	**60**	**30**	**2.03±0.79**	**Severe**
	Decrease	**73**	**36.5**		
	No effect	**67**	**33.5**		

Abbreviation: SD=Standard Deviation, "Mild" when Mean of score (<=1.67), "Moderate" when Mean of score (1.67-1.9), and "Severe" when Mean of score (1.9 and more).

In regard to the physical activity Items, the table (4) reveals that the subjects' responses were severe at 2 items (means of scores were 1.9 and more).

Table (5): Statistical distribution of overall Physical activity Domain

Physical activity Domain		Freq.	%	Mean ± SD	Assess.
Physical activity	Mild	3	37.5	1.852±0.51	Moderate
	Moderate	3	37.5		
	Severe	2	25		

Abbreviation: SD=Standard Deviation, "Mild" when Mean of score (<=1.67), "Moderate" when Mean of score (1.67-1.9), and "Severe" when Mean of score (1.9 and more).

Concerning the Physical activity Domain, the table (5) reveals that the subjects' responses were Moderate at overall domain (means of score was 1.852).

Table (6): Statistical distribution of child weight Items

Child weight -Items		Freq.	%	Mean ± SD	Assess
1. BMI	Low	34	17	2.15±0.71	Severe
	Normal	106	53		
	Overweight	56	28		
	Obesity	4	2		
2. Research indicates that children with autism are more likely to develop obesity. Have you heard that before?	I know	92	46	1.55±0.53	Severe
	I don't know	108	54		
3. Is there a barrier or factor that prevents your child from maintaining a healthy weight? If yes, what are they?	Yes	170	85	1.15±0.35	Mild
	No	30	15		
	Laziness	48	24		
	Others	2	1		

4. health agencies teach you about managing your child's weight?	**Public hospital**	**130**	**65**	**1.35±0.47**	**Moderate**
	Private hospital	**70**	**35**		
5. What health agencies have informed you about weight management?	**Yes**	**106**	**53**	**1.47±0.51**	**Severe**
	No	**93**	**47**		
6. Have you been notified of your weight and your child's weight?	**Yes**	**138**	**69**	**1.32±0.49**	**Mild**
	No	**62**	**31**		
7. Have you been informed of the risk factors for your child's obesity?	**Yes**	**120**	**60**	**1.4±0.49**	**Moderate**
	No	**80**	**40**		
8. Were you educated about weight status?	**Yes**	**115**	**57.5**	**1.42±0.49**	**Severe**
	No	**85**	**42.5**		
9. Have you been advised how you can maintain weight?	**Yes**	**121**	**60.5**	**1.39±0.49**	**Moderate**
	No	**79**	**39.5**		
10. Have you been advised to choose healthy food?	**Yes**	**130**	**65**	**1.35±0.47**	**Moderate**
	No	**70**	**35**		
11. Have you been told that you are more active for your child?	**Yes**	**119**	**59.5**	**1.4±0.49**	**Moderate**
	No	**81**	**40.5**		

Abbreviation: SD=Standard Deviation, "Mild" when Mean of score (<=1.35), "Moderate" when Mean of score (1.35-1.413), and "Severe" when Mean of score (1.431 and more).

In regard to the child weight Items, the table (6) reveals that the subjects' responses were severe at 3 items (means of scores were 1.431 and more).

Table (7): Statistical distribution of overall child weight Domain

Child weight Domain		Freq.	%	Mean ± SD	Assess.
Child weight	Mild	3	25	1.435±0.245	Severe
	Moderate	5	33.33		
	Severe	4	41.66		

Abbreviation: SD=Standard Deviation, "Mild" when Mean of score (<=1.35), "Moderate" when Mean of score (1.35-1.413), and "Severe" when Mean of score (1.431 and more).

Concerning the child weight Domain, the table (7) reveals that the subjects' responses were Severe at overall domain (means of score was 1.435).

Table (8):a\ Association between parents' demographical characteristics and nutritional status.

Demographic data		Freq.	%	*Chi squire*	*DF*	*P*-value
Age Groups (Years)	<25	10	5.0	126.892	152	.932 NS
	25-36	98	49.0			
	36-45	55	27.5			
	46-55	24	12.0			
	>55	13	6.5			
Education level	Illiteracy	32	16.0	166.348	152	0.066 NS
	Educated	66	33.0			
	Elementary	20	10.0			
	Intermediate	23	11.0			
	Institute and above	59	29.5			
Marital status	Married	159	79.5	146.498	114	.022 S
	Widow	20	10.0			
	Separated	16	8.0			
	Divorced	5	2.5			
Monthly	Enough	88	44.0	92.753	76	.093

Income	Enough to certain limit	87	43.5			NS
	Not enough	25	12.5			

Table (8):b\ Association between Child's demographical characteristics and nutritional status.

Child age	Mean ± SD	2.93	1.23	91.192	76	.142 NS
Child gender	Male	126	63.0	46.104	38	.172 NS
	Female	74	37.0			
Total		200	100%			

Table (8) shows the relationship between demographical characteristics and nutritional status according to demographic categories. The table shows that there is statistically high significant relationship between Monthly Income and nutritional status (P-value = 0.036).

Table (9):a\ Association between parents' demographical characteristics and physical activity to demographic categories.

Demographic data		Freq.	%	*Chi squire*	*DF*	*P*-value
Age Groups (Years)	<25	10	5.0	519.487	476	.082 NS
	25-36	98	49.0			
	36-45	55	27.5			
	46-55	24	12.0			
	>55	13	6.5			
Education level	Don't read and write	32	16.0	531.613	476	.039 S
	Read and write	66	33.0			
	Primary	20	10.0			
	Secondary	23	11.0			
	Institute and above	59	29.5			
Marital status	Married	159	79.5	394.515	357	.083

	Widow	20	10.0			NS
	Separated	16	8.0			
	Divorced	5	2.5			
Monthly Income	Enough	88	44.0	253.110	238	.039 S
	Enough to certain limit	87	43.5			
	Not enough	25	12.5			

Table (9):b\ Association between child's demographical characteristics and physical activity.

Child age	Mean ± SD	2.93	1.23	277.926	238	.039 S
Child gender	Male	126	63.0	122.729	119	.007 S
	Female	74	37.0			
Total		200	100%			

Table (9) shows the association between Demographical characteristics and physical activity according to demographic categories. The table shows that there is statistically high significant relationship between Demographic data and physical activity (P-value > 0.05).

Table (10):a\ Association between parents' demographical characteristics and child weight.

Demographic data		Freq.	%	*Chi squire*	*DF*	*P*-value
Age Groups (Years)	<25	10	5.0	28.001	28	.483 NS
	25-36	98	49.0			
	36-45	55	27.5			
	46-55	24	12.0			
	>55	13	6.5			
Education level	Illiteracy	32	16.0	51.786	28	.004 S
	Educated	66	33.0			
	Elementary	20	10.0			
	Intermediate	23	11.0			

	Institute and above	59	29.5			
Marital status	Married	159	79.5	28.803	21	.119 NS
	Widow	20	10.0			
	Separated	16	8.0			
	Divorced	5	2.5			
Monthly Income	Enough	88	44.0	27.170	14	.018 S
	Enough to certain limit	87	43.5			
	Not enough	25	12.5			

Table (10) shows the association between demographical characteristics and child weight according to demographic categories. The table shows that there is statistically high significant relationship between Demographic data and child weight (P-value > 0.05).

Table (11): Correlation among studied Psychological status Domains and Social status Domains.

Studied Domains		Nutritional status	Physical activity	Child weight
Nutritional status	P.C		-0.231	-0.390
	Sig.		0.582	0.210
Physical activity	P.C	-0.231		0.173
	Sig.	0.582		0.683
Child weight	P.C	-0.390	0.173	
	Sig.	0.210	0.683	
	N	200	200	200

The table (11) show a no significant association between all the studied domains and scales at p-value ≤ 0.05

Chapter Five

Discussion of the Results

Chapter Five

Discussion of the Results

5.Discussion of the Results

This chapter discusses the Nursing Documentation and interpretation of the results Assessment of Parent's Knowledge about Nutritional Status toward child with Autism spectrum disorder (ASD) at autism centers in Babylon Governorate.

