SURVEY OF KNOWLEDGE AND AWARNESS REGARDING AUTISM SPECTRUM DISORDER AMONG GENERAL POPULATION IN NEYVELI TOWNSHIP, CUDDALORE DISTRICT OF TAMIL NADU

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August 2022

CERTIFICATE

This is to certify that this dissertation entitled **"Survey of Knowledge and Awareness Regarding Autism Spectrum Disorder among the general population in Neyveli Township, Cuddalore district of Tamil Nadu"** is bonafide work submitted in part fulfilment for the degree of Master of Science (Speech-Language Pathology) of the student with Registration Number 20SLP026. This has been carried out under the guidance of the faculty of this institute and has not been submitted earlier to any other University for the award of any other Diploma or Degree.

Mysuru

August, 2022

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DECLARATION

This is to certify that this dissertation entitled **"Survey of Knowledge and Awareness Regarding Autism Spectrum Disorder among the general population in Neyveli Township, Cuddalore district of Tamil Nadu"** is the result of my own study under the guidance of Dr. Anjana B Ram, Assistant Professor in Speech Pathology, Department of Speech-Language Scie, All India Institute of Speech and Hearing, Mysuru and has not been submitted earlier to any other university for the award of any other Diploma or Degree.

Mysuru **Registration No: 20SLP026**

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CHAPTER 1

INTRODUCTION

1.1 Autism

Autism is a neurodevelopmental disorder characterized by difficulties in social interaction, verbal and non-verbal communication, and repetitive behaviors. According to DSM V 5th edition (2013), Asperger syndrome and PDD-NOS are now folded into one broad category of Autism Spectrum Disorders (ASD). Rather than three categories of symptoms (social difficulties, communication impairments, and repetitive/restricted behavior's), there are now two: social communication impairment and repetitive/restricted behaviors. Autism Spectrum Disorder can manifest in various degrees of severity, from mild to severe (Mehlenbacher et al., 2017).

This disorder affects1 out of every 44 children, and it can affect people of all races and ethnic groups. As a result, it is one of the most frequent developmental impairments among children. There has been an increase in the incidence of ASD in the last two decades (Alyami et al., 2022). Over the years, awareness of ASD has been increasing among the educated population. As a result of better awareness, caregivers of ASD children are beginning to seek screening and diagnosis from a specialist (Speech-Language Pathologist). ASD diagnosis is, however, difficult because no direct tests, such as a blood test or particular biomarkers in the body, are available to confirm the diagnosis. A diagnosis for ASD is based on observing the child's behavior (Alyami et al., 2022). In 2013, the Diagnostic and Statistical Manual of Mental Disorders (DSM)-5 of the American Psychiatric Association published its criteria for the diagnosis of ASD. The salient deficits include

1.1.1 Social communication deficits

- Deficits in social-emotional reciprocity include reduced conversation; reduced sharing of interests and emotions with others, failure to initiate or respond to social interactions, etc.
- Deficits in nonverbal communicative behaviors used for social interaction range from reduced eye to eye contact and body language (nonverbal communication) to deficits in understanding and use of gestures, and also a total lack of facial expressions.
- Deficits in developing, maintaining, and understanding relationships range, for example, from difficulties adjusting behavior to suit various social contexts; to problems in sharing imaginative play or making friends; to the absence of interest in peers.

1.1.2 Behavior deficits

- Examples such as simple motor stereotypes, lining up toys or flipping objects, echolalia, and use of characteristic phrases.
- Examples such as extreme distress at small changes, difficulties with transitions, rigid thinking patterns, lack of greeting rituals, taking the same route or eating the same food every day, insistence on sameness, inflexible to routines, or same patterns of verbal or nonverbal behavior.
- Strong attachment to or preoccupation with unusual objects or perseverative interests.
- Hyper- or hypo reactivity to sensory input or unique interest in sensory aspects of the environment (e.g., apparent indifference to pain/temperature, adverse response to specific sounds or textures, excessive smelling of objects or touching of objects,

visual fascination with lights or movement). (Interdisciplinary Council on Developmental and Learning Disorders in 2004). Hence the child may be under or over-reactive to the information received through their senses of vision, hearing, touch, smell, taste, and body awareness.