5.1. Discussion of the distribution of the studied sample according to their demographic data.

The results of study show that the majority of ages of sample were within the 25-36 years old category by about (49.0%). The majority of the study's participants (33.0% and 59.0%) were educated and in institute school respectively. In addition, this table shows that the majority of the study samples (79.5%) were married. Regard the income, the table shows that more than half of the participants within the enough to certain limit income, these finding supported by Klzilirmak, C. B. (2017) recorded according to recent graduate level of education; it was found that uneducated 2%, primary school 28%, secondary school 19%, high school 30%, college 22%. The parent population consists of predominantly high school and primary school graduates, also The average monthly income of the families is at the level of 1200-2000 TL. Those with income between 500-1200 TL 16%, 1200-2000 TL 38%, 2000-4000 TL 30%, 4000- 8000 TL 16%, more than 8000 TL 2%, respectively.

Concerning the Nutritional status Domain, the table (3) reveals that the subjects' responses were Moderate at overall domain (means of score was 2.068) ,supported by the majority of mothers agreed that their child's feeding behaviours affected their nutritional status. This underlines that mothers are aware that if their child has 'fussy eating habits', their nutritional status could be affected. This corresponds with the findings of Collins et al. (2003) who found that children with ASD showed 'fussy eating' behaviours and complex emotional responses to food because they have underdeveloped gastrointestinal tracts and problems with the digestive system

In regard to the Nutritional status Items, the table (2) reveals that the subjects' responses were severe at many items (means of scores were 2.246 and more) supported by Alotaibi, F.,2017 recorded 29 % of the mothers agreed that medication affected their children's nutritional status, while 58.5% disagreed with this view. The remaining 12.5% remained neutral.

Concerning the Physical activity Domain, the table (5) reveals that the subjects' responses were Moderate at overall domain (means of score was 1.852).

Although more often in those with neuro- developmental conditions like ASD. This research demonstrated that infants with Autism had much greater rate of difficulties when switching to supplemental diet and nutrition in infants, which is consistent with previous research. Currently, it was discovered that these children are pickier eaters and had a fewer diversified meals. According to earlier research, selected feeding is more common in children of Autism

(Sohel, ketal2021), and in this investigation, the kids in the research team consumed less foods overall. Intentional feeding and tactile integration issues, particularly oral sensory sensitivity in autistic children, have been linked in past years. Liem et al. research, that include 53 ASD children and 58 normal, revealed that mouth tactile perception in eating was linked to improper eating behaviour, compulsive eating patterns, and refusal of new food. Yet, it was said that feeding issues, along with restriction, repetition, and stereotyped interest and behaviour, are some of the fundamental traits of autism. There have been growing ideas that emphasise the sensory aspects of food and suggest that eating disorders may be treated quickly (Barnhill et al. 2018).

Positive or negative emotional impulses are hypothesised to promote change in eating behaviours in which eating behaviour exhibits similarities to change in emotional condition. Lack of appetite and decreased food consumption could be a normal physiologic reaction when confronted with bad sentiments since the physiologic reactions shown after stressful or negative emotion are comparable to the sensations of satiation following nourishment (Ersoy,etal;2020).

Even though it was shown in the past that emotional eating is linked to both obesity and eating disorder including bulimia nervosa and bingeing. In this research, the ASD group had considerably higher ratings for emotional under-eating, emotion overeat, and emotional eating. This may have been due to the likely association between

emotional feeding ,eating , behaviour issues, impatience, and trouble managing emotion in Autism .

According to this research, families who are less educated are more likely to have children who are autistic. The outcomes were in line with a research that compared Autism and TD youngsters in China. Lower schooling amongst mother with Autism in India, but not amongst father, was linked to a greater prevalence of Autism in children. The change, although, was insignificant. In contrast, a Chinese research found that parents of children with Autism had greater parental educational levels than those of children with TDs (engüzel, et al.,2021).

Concerning the child weight Domain, the table (7) reveals that the subjects' responses were Severe at overall domain (means of score was 1.435).other study recorded The average BMI for normal children was 19.30 and that for children with autism spectrum disorder was 18.29. Table III display that Children with autism spectrum disorder were mostly underweight as compared to normal children(Sohel, M. I.,2021).

5.2. Distribution of the studied sample according to Education.

In regard to the Nutritional status items, it reveals that the subjects’ responses were severe at many items (means of scores were 2.246 and more),concerning the Nutritional status Domain, it reveals that the subjects' responses were Moderate at overall domain (means of score was 2.068), concerning the Physical activity Domain, reveals

that the subjects' responses were Moderate at overall domain (means of score was 1.852), In regard to the child weight Items, reveals that the subjects' responses were severe at 3 items (means of scores were 1.431 and more), Concerning the child weight Domain, it reveals that the subjects' responses were Severe at overall domain (means of score was 1.435), which shows a no high significant association between all the studied domains and scales at p-value $\leq$ 0.0 supported by Klzilirmak, C. B. (2017) recorded Families of children with autism were asked whether the being physically active changes the day of the week. Some parents stated that their children were more active on weekdays, and some of them stated that their children were more active on weekends. Some of parents stated that their activity status has not changed. 25% of children during the week days, 20% of children on the weekend are more active. 55% of children, the situations are not changed according to activity day,other study A higher percentage, 47.5%, stated that they were neutral, while a small percentage of 17% disagreed, implying that they did have basic nutritional knowledge. When asked if they would like to obtain nutritional information, 79.5% of the respondents agreed that they were willing to obtain more information. 8% responded that they did not know and 12.5% said they were not ready to obtain more nutritional information. Lastly, the participants were asked if they had seen a dietitian for their child. The majority of the mothers (44%) had not visited a dietitian for their child. Only 25.5% had made that visit, while 30.5% were neutral (Alotaibi, F., & Alharbi, M. (2017).

Although our study showed a similar trend to one where the loss of breast - feeding had been significantly higher among Children with autism spectrum disorder, this Indian study showed a difference between both the ASD and TD children who have been breastfeding. Unexpectantly, a study revealed that breastfeed right after release may be linked to a higher risk of ASD (Siddiqi, etal;2019) .

Shows the relationship between demographical characteristics and nutritional status according to demographic categories. The table shows that there is statistically high significant relationship between Monthly Income and nutritional status (P-value = 0.036),This study confirms the findings from previous research that there is no relationship between ASD and smoking while pregnant. Even so, a higher percentage of Children with autism spectrum disorder in Iraq have been born to smoking mother, which may have been associated to economic factors rather. The consumption of folic acid as well as other mother supplement is another maternal health factor associated with a reduced risk of autism. According to Levine et al., taking multivitamins and/or folic acid while pregnant is correlated with significantly lower risk of ASD. The adjustment of nutrient problems and folate may be the cause of this reduction in the risk of ASD(Klzilirmak, C. B. (2017) .

There could be a cultural component to dietary issues since a child's hunger may be viewed as an indication of health and seeming weak can cause anxiety, particularly among mother in Iraq .

Additional drawback of the research was the use of scale instruments to evaluate historical eating patterns and nutrition behaviour, as well as the use of parents' recollections. Although these drawbacks, this research is among the few to examine the eating practises of caregivers and children with Autistic in contrast to a control group.

Other advantages of our research include comparisons with children of the same ages and sex, parents from comparable socio-economic backgrounds, and the exclusion of drug use. The development and growth of such children would be greatly aided by recognizing the dietary and food issues that affect ASD children, figuring out the long-term repercussions of these issues, and developing early detection approaches. However, several investigations have discovered no connection between regulating feeding practices and consuming too much energy-dense food, children's BMI, and fat percentage levels. When a kid is sad, restless, or agitated, emotional eating entails providing food, whereas mechanical eating is providing foods as a reward whenever the child eats a meal they do not like or exhibits a desired behaviour. It is well established that children's dietary preferences and the onset of obesity are influenced by both instrumental and emotional eating approaches. In this research, the Autistic group received considerably higher marks for emotional eating, technical eating, and tolerance-controlled eating when it came to parental feeding approaches. Just the prompting/encouraging eating approach was shown to be greater in

the children with Autism spectrum disorder in two investigations compared the parent eating methods (Medicaletal;2022).

Although this research contradicts our results. Children with Autism spectrum disorder had a higher risk of obesity, according to previous research, and a study by Curtin et al. depending on data from the American National Pediatric Health Survey found that the obesity rate for children with developmental disabilities aged 3 to 17 years was 30.4percent. (El-Gamaletal;2021).

The association between Demographical characteristics and physical activity according to demographic categories. The table shows that there is statistically high significant relationship between Demographic data and physical activity (P-value > 0.05).another study record physical activity and demographical characteristics related to age (Natércia etal., 2021).

Regarding the association between demographical characteristics and child weight according to demographic categories. The table shows that there is statistically high significant relationship between Demographic data and child weight (P-value > 0.05),another study shows that the mean height of normal children (1.42 meters) was comparatively more than that of children with autism spectrum disorder (1.26 meters) and it was statistically very highly significant (t = 6.23, p< 0.001). The mean weight of normal children was 39.65 kg and that of children with autism spectrum disorder was 30.77 kg. The difference was very highly significant (p= 4.19) Sohel, M. I.,2021).

Chapter Six

Conclusions and

Recommendation

Chapter Six

This chapter introduces conclusions that are resulting from the analysis and discussion of the study findings. The recommendations are established based on the research conclusions.

6.1 Conclusions

According to the interpretation of the results of this study, it can be concluded they follows:

1- The higher percentage of parents were educated, most of them were within (25-36 years) age group.
2- Most of child in the current study were less than three years mean age were 2.93 most of them were male.
3- The majority of parents reported a moderate level of nutritional status concerning their autistic children.
4- There is a significant association between nutritional status and parents' marital status.
5- There is a significant association between parents' level of education and monthly income with child's physical activity.
6- There is statistically high significant association between Child's age and gender with physical activity.
7- There is statistically high significant association between parents' educational level and monthly income with child weight.

6.2 Recommendations

In light of the findings of the present investigation, the authors suggested the following:

1. The findings of the study point in the direction of the sign of need to educating and training parents regarding nutritional standards for their autistic children.
2. Support governmental agencies and important stakeholders in improving the programs and facilities that will help to upsurge attentiveness and reinforce positive temperaments toward nutritional status for children with autism.
3. Development and expansion of the Ministry of Health's educational training programmes for parents on the topic of nutritional status and ASD.
4. Government and private health organizations should not be directed the only have treatable diseases, but should give attention to permanent and long-term resulted diseases. To raise the awareness of autistic child parents of are required. The necessary and detailed information should be given by a health care provider and should be followed.

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Appendices

List Of Experts:

ت	اسم الخبير	اللقب العلمي	الاختصاص	مكان العمل	سنوات الخبرة
.1	**د. أمين عجيل الياسري**	استاذ	تمريض صحة الاسرة والمجتمع	عميد كلية التمريض \ جامعة بابل	37
.2	**د. سلمى كاظم جهاد**	استاذ	تمريض صحة الاسرة والمجتمع	كلية التمريض\جامعة بابل	40
.3	**د. عبد المهدي عبد الرضا**	استاذ	تمريض الصحة النفسية	كلية التمريض\جامعة بابل	40
.4	**د. هاله سعدي**	استاذ	تمريض صحة مجتمع	كلية التمريض\ جامعة بغداد	24
.5	**د. نهاد محمد**	استاذ	تمريض اطفال	كلية التمريض \ جامعة بابل	35
.6	**د. حيدرالحدراوي**	استاذ مساعد	تمريض الصحة النفسية	كلية التمريض\ جامعة الكوفة	16
.7	**د. غزوان عبد الحسين**	استاذ مساعد	تمريض صحة الاسرة والمجتمع	كلية التمريض \ جامعة كربلاء	18
.8	**د. رضا محمد لفته**	استاذ مساعد	تمريض صحة الاسرة والمجتمع	كلية التمريض\ جامعة العميد	16
.9	**د. سلمان حسين فارس**	استاذ مساعد	تمريض صحة الاسرة والمجتمع	كلية التمريض \ جامعة كربلاء	14

Study Questionnaire

Assessment of the nutritional status of autistic patients In the city of Hilla

Part One: Demographic Data

A: Parental data

1. Gender: female ☐ Mala ☐
2. Age (years): less than 25 ☐ 25-35 ☐ 36 -45 ☐ 46-55 ☐ over 55 ☐
3. Educational level:
   - no reading ☐
   - Educated ☐
   - primary school ☐
   - Secondary ☐
   - Collage,graduate,master and above ☐
4. Marital status: Married ☐
   - Divorced ☐
   - Separated ☐
   - widowed ☐
5. Monthly income:
   - Enough ☐
   - Kind of enough ☐
   - Not enough ☐

6. B: Child's data
7. Gender: Male ☐ Femal ☐
8. Age: ☐

Part Two: Nutritional Status Assessment

1. How do you think your child's nutritional status is balanced or unbalanced? Balanced ☐ Unbalanced ☐
2. Does autism affect the nutritional behavior of your child?
   Yes☐ I don't know ☐ No ☐
   If yes, then how?
   Effects ☐ =>Eat a limited number of selected foods☐ Obsessed with food ☐ Anorexia ☐ else:_____
   Doesn't affect ☐
3. Is there an barriers or factor that prevents your child from getting a balanced nutrition?
   Vomiting ☐
   Difficulty swallowing ☐
   Refuses to eat ☐
   Binge eating ☐
   Insufficient eating ☐
   Holds food in the mouth ☐
   Tingling and pain while eating ☐
   No Thing ☐
4. How is your child's daily consumption of water?
   0-250 ml☐ 250-500 ml ☐ 500-750 ml☐ 750-1000 ml ☐

1.		Never	Sometimes	Always
2.	On average, how many times a day is fruit eaten (fresh or frozen, but not juiced?).			
3.	On average, how many times a day do you eat vegetables (fresh, frozen or canned).			

4.	On average, how many times a day are dairy products (cow's milk or cheese) eaten?			
5.	On average, how many times a day should a milk substitute (soy milk, rice milk or almond milk) be taken?			
6.	On average, how many times a day do you eat meat (beef, chicken, turkey, fish, ,egges).			
7.	On average, how many times a day do you eat other protein foods (nuts, better nuts, legumes .			
8.	On average, how many times a day do you eat cereals (bread, rice, noodles, pasta, crackers, burgers).			
9.	On average, how many times a day do you eat sweets (chocolate, candy, ice cream, cookies).			
10.	On average, how many times a day do you eat fats (butter, margarine, vegetable oil, olive oil).			
11.	On average, how many times a day do you eat fast food (cheeseburger, chicken strips, pizza).			
	On average, how many times a day do you eat fast food (cheeseburger, chicken strips, pizza).			

Part Three: Assessment of Physical Activity

1. How is your child's physical activity attendance?
   active ☐ Inactive ☐
2. When you think of a routine week, how many days is your child active? _____ days a week.
3. Is there a difference on weekdays or weekends? What days is your child most active?
   Yes ☐ => week days ☐ weekend ☐
   No ☐
4. Does autism affect the level of physical activity of your child?
   Increase physical activity ☐ decrease physical activity ☐
   No difference ☐
5. Electronic devices (TV, video games, computer, phones) are important time-saving machines for us. Can your child use it?
   Yes ☐ No ☐
6. Is there any barriers or factor to using your child's electronic devices? What are
7. the barriers or factors?
   Yes ☐ => family ☐ The school ☐ Autism ☐
   No ☐
8. Time spent on electronic devices (TV, mobile, computer)?
   little time ☐ average time ☐ long time ☐
9. The most used devices Electronic (TV, mobile, computer) is for:
   video games ☐ to learn ☐ entertainment ☐
10. Do your child's special needs increase or decrease the time of physical inactivity?
    Increase physical activity ☐ decrease physical activity ☐
    No difference ☐

Part Four: Assessment of the child's weight status

1. Weight: ☐
2. Length: ☐
3. BMI: Underweight ☐ natural ☐ overweight ☐ Fat ☐

4. Research indicates that children with autism are more likely to develop obesity. Have you heard that before?
   I know ☐ I don't know ☐
5. Is there a barrier or factor that prevents your child from maintaining a healthy weight? If yes, what are they?
   Yes ☐ => Unbalanced Nutrition ☐ Inactivity ☐
   else:_____
   No ☐
6. How do health agencies teach you about managing your child's weight? What health agencies have informed you about weight management?
   public hospital ☐ private hospital ☐

1.		Yes	No
2.	Have you been notified of your weight and your child's weight?		
3.	Have you been informed of the risk factors for your child's obesity?		
4.	Were you educated about weight status?		
5.	Have you been advised how you can maintain weight?		
6.	Have you been advised to choose healthy food?		
7.	Have you been told that you are more active for your child?		