- Children with difficulties or differences in relating and communicating may fall within a broad spectrum of diagnoses or challenges, including language processing disorders, attention disorders, sensory or regulatory disorders, and Autism Spectrum Disorder. In different situations, these challenges occur.
- A child may develop unusual or concerning behaviors in response to these difficulties or differences relating to emotions. Examples of behaviors parents may observe.

1.1.3 Emotional disturbance

- a tendency to avoid interaction
- difficulty paying attention
- limited eye contact with others
- repetitive statements, play, or behaviors
- failure to develop pretend play
- intense fears about events, persons, activities, or objects.
- problems following simple directions
- echolalia, or repeating what is just said
- difficulty in expressing needs and desires by gestures

1.1.4 Regulatory and sensory-motor

- difficulty dealing with changes in the environment
- avoidance of hugs or light touch

- not pointing to show you things
- poor coordination
- "self-stimulatory" behaviors: spinning, hand flapping, head banging

A child receives a diagnosis based on observation of the behaviors. Each child has a unique pattern of development and functioning. A child may share a common diagnosis with other children. Some children are over-reactive to sensations, such as touch and sound, while others are under-reactive. Some children have relatively strong auditory memories and can memorize entire scripts; others have rather visual solid memories. Some children can plan several actions in a row, such as going upstairs, getting a toy, and bringing it back down. In contrast, others can only carry out one activity at a time, becoming very fragmented in their behavior.

1.2 Incidence and Prevalence

The Incidence and prevalence of autism are increasing over time. In earlier decades, incidence and prevalence estimation were low compared with the current decade, centering at about 0.5 per 1000 for autism during the 1960s and 1970s and about 1 per 1000 in the 1980s as opposed to 1-2 per 1000 in 2010. Other studies show the incidence range of Autism as 0.7 to 60/10000 children and for PDD as 1.9-36.1/10000children (Treffert et al.,2003). As per the Center for Disease Control (2020) in Tamil Nadu, number of ASD cases identified include 11,914 per year, 250 per month, 57 per week, 8 per day, and 1 per hour in Tamil Nadu (as per the Centre for Disease Control, 2020). This drastic increase in ASD prevalence could be attributed to the broadening of its diagnostic criteria that might have resulted in an exaggeration of the numbers under the diagnostic umbrella of ASD **(**Zaky, 2017).

Neyveli is an industrial town in the Cuddalore district in the Indian State of Tamil Nadu. As per data released by Government of India for Census 2011 to 2022, total population of Neyveli is 1,79, 159. The male population is 90,392 while female population is 88,758. An informal interview with the health inspector revealed that there are more numbers of suspected cases at Autism are in the Neyveli Township, Cuddalore District of Tamil Nadu. Hence it is important to probe into the knowledge and awareness of the general population of that district to ensure early identification and diagnosis of the condition.

1.3 Aim and objective of the study

To study the awareness and knowledge of ASD among the general population in Neyveli Township, Cuddalore District, Tamil Nadu.

CHAPTER 2

REVIEW OF LITERATURE

The age at which a child is diagnosed with Autism Spectrum Disorder varies from case to case; some children are diagnosed as early as 18 months, but most require a further 18 months to confirm the diagnosis, which unfortunately causes a delay in treatment commencement. The early treatment enhances the verbal and cognitive abilities of children with ASD. When compared to mild symptoms, more acute symptoms are a cause of early diagnosis (Alyami et al., 2022). The three main characteristics of autism are impaired social interaction, communication deficits, and unusual repetitive behaviors. There is a high chance of misdiagnosis or late diagnosis if there is a lack of awareness about the signs of this disorder, especially among parents, since they will be the first to observe any unusual behavior compared to other children of the same age group (Dalahmeh et al., 2021). In identifying children with ASD, a variety of screening instruments are utilized, some of which are widely used, such as the Modified Checklist for Autism in Toddlers -M-CHAT (Diana Robins, Deborah Fein, 2009) Childhood Autism Rating Scale -CARS (Schopler et al., 1980), and others that are less often used, such as the Communication and Symbolic Behavior Scales (Prizant, 1993).