عزيزي\عزيزتي المشترك

تحية طَيبة.....

الّأَستبانة اَلخاصة بَرسالة اَلماجستير (تقييم الحالة التغذوية لمرضى التوحد في مدينة الحلة)

بكل اَلتقدير وَالّامتنان وَالفخر وَالّاعتزاز أَقدر مَشاركة شَخصكم اَلكريم فَي هَذه اَلّاستبانة اَلتي سَتساعدناَ

في اَخذ اَلفائدة اَلمرجوة مَن اَلبحث وَالذي سَيعود فَضله إَن شَاء اَلله عَلى تحسين الحالة التغذوية لمرضى التوحد في مدينة الحلة لَذا أَرجو اَلإجابة بَشكل دَقيق وَتوخي صَحة اَلمعلومة لَأعمام اَلفائدة بَأذن اَلله. ً

عَلما بَأنَ المعلومات سَتعامل بَسرية وَتستعمل لَأغراض اَلبحث فَقط.

ملاحظة :ضع أشارة صح في المربع المناسب

رقم الاستمارة:

الباحث

طالب اَلماجستير

موسى غني نصير

التاريخ

الجزء الأول: البيانات الديموغرافية

ج: بيانات الوالدين

1.الجنس: ذكر ☐ انثى ☐

2.العمر (سنوات): ☐

3.المستوى التعليمي:

غير متعلم☐
متعلم ☐
ابتدائية ☐
متوسطة ☐
بكالوريوس.ماجستير .دكتوراه ☐

.4.الحالة الاجتماعية: متزوج\ة ☐

مطلق\ة☐

منفصل\ة☐

ارمل\ة☐

.5.الدخل الشهري:

يكفي ☐
يكفي الى حد ما ☐
لا يكفي ☐

ب: بيانات الطفل

الجنس: ذكر☐ أنثى☐

العمر: ☐

الجزء الثاني: تقييم الحالة التغذوية

1.كيف تعتقد أن الحالة الغذائية لطفلك متوازنة أو غير متوازنة؟ متوازن☐غير متوازن☐

2.هل يؤثر التوحد على السلوك الغذائي لطفلك؟ نعم ☐ لا اعرف☐ لا ☐

إذا كانت الإجابة بنعم ، فكيف؟

يؤثر☐ =>أكل لعدد محدود من الاطعمة المختارة☐ مهووس بالطعام☐

فقدان الشهية ☐ آخر:_____

لا يؤثر☐

..3.هل هناك عائق أو عامل يحول دون حصول طفلك على تغذية متوازنة؟

التقيؤ☐ صعوبة في البلع☐ يرفض الأكل☐

الأكل بشراهة☐ الأكل غير الكافي☐ يحمل الطعام في الفم☐

وخز والام اثناء تناول الطعام☐ لا شيء☐

4.كيف هو استهلاك طفلك اليومي من الماء؟

لايوجد----250مل ☐ 250-500 مل☐

500-750 مل ☐ 750-1000 مل☐

		ابدا	احيانا	دائما
	كم مرة في اليوم يتم تناول الفاكهة (طازجة أو مجمدة ، ولكن ليس العصير؟).			
	كم مرة في اليوم تأكل الخضار (طازجة ، مجمدة أو معلبة).			
	كم مرة في اليوم يتم تناول منتجات الألبان (لبن البقر أو الجبن).			
	كم مرة في اليوم يتم تناول بديل الحليب (حليب الصويا أو حليب الأرز أو حليب اللوز).			
	كم مرة في اليوم تأكل اللحوم (لحم البقر ، الدجاج ، الديك الرومي ، الأسماك).			
	كم مرة في اليوم تأكل أطعمة بروتينية أخرى (مكسرات ، مكسرات أفضل ، ، بقوليات).			
	كم مرة في اليوم تأكل الحبوب (الخبز ، الأرز ، اندومي ، المعكرونة ، البسكويت			

	، البرغر).			
	كم مرة في اليوم تأكل الحلويات (الشوكولاتة ، الحلوى ، الآيس كريم ، البسكويت).			
	، كم مرة في اليوم تأكل الدهون (زبدة ، مارجرين ، زيت نباتي ، زيت زيتون).			
	كم مرة في اليوم تأكل وجبات سريعة (تشيز برجر ، شرائح دجاج ، بيتزا).			

الجزء الثالث: تقييم النشاط البدني

1.كيف هو نشاط طفلك البدني الحضور؟

نشيط ☐غير نشط ☐

2.عندما تفكر في أسبوع روتيني ، كم عدد الأيام التي ينشط فيها طفلك؟ _____أيام في الأسبوع

3.هل هناك فرق في أيام الأسبوع أو عطلات نهاية الأسبوع؟ في أي الأيام يكون طفلك أكثر نشاطا؟

نعم ☐ => أيام الأسبوع☐ عطلة نهاية الاسبوع☐
لا ☐

4.هل يؤثر التوحد على مستوى النشاط البدني لطفلك؟

زيادة الأسباب ☐ أسباب انخفاض ☐لا فرق ☐

5.الأجهزة الإلكترونية (التليفزيون ، ألعاب الفيديو ، الكمبيوتر ، الهواتف) آلات قضاء الوقت المهمة بالنسبة لنا. هل يستطيع طفلك استخدامها؟

نعم ☐ لا ☐

6.هل هناك أي عائق أو عامل لاستخدام الأجهزة الإلكترونية لطفلك؟ ما هي الحواجز أو العوامل؟

نعم => عائلة☐ المدرسة☐ الخوض☐
لا☐

7.الوقت الذي يقضيه على الاجهزة الالكترونية (تلفاز, موبايل, حاسوب)؟

وقت قليل◯ ☐وقت متوسط ☐◯وقت طويل ☐◯

8.اكثر استخداماته للأجهزة الالكترونية (تلفاز, موبايل, حاسوب) هو لـ:

العاب الفيديو ☐ تعلم ☐ ترفيه ☐

9.هل الاحتياجات الخاصة لطفلك تزيد أو تقلل من وقت عدم النشاط البدني؟

تقل☐ تزيد ☐ لا فرق☐

الجزء الرابع: تقييم حالة وزن الطفل

1.وزن:

2.طول

3.مؤشر كتلة الجسم: نقص الوزن ☐ طبيعي☐ زيادة الوزن☐ سمين ☐

4.تشير الأبحاث إلى أن الأطفال المصابين بالتوحد أكثر عرضة للإصابة بالسمنة. هل سمعت ذلك من قبل؟

أعرف ☐ لا أعلم ☐

5.هل هناك عائق أو عامل يحول دون بقاء طفلك في حالة وزن صحي أو الحفاظ عليه؟ إذا نعم، ما هم؟

نعم ☐=> التغذية غير المتوازنة ☐ الخمول ☐ آخر:_____
لا

6.كيف تعلمك وكالات الصحة حول إدارة وزن طفلك؟ ما هي الوكالات الصحية التي أبلغتك عن إدارة الوزن؟

المستشفى العام☐مستشفى خاص☐

.7		نعم	لا
	هل تم إخبارك بوزنك ووزن طفلك؟		
	هل تم إخبارك بعوامل الخطر المتعلقة بسمنة طفلك		
	هل تم تثقيفك حول حالة الوزن؟		
	هل تم إخبارك كيف يمكنك الحفاظ على الوزن؟		
	هل تم إخبارك باختيار الطعام الصحي؟		
	هل تم إخبارك بأنك أكثر نشاطًا لطفلك؟		

University of Babylon
College of Nursing
Research Ethics Committee
Issue No:
Date: / /2022

جـامـعة بـابـل
كـلية التمريـض
لجنة اخلاقيات البحث العلمي

Approval Letter

To,
Moussa Ghina Naser

The Research Ethics committee at the **University of Babylon, College of Nursing** has reviewed and discussed your application to conduct the research study entitled " **Assessment of The Nutritional Status of Autisic Patients in Al Hilla City.**

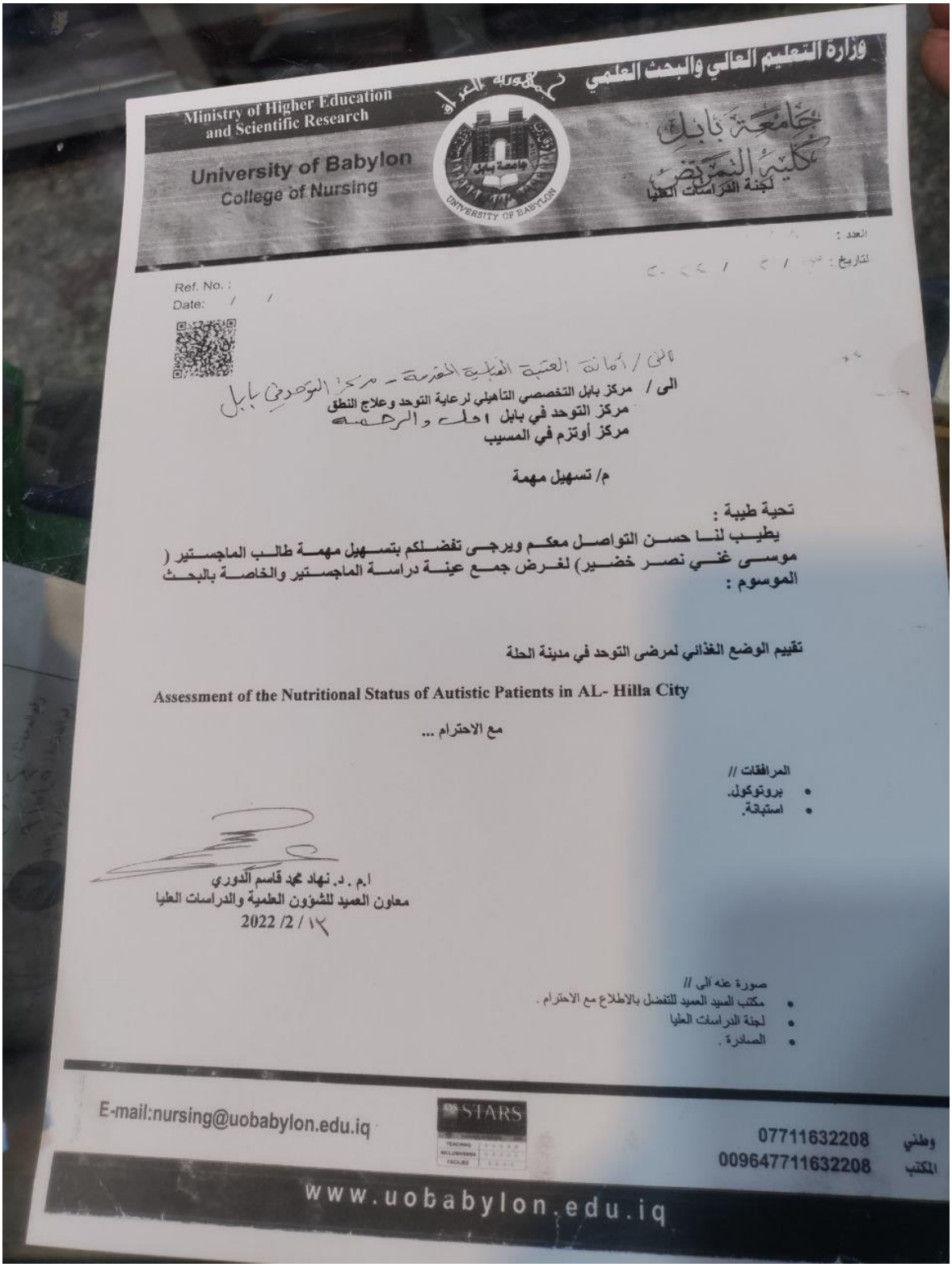
The Following documents have been reviewed and approved:

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. Jehad
Chair Committee
College of Nursing
Research Ethical Committee
9 / 2 /2022



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

العدد :
التاريخ :
Ref. No. :
Date:

الى / أمانة العتبة الحسينية المقدسة - مركز التوحد في بابل

الى / مركز بابل التخصصي التأهيلي لرعاية التوحد وعلاج النطق
مركز التوحد في بابل امل والرحمة
مركز أوتزم في المسيب

م/ تسهيل مهمة

تحية طيبة :

يطيب لنا حسن التواصل معكم ويرجى تفضلكم بتسهيل مهمة طالب الماجستير (موسى غني نصر خضير) لغرض جمع عينة دراسة الماجستير والخاصة بالبحث الموسوم :

تقييم الوضع الغذائي لمرضى التوحد في مدينة الحلة

Assessment of the Nutritional Status of Autistic Patients in AL- Hilla City

مع الاحترام ...

المرافقات //
- بروتوكول.
- استبانة.

ا.م . د. نهاد محمد قاسم الدوري
معاون العميد للشؤون العلمية والدراسات العليا
2022 /2 / ١٢

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

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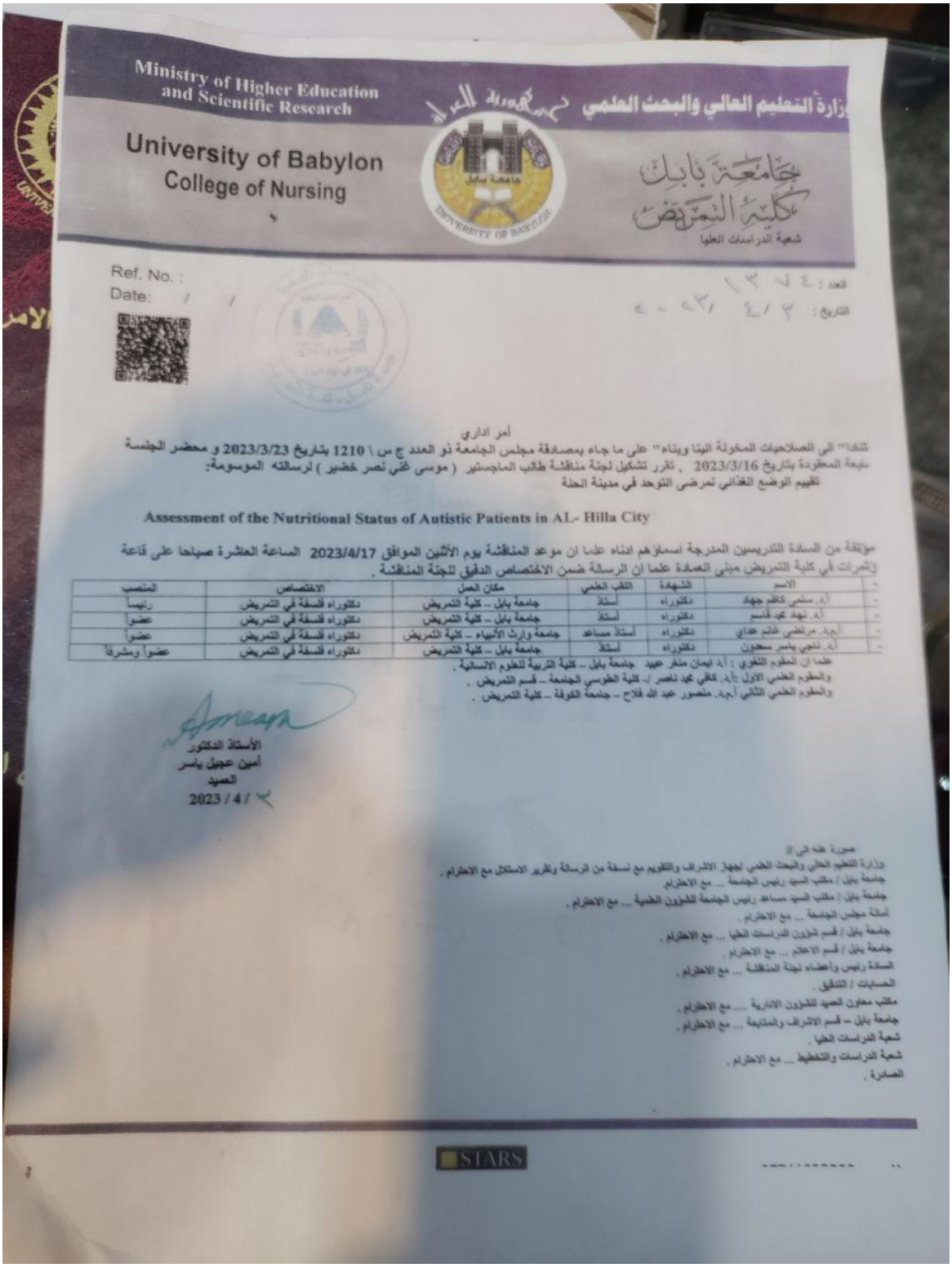