Some risk factors for developing ASD include genetic and environmental variables and prenatal exposure to the medication, such as valproic acid. ASD is more likely to affect children born to older parents. Furthermore, the age of the pregnant lady, i.e., if the mother is over 40 years old, impacts the development of ASD. Additionally, a history of prenatal hypertension or viral or bacterial infection has a bearing on the development of the disorder. A child's brother or sister is more likely to have an ASD

if he or she has ASD. A genetic and chromosomal condition, such as the Fragile X chromosome, can potentially cause ASD. GABAergic, glutamatergic, serotonergic, and dopaminergic systems have been linked to ASD after exposure to neurotoxic chemicals (Alyami et al., 2022).

There are many myths and misconceptions about ASD. For example, some people believe that vaccines are responsible for the development of ASD. According to the World Health Organization (WHO 2003)**,** there is no documented link between a vaccine and the development of ASD, and there is also no link between the MMR vaccine and the development of ASD disease.

There is no medical cure for ASD. All that the child's caregivers can do is begin using special behavioral therapies after the diagnosis is confirmed to help ASD patients develop new abilities such as talking, making eye contact, playing with peers, and socializing. (Zaky, 2017). Early and accurate diagnosis has a significant impact on the child's outcomes and behavior improvement. When the parent recognizes the symptoms of autism in their child, like lack of eye contact, hyperactivity, increased attachments to toys, no reaction to verbal cues, etc., they will be able to seek proper management for their child. Hence, awareness, knowledge, and perception regarding ASD among parents and caregivers are crucial for early identification. It would aid in a better quality of life for children with ASD and their families (Tahir et al., 2018).

Khan et al., 2018 studied knowledge, awareness, and perception regarding Autism among parents in Karachi, Pakistan. The main aim of the study was to assess the knowledge of the signs and symptoms of this disorder in parents who don’t have autistic children and also to find out the gap in awareness and the lack of information among the general population regarding ASD in Pakistan from 20 January 2018 to 31

March 2018. Eligible study participants included urban dwellers of Karachi living in Gulshan-e-Iqbal between the age of 18-70 years who had children. They excluded any individual belonging to the medical profession, those who had autistic children, and those who couldn't completely comprehend English and Urdu. A cross-sectional survey was conducted among the parents residing in Karachi, Pakistan. A sample size of 339 parents was selected for the study. A validated and pre-test questionnaire was administered among the study participants to record demographic information, knowledge, and perception regarding autism and its signs and symptoms. A 34-item questionnaire was designed following an extensive literature review. A pilot study was conducted on a convenient sample of 40 people to assess the clarity and comprehension of the questionnaire. A knowledge score was calculated for opinions about autism and its sign and symptoms individually to reflect participants' overall knowledge regarding autism. In total, 11 participants failed to complete the survey, so those forms were discarded, giving a response rate of 96.86%. In this study, participants displayed poor knowledge scores with mean scores of 5.59 and 6.84 in the section testing knowledge of the signs and symptoms of ASD; 95.6%of the participants were willing to get their children treated in the event of them being diagnosed with autism. This study reflects the lack of awareness and knowledge among that population regarding autism. To fill the gap, an awareness program was conducted to promote parents' understanding of autism. Only a small number of participants knew of autism centers in Karachi. Though the participants weren't completely unaware of autism, they displayed poor knowledge in both sections. A mean score of 5.59 was seen for the team regarding correct opinions for autism, with eight out of 13 being considered a good score, and a mean score of 6.84 for signs and symptoms was calculated, with a good score being decided as nine out of 14. Other than the signs and symptoms, parents were also unaware of diagnosis