Ministry of Higher Education and Scientific Research

University of Babylon
College of Nursing

وزارة التعليم العالي والبحث العلمي

جامعة بابل
كلية التمريض
شعبة الدراسات العليا

Ref. No. :
Date:

العدد : ٤ ن ١٢٠
التاريخ : ٣/ ٤/ ٢٠٢٣

أمر اداري

تنفيذا" الى الصلاحيات المخولة الينا وبناء" على ما جاء بمصادقة مجلس الجامعة ذو العدد ج س \ 1210 بتاريخ 2023/3/23 و محضر الجلسة المعقودة بتاريخ 2023/3/16 , تقرر تشكيل لجنة مناقشة طالب الماجستير (موسى غني نصر خضير) لرسالته الموسومة:

تقييم الوضع الغذائي لمرضى التوحد في مدينة الحلة

Assessment of the Nutritional Status of Autistic Patients in AL- Hilla City

مؤلفة من السادة التدريسيين المدرجة اسمائهم ادناه علما ان موعد المناقشة يوم الأثنين الموافق 2023/4/17 الساعة العاشرة صباحا على قاعة المؤتمرات في كلية التمريض مبنى العمادة علما ان الرسالة ضمن الاختصاص الدقيق للجنة المناقشة .

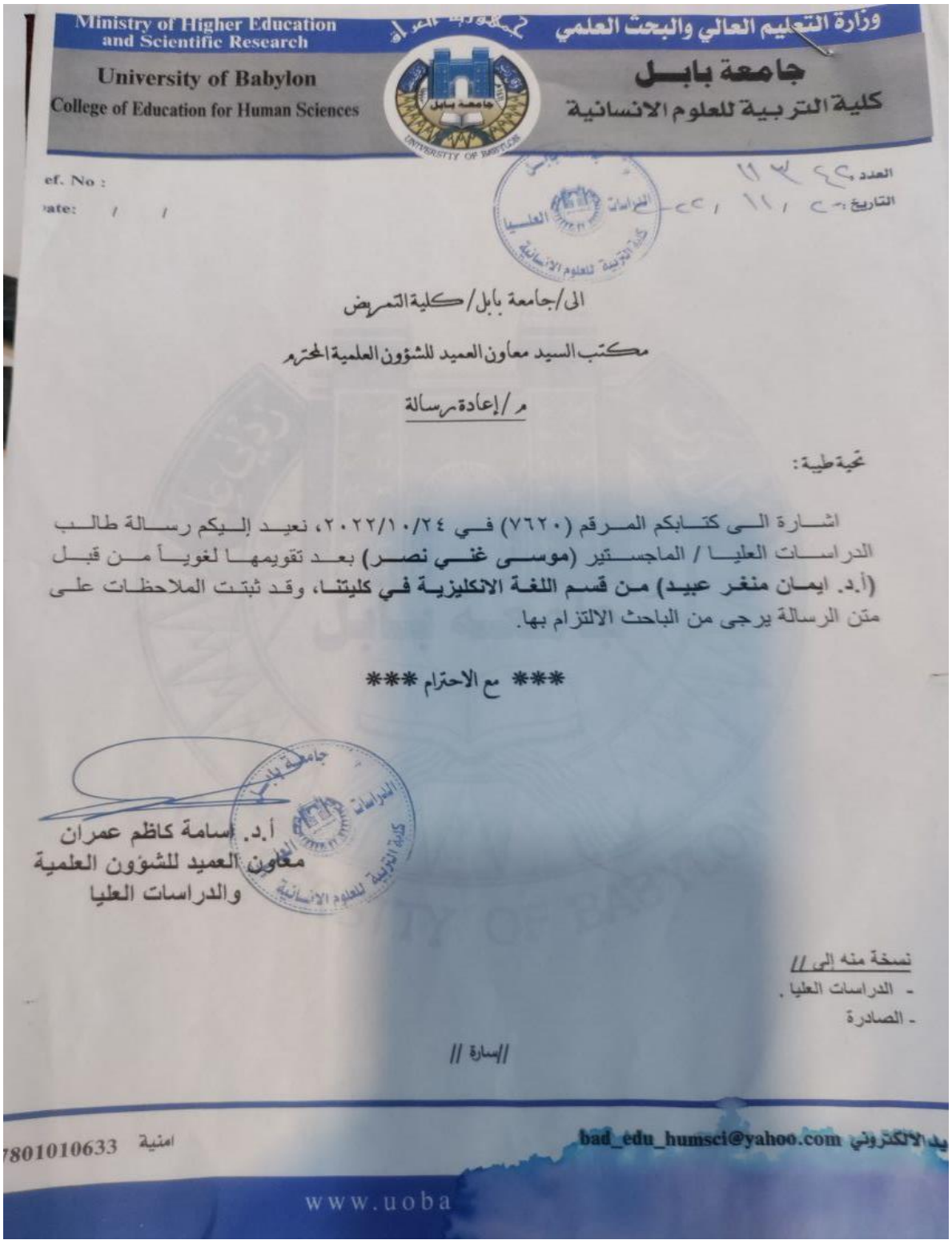
ت	الاسم	الشهادة	اللقب العلمي	مكان العمل	الاختصاص	المنصب
-	أ.د. سلمى كاظم جهاد	دكتوراه	أستاذ	جامعة بابل – كلية التمريض	دكتوراه فلسفة في التمريض	رئيساً
-	أ.د. نهاد محمد قاسم	دكتوراه	أستاذ	جامعة بابل – كلية التمريض	دكتوراه فلسفة في التمريض	عضواً
-	أ.م.د. مرتضى غانم عداي	دكتوراه	أستاذ مساعد	جامعة وارث الأنبياء – كلية التمريض	دكتوراه فلسفة في التمريض	عضواً
-	أ.د. ناجي ياسر سعدون	دكتوراه	أستاذ	جامعة بابل – كلية التمريض	دكتوراه فلسفة في التمريض	عضواً ومشرفاً

علما ان المقوم اللغوي : أ.د ايمان منفر عبيد جامعة بابل – كلية التربية للعلوم الانسانية .
والمقوم العلمي الاول :أ.د. كاظم محمد ناصر /. كلية الطوسي الجامعة – قسم التمريض .
والمقوم العلمي الثاني أ.م.د. منصور عبد الله فلاح – جامعة الكوفة – كلية التمريض .

الأستاذ الدكتور
أمين عجيل ياسر
العميد
2023 / 4 / ٣

صورة عنه الى //
وزارة التعليم العالي والبحث العلمي /جهاز الاشراف والتقويم مع نسخة من الرسالة والتقرير الاستلال مع الاحترام .
جامعة بابل / مكتب السيد رئيس الجامعة ... مع الاحترام
جامعة بابل / مكتب السيد مساعد رئيس الجامعة للشؤون العلمية ... مع الاحترام .
أمانة مجلس الجامعة ... مع الاحترام .
جامعة بابل / قسم شؤون الدراسات العليا ... مع الاحترام .
جامعة بابل / قسم الاعلام ... مع الاحترام .
السادة رئيس واعضاء لجنة المناقشة ... مع الاحترام .
الحسابات / للتدقيق .
مكتب معاون العميد للشؤون الادارية .... مع الاحترام .
جامعة بابل – قسم الاشراف والمتابعة ... مع الاحترام .
شعبة الدراسات العليا .
شعبة الدراسات والتخطيط ... مع الاحترام .
الصادرة .