and treatment methods. Thus delay in identification and intervention of the disorder would lead to unsatisfactory outcomes in patients. As parents are the primary caregivers, significant efforts should be taken to raise their knowledge levels regarding autism through awareness campaigns. Health professionals should also be directed to educate new parents on all details concerning autism (Khan et al., 2018).

2.1 Autism and family related information

In general, parents are under a significant amount of pressure. Research says that co-parenting—when two or more adults (parents, grandparents, family members, friends) work together to share caregiving responsibilities—can be an essential source of support for parents of children with autism. Dijkstra et al., 2015 conducted a study on 150 fathers and mothers of children with autism in Australia. The participants completed questionnaires about several aspects of their parenting experience. They rated levels of their co-parenting—how well they communicated and worked as a team and how much they respected their partner's caregiving commitment and judgment. Parents also answered questions about their stress and confidence in their parenting role. Parents who had better co-parenting relationships also tended to have less parenting stress. "The most important source of parenting support for many parents is the support they receive from their parenting partnership," researcher Chris May and his colleagues. Parents of children with autism may feel more isolated from friends and family, making co-parenting support from partners even more significant. In a 2017 study, May and his colleagues explored why a sense of confidence and competence in co-parenting might be helpful. To capture a range of perspectives, they interviewed 11 cohabiting couples—mothers and fathers—who reported experiencing relatively low or high stress. The researchers explored how parents adapted as they started to understand that their child had autism, how they experienced a sense of partnership in their

parenting, and how they expected their partnership would influence their child's development. For example, they asked parents questions like, "How important is your parenting relationship with [your partner] likely to be in determining [your child's] progress?" "How do you keep your parenting relationship working?" and "Has anybody ever talked to you about parenting teamwork concerning parenting a child with [autism]? A study found that parents who are confident in co-parenting tend to be better able to deal with their child's diagnosis, are motivated to do what they can for their child, and have great hope for their child's development (Jan et al., 2017)**.**

Early recognition is needed for the early implementation of multidisciplinary treatment, which improves the outcome. Enhanced public awareness is required to prevent delays in the provision of such services. Improved understanding would also help in minimizing possible associated social stigma. Such information is needed for planning adequate autism education and awareness campaigns. Assessment procedures depend on the referral question, referral source, setting, characteristics of the individual, and purpose of evaluation (Zaky, 2017). A set of team members are involved. Assessment consists of screening all children considered at-risk for atypical development. This initial screening includes general measures of developmental progress, then the child is screened for autism using tests specifically designed for this purpose. Some of the screening and diagnostic tests used for ASD in India are ISAA-Indian Scale for Assessment of Autism (Satabdi Chakraborty et al., 2015), and CARS-Childhood Autism Rating Scale (Eric Schopler et al., 1980). Early indicators of autism that are evident within the first year include lack of eye contact to initiate joint attention; emotionally distant behavior or dislike of affection; lack of imitation or social reciprocity; lack of functional use of nonverbal communication; and inappropriate use of toys. Screening for autism is also recommended if a sibling or other family member

has a diagnosis within the autism spectrum. If a child is determined to be at-risk for a developmental disorder, early identification is warranted because early intervention has been shown to lead to better outcomes in children with autism spectrum disorders. April is observed as the month of autism worldwide. Usually, organizations and companies aim to spread awareness and promote acceptance of Autism Spectrum Disorder (ASD) through campaigns, sharing resources, and creating events. This needs to extend even for the general population.

2.2 Early Intervention

Early intervention for autism should start as soon as possible. For some children, this might mean starting at 12 months old; for others, it might be five years old. The main thing is to get started as soon as development issues are noticed by parent's ,caregivers, etc. An early intervention program for a child with autism begins with a thorough assessment of the individual needs, strengths, interests of the child, and any developmental delays. Then a highly individualized program is created. This may include therapies to support areas identified as essential and meaningful to the child and family, with goals often supporting social communication, emotional regulation, and motor skills. The developmental milestones that the child has not met are those that are prioritized.

The idea is to help a child to develop and learn as much as he or she can. Some children need less support as they grow older; others still have high support needs. The goal of early intervention is to support children to develop to their full potential.

Choosing an early intervention program for a child with autism can be very overwhelming and confusing. Unlike other areas of childhood health, an autism

diagnosis doesn’t come with a ready-prepared treatment plan, and a network of health professionals are required to help implement it (Fombonne et al., 2003).

2.3 Factors affecting diagnosis of ASD

The research conducted by the University of Utah in collaboration with the Utah Department of Health (UDOH) shows that the presence or absence of ID and ASD varies with risk factors such as gender, parental age, maternal ethnicity, and the level of maternal education. ASDs are a group of childhood neurodevelopmental disorders characterized by problems with social interaction, communication, restricted and unusual behaviors, varying widely in severity. They may be accompanied with or without ID.

"ASDs represent a diverse group of conditions that may have different causes, and children with ASDs, either with or without ID, represent opposite ends of the autism spectrum," By identifying risk factors associated with ASDs, we may be able to understand the underlying causes of autism better" (McMahon et al., 2011).

Pinborough-Zimmerman et al. 2011 identified children with ASD and ID in a three-county area surrounding Salt Lake City through the Utah Registry of Autism and Developmental Disabilities in a multiple-source, population-based surveillance program.

They evaluated a variety of demographic factors and found that children with ASD but not ID were significantly more likely to be male and to have mothers of white, non-Hispanic ethnicity, whereas children with both ASD and ID were also more likely to be male but were more likely to have mothers older than 34 years of age. On the other hand, children with ID but not ASD were significantly more likely to have fathers

older than 34 years of age and considerably less likely to have mothers with more than 13 years of education.

CHAPTER 3

METHOD

The present study was undertaken to assess knowledge and awareness of Autism Spectrum Disorder among the general population in Neyveli Township, District of Cuddalore, Tamil Nadu. 200 individuals from the general population of the city were randomly selected. The participant ages ranged from 20 to 60 years. Individuals belonging to the medical profession, those who had at least a child with autism, and participants who were not able to comprehend Tamil language were excluded from the study.

3.1 Procedure

A survey was conducted, between May 2022 and July 2022 using an online survey tool to explore the awareness and knowledge of the general population in Neyveli, Tamil Nadu regarding Autism Spectrum Disorder.

3.2 Research questionnaire

A 25-item questionnaire was designed. The questions were aimed to probe into the deficits of Autism in 3 main domains such as social-emotional skills, communication skills, and sensory-motor behavior skills. The questionnaire was translated into Tamil language for use as a survey tool on a sample of individuals whose first language was Tamil and were proficient in reading and writing Tamil.

3.3 Validation

The questionnaire was validated by three SLPs with more than five years of experience in the field of ASD. The validated questionnaire (as given in the appendix)

was distributed as a survey tool to 200 participants, randomly selected from the population of Neyveli Township, Cuddalore District of Tamil Nadu.

3.4 Statistical Analysis

The data was analyzed and interpreted using Statistical Package for Social Sciences (SPSS version 26). Individual responses were counted and displayed using frequency and percentages.

CHAPTER 4

RESULTS & DISCUSSION

The present study aimed to explore knowledge and awareness about Autism Spectrum Disorder among 200 individuals from the general population living in Neyveli Township, Cuddalore District of Tamil Nadu. Out of the study population, 51% were Males, and 49% were Females, as presented in Table 4.1. The participant age range was 20-60 years, as shown in Table 4.2. Considering the type of work set up of the participants, 60% of the participants belonged to government jobs, and 40% of the participants to private jobs. Those who were housewives, students, and unemployed were excluded, while considering the work set up as presented in Table 4.3.