STARS



Ministry of Higher Education and Scientific Research
University of Babylon
College of Education for Human Sciences

وزارة التعليم العالي والبحث العلمي
جامعة بابل
كلية التربية للعلوم الانسانية

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ate: / /

العدد: ٤٣ ٢ ١١
التاريخ: ١١ / ١٠ / ٢٠٢٢

الى/جامعة بابل/كلية التمريض

مكتب السيد معاون العميد للشؤون العلمية المحترم

م/إعادة رسالة

تحية طيبة:

اشارة الى كتابكم المرقم (٧٦٢٠) في ٢٠٢٢/١٠/٢٤، نعيد إليكم رسالة طالب الدراسات العليا / الماجستير **(موسى غني نصر)** بعد تقويمها لغوياً من قبل **(أ.د. ايمان منغر عبيد) من قسم اللغة الانكليزية في كليتنا**، وقد ثبتت الملاحظات على متن الرسالة يرجى من الباحث الالتزام بها.

*** مع الاحترام ***

أ.د. اسامة كاظم عمران
معاون العميد للشؤون العلمية
والدراسات العليا

نسخة منه الى //
- الدراسات العليا .
- الصادرة

//سارة //

امنية 7801010633

البريد الالكتروني bad_edu_humsci@yahoo.com

www.uoba

English questionnaire version:

Study Questionnaire

Assessment of the nutritional status of autistic patients In the city of Hilla

Part One: Demographic Data

A: Parental data

9. Gender: female ☐ Mala ☐
10. Age (years): less than 25 ☐ 25-35 ☐ 36 -45 ☐ 46-55 ☐ over 55 ☐
11. Educational level:
    - no reading ☐
    - Educated ☐
    - primary school ☐
    - Secondary ☐
    - Collage,graduate,master and above ☐
12. Marital status: Married ☐
    - Divorced ☐
    - Separated ☐
    - widowed ☐
13. Monthly income:
    - Enough ☐
    - Kind of enough ☐
    - Not enough ☐

14. B: Child's data
15. Gender: Male ☐ Femal ☐
16. Age: ☐

Part Two: Nutritional Status Assessment

5. How do you think your child's nutritional status is balanced or unbalanced? Balanced ☐ Unbalanced ☐
6. Does autism affect the nutritional behavior of your child?
   Yes☐ I don't know ☐ No ☐
   If yes, then how?
   Effects ☐ =>Eat a limited number of selected foods☐ Obsessed with food ☐ Anorexia ☐ else:_____
   Doesn't affect ☐
7. Is there an barriers or factor that prevents your child from getting a balanced nutrition?
   Vomiting ☐
   Difficulty swallowing ☐
   Refuses to eat ☐
   Binge eating ☐
   Insufficient eating ☐
   Holds food in the mouth ☐
   Tingling and pain while eating ☐
   No Thing ☐
8. How is your child's daily consumption of water?
   0-250 ml☐ 250-500 ml ☐ 500-750 ml☐ 750-1000 ml ☐

12.		Never	Sometimes	Always
13.	On average, how many times a day is fruit eaten (fresh or frozen, but not juiced?).			
14.	On average, how many times a day do you eat vegetables (fresh, frozen or canned).			

15.	On average, how many times a day are dairy products (cow's milk or cheese) eaten?			
16.	On average, how many times a day should a milk substitute (soy milk, rice milk or almond milk) be taken?			
17.	On average, how many times a day do you eat meat (beef, chicken, turkey, fish, ,egges).			
18.	On average, how many times a day do you eat other protein foods (nuts, better nuts, legumes .			
19.	On average, how many times a day do you eat cereals (bread, rice, noodles, pasta, crackers, burgers).			
20.	On average, how many times a day do you eat sweets (chocolate, candy, ice cream, cookies).			
21.	On average, how many times a day do you eat fats (butter, margarine, vegetable oil, olive oil).			
22.	On average, how many times a day do you eat fast food (cheeseburger, chicken strips, pizza).			
	On average, how many times a day do you eat fast food (cheeseburger, chicken strips, pizza).			

Part Three: Assessment of Physical Activity

11. How is your child's physical activity attendance?
    active ☐ Inactive ☐
12. When you think of a routine week, how many days is your child active? _____ days a week.
13. Is there a difference on weekdays or weekends? What days is your child most active?
    Yes ☐ => week days ☐ weekend ☐
    No ☐
14. Does autism affect the level of physical activity of your child?
    Increase physical activity ☐ decrease physical activity ☐
    No difference ☐
15. Electronic devices (TV, video games, computer, phones) are important time-saving machines for us. Can your child use it?
    Yes ☐ No ☐
16. Is there any barriers or factor to using your child's electronic devices? What are
17. the barriers or factors?
    Yes ☐ => family ☐ The school ☐ Autism ☐
    No ☐
18. Time spent on electronic devices (TV, mobile, computer)?
    little time ☐ average time ☐ long time ☐
19. The most used devices Electronic (TV, mobile, computer) is for:
    video games ☐ to learn ☐ entertainment ☐
20. Do your child's special needs increase or decrease the time of physical inactivity?
    Increase physical activity ☐ decrease physical activity ☐
    No difference ☐

Part Four: Assessment of the child's weight status

7. Weight: ☐
8. Length: ☐
9. BMI: Underweight ☐ natural ☐ overweight ☐ Fat ☐

10. Research indicates that children with autism are more likely to develop obesity. Have you heard that before?
    I know ☐ I don't know ☐
11. Is there a barrier or factor that prevents your child from maintaining a healthy weight? If yes, what are they?
    Yes ☐ => Unbalanced Nutrition ☐ Inactivity ☐
    else:_____
    No ☐
12. How do health agencies teach you about managing your child's weight? What health agencies have informed you about weight management?
    public hospital ☐ private hospital ☐

8.		Yes	No
9.	Have you been notified of your weight and your child's weight?		
10.	Have you been informed of the risk factors for your child's obesity?		
11.	Were you educated about weight status?		
12.	Have you been advised how you can maintain weight?		
13.	Have you been advised to choose healthy food?		
14.	Have you been told that you are more active for your child?		

عزيزي\عزيزتي المشترك

تحية طَيبة.....

الاستبانة اَلخاصة بَرسالة اَلماجستير (تقييم الحالة التغذوية لمرضى التوحد في مدينة الحلة)

بكل اَلتقدير وَالَّامتنان وَالفخر وَالَّاعتزاز أَقدر مَشاركة شَخصكم اَلكريم فَي هَذه اَلَّاستبانة اَلتي سَتساعدناَ

في اَخذ اَلفائدة اَلمرجوة مَن اَلبحث وَالذي سَيعود فَضله إَن شَاء اَلله عَلى تحسين الحالة التغذوية لمرضى التوحد في مدينة الحلة لَذا أَرجو اَلإجابة بَشكل دَقيق وَتوخي صَحة اَلمعلومة لَأعمام اَلفائدة بَأذن اَلله.

عَلما بَأنَ المعلومات سَتعامل بَسرية وَتستعمل لَأغراض اَلبحث فَقط.

ملاحظة :ضع أشارة صح في المربع المناسب

رقم الاستمارة:

الباحث

طالب اَلماجستير

موسى غني نصير

التاريخ

الجزء الأول: البيانات الديموغرافية

ج: بيانات الوالدين

1.الجنس: ذكر ☐ انثى ☐

2.العمر (سنوات): ☐

3.المستوى التعليمي:

غير متعلم☐
متعلم ☐
ابتدائية ☐
متوسطة ☐
بكالوريوس.ماجستير .دكتوراه ☐

.4.الحالة الاجتماعية: متزوج\ة ☐

مطلق\ة☐

منفصل\ة☐

ارمل\ة☐

.5.الدخل الشهري:

يكفي ☐
يكفي الى حد ما ☐
لا يكفي ☐

ب: بيانات الطفل

الجنس: ذكر☐ أنثى☐

العمر: ☐

الجزء الثاني: تقييم الحالة التغذوية

1.كيف تعتقد أن الحالة الغذائية لطفلك متوازنة أو غير متوازنة؟ متوازن☐غير متوازن☐

2.هل يؤثر التوحد على السلوك الغذائي لطفلك؟ نعم ☐ لا اعرف☐ لا ☐

إذا كانت الإجابة بنعم ، فكيف؟

يؤثر☐ =>أكل لعدد محدود من الاطعمة المختارة☐ مهووس بالطعام☐

فقدان الشهية ☐ آخر:_____

لا يؤثر☐

..3.هل هناك عائق أو عامل يحول دون حصول طفلك على تغذية متوازنة؟

التقيؤ☐ صعوبة في البلع☐ يرفض الأكل☐

الأكل بشراهة☐ الأكل غير الكافي☐ يحمل الطعام في الفم☐

وخز والام اثناء تناول الطعام☐ لا شيء☐

4.كيف هو استهلاك طفلك اليومي من الماء؟

لايوجد----250مل ☐ 250-500 مل☐

500-750 مل ☐ 750-1000مل☐

		ابدا	احيانا	دائما
	كم مرة في اليوم يتم تناول الفاكهة (طازجة أو مجمدة ، ولكن ليس العصير؟).			
	كم مرة في اليوم تأكل الخضار (طازجة ، مجمدة أو معلبة).			
	كم مرة في اليوم يتم تناول منتجات الألبان (لبن البقر أو الجبن).			
	كم مرة في اليوم يتم تناول بديل الحليب (حليب الصويا أو حليب الأرز أو حليب اللوز).			
	كم مرة في اليوم تأكل اللحوم (لحم البقر ، الدجاج ، الديك الرومي ، الأسماك).			
	كم مرة في اليوم تأكل أطعمة بروتينية أخرى (مكسرات ، مكسرات أفضل ، ، بقوليات).			
	كم مرة في اليوم تأكل الحبوب (الخبز ، الأرز ، اندومي ، المعكرونة ، البسكويت			

	، البرغر).			
	كم مرة في اليوم تأكل الحلويات (الشوكولاتة ، الحلوى ، الآيس كريم ، البسكويت).			
	، كم مرة في اليوم تأكل الدهون (زبدة ، مارجرين ، زيت نباتي ، زيت زيتون).			
	كم مرة في اليوم تأكل وجبات سريعة (تشيز برجر ، شرائح دجاج ، بيتزا).			

الجزء الثالث: تقييم النشاط البدني

1.كيف هو نشاط طفلك البدني الحضور؟

نشيط ☐غير نشط ☐

2.عندما تفكر في أسبوع روتيني ، كم عدد الأيام التي ينشط فيها طفلك؟ _____أيام في الأسبوع

3.هل هناك فرق في أيام الأسبوع أو عطلات نهاية الأسبوع؟ في أي الأيام يكون طفلك أكثر نشاطا؟

نعم ☐ => أيام الأسبوع☐ عطلة نهاية الاسبوع☐
لا ☐

4.هل يؤثر التوحد على مستوى النشاط البدني لطفلك؟

زيادة الأسباب ☐ أسباب انخفاض ☐لا فرق ☐

5.الأجهزة الإلكترونية (التليفزيون ، ألعاب الفيديو ، الكمبيوتر ، الهواتف) آلات قضاء الوقت المهمة بالنسبة لنا. هل يستطيع طفلك استخدامها؟

نعم ☐ لا ☐

6.هل هناك أي عائق أو عامل لاستخدام الأجهزة الإلكترونية لطفلك؟ ما هي الحواجز أو العوامل؟

نعم => عائلة☐ المدرسة☐ الخوض☐
لا☐

7.الوقت الذي يقضيه على الاجهزة الالكترونية (تلفاز, موبايل, حاسوب)؟

وقت قليل◯ ☐وقت متوسط ☐◯وقت طويل ☐◯

8.اكثر استخداماته للأجهزة الالكترونية (تلفاز, موبايل, حاسوب) هو لـ:

العاب الفيديو ☐ تعلم ☐ ترفيه ☐

9.هل الاحتياجات الخاصة لطفلك تزيد أو تقلل من وقت عدم النشاط البدني؟

تقل☐ تزيد ☐ لا فرق☐

الجزء الرابع: تقييم حالة وزن الطفل

1.وزن:

2.طول

3.مؤشر كتلة الجسم: نقص الوزن ☐ طبيعي☐ زيادة الوزن☐ سمين ☐

4.تشير الأبحاث إلى أن الأطفال المصابين بالتوحد أكثر عرضة للإصابة بالسمنة. هل سمعت ذلك من قبل؟

أعرف ☐ لا أعلم ☐

5.هل هناك عائق أو عامل يحول دون بقاء طفلك في حالة وزن صحي أو الحفاظ عليه؟ إذا نعم، ما هم؟

نعم ☐=> التغذية غير المتوازنة ☐ الخمول ☐ آخر:_____
لا

6.كيف تعلمك وكالات الصحة حول إدارة وزن طفلك؟ ما هي الوكالات الصحية التي أبلغتك عن إدارة الوزن؟

المستشفى العام☐مستشفى خاص☐

.7		نعم	لا
	هل تم إخبارك بوزنك ووزن طفلك؟		
	هل تم إخبارك بعوامل الخطر المتعلقة بسمنة طفلك		
	هل تم تثقيفك حول حالة الوزن؟		
	هل تم إخبارك كيف يمكنك الحفاظ على الوزن؟		
	هل تم إخبارك باختيار الطعام الصحي؟		
	هل تم إخبارك بأنك أكثر نشاطًا لطفلك؟		

الملخص:

حالات الإصابة باضطراب طيف التوحد آخذة في الازدياد ؛ لذلك ، يعد الفحص الفوري أمرًا مهمًا. نظرًا لأن الناس معرضين للخطر من الناحية التغذوية ، فإن التقييم الغذائي المفصل ضروري من أجل التوصية بالتدخلات المكثفة في الوقت المناسب.

تم اجراء دراسة وصفية لتقييم الحالة التغذوية لمرضى التوحد في مدينة الحلة بمحافظة بابل. من 1 / نوفمبر / 2021 إلى 26 يونيو 2022. تتكون العينة الهادفة (غير الاحتمالية) من (200) عينة تم اختيارها خلال عملية أخذ العينات خلال الفترة من (27 يناير 2022 إلى 5 أبريل 2022).

كشفت الدراسة أن غالبية أعمار العينة كانت ضمن فئة 25-36 سنة بنحو (49.0٪). غالبية المشاركين في الدراسة (33.0٪ و 59.0٪) كانوا متعلمين ولديهم شهادة ابتدائية . توجد علاقة ذات دلالة إحصائية عالية بين الدخل الشهري والحالة التغذوية (قيمة الاحتمال = 0.036). كما توجد علاقة ذات دلالة إحصائية عالية بين المستوى التعليمي والحالة التغذوية (قيمة الاحتمال = 0.021).

الاستنتاجات: ارتفاع نسبة الآباء والأمهات المتعلمين ومعظمهم في الفئة العمرية (25-36 سنة). كان معظم الأطفال في الدراسة الحالية أقل من ثلاث سنوات ، وكان متوسط العمر 2.93 سنة معظمهم من الذكور. أبلغت غالبية الاباء والامهات عن مستوى معتدل من الحالة التغذوية فيما يتعلق بأطفالهن المصابين بالتوحد. هناك علاقة ذات دلالة إحصائية بين الحالة التغذوية مع العمر التعليمي للأم والدخل الشهري.

الكلمات المفتاحية: التقييم الغذائي ، التقييم الغذائي ، اضطرابات طيف التوحد ، الحالة التغذوية.

التوصية: تشير نتائج الدراسة إلى اتجاه إشارة الحاجة إلى تثقيف وتدريب الآباء فيما يتعلق بالمعايير الغذائية لأطفالهم المصابين بالتوحد. دعم الوكالات الحكومية وأصحاب المصلحة المهمين في تحسين البرامج والمرافق التي ستساعد على زيادة الانتباه وتعزيز المزاجات الإيجابية تجاه الحالة التغذوية للأطفال المصابين بالتوحد. تطوير وتوسيع برامج التدريب التربوي لوزارة الصحة لأولياء الأمور حول موضوع الحالة التغذوية والتوحد.

جمهورية العراق
وزارة التعليم العالي والبحث العلمي
جامعة بابل / كلية التمريض

تقييم معارف الوالدين حول حالة التغذوية اتجاة الطفل المصاب باضطراب التوحد في مراكز التوحد في محافظة بابل

رسالة ماجستير

مقدمة الى مجلس كلية التمريض في جامعة بابل وهي جزء من

متطلبات نيل درجة الماجستير في علوم التمريض.

الطالب:
موسى غني نصر

إشراف
أ.د. ناجي سعدون المياحي

رمضان 1444 هـ

نيسان 2023م