Table 4.1

Gender of the participants

Gender	Frequency	Percent
Male	102	51.0
Female	98	49.0
Total	200	100.0

Table 4.2

Age in years of the participants

Age	Frequency	Percent
20-30 Years	97	48.5
30-40 Years	64	32.0
40-60 Years	39	19.5
Total	200	100.0

Table 4.3

Type of work set up of the participants

	Frequency	**Percent**	**Valid Percent**
Government Jobs	93	46.5	60.0
Private Jobs	62	31.0	40.0
Total	155	77.5	100.0
Population excluded Housewives, students, and unemployed.	45	22.5	
Total	200	100.0	

4.1 Opinions of Parents about Autism Spectrum Disorder

Survey of opinions on Autism Spectrum Disorder, on the population selected for the study revealed that 41.0% had heard of Autism Spectrum Disorder, while 59.0% had not even heard of autism. The poor scores in awareness obtained in the

present study are in consensus with the results from a study conducted in Pakistan (Khan , 2018), where 25% of the participants had heard of autism while 75% had not even heard of autism. Knowledge and Awareness of signs and symptoms of Autism Spectrum Disorder among the general population of Neyveli Township, Cuddalore District of Tamil Nadu were probed by considering three main deficits areas in Autism Spectrum Disorder- social & Emotional deficits, Communication deficits, Behaviour and Sensory motor deficits.

4.1.1 Social & Emotional deficits

According to the Diagnostic and Statistical Manual (DSM V,), one of the core characteristics of autism is impaired social functioning. Children with Autism Spectrum Disorder often struggle with peer interactions (Bennett et al.,2016).

Kanner 2003 with regard to emotional impairments, reported that children with ASD tend to be indifferent to other people, self–absorbed, emotionally cold, distanced, and retracted. Emotional impairments were considered a part of the social impairments in ASD (Buitelaar et al.,2015).

Table 4.4 gives the frequency and percentage of knowledge scores on the domain of social & emotional deficits in ASD. With regard to the awareness of the social & emotional deficits in ASD, participants responded yes/no. When they were unsure, they reported I don't know.

Table - 4.4

Social & Emotional Deficits of ASD

Sl. No	Question	ஆம்		இல்லை		எனக்கு தெரியாது	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1.	குழந்தை கண்களை நேராக பார்த்து பேசுவதை தவிர்த்தல்.	59	29.5%	128	64.0%	13	66.5%
2.	குழந்தை தமது அல்லது மற்றவர் உணர்வுகளை புரிந்து கொள்ளாமை.	62	31.0%	125	62.5%	13	66.5%
3.	மற்ற குழந்தைகளுடன் விளையாடுதல் பகிர்தல் மற்றும் பேசுதலில்ஆர்வம் காட்டாமை.	62	31.0%	131	65.5%	7	3.5%
4.	தனிமையில் இருப்பதை விரும்புதல்.	61	30.5%	127	63.5%	12	6.0%
5.	குழந்தை தொடுதல் அணைத்துக்கொள்ளுதல் ஆகிய வற்றை தவிர்த்தல் அல்லது மறுத்தல்	59	29.5%	134	67.0%	7	3.5%
6.	குழந்தைகள் பேரு சொல்லி அழைக்கும் பொது பதில் அலைகிறார்களா.	46	23.0%	149	74.5%		
7.	குழந்தைகள் காயப்படும்போதுசொல்வார்களா .	36	18.0%	150	75.0%	14	7.0%

4.1.2 Communication deficits

Children with ASD communicate and use language depending on their intellectual and social development. Some children with ASD may not be able to communicate using speech or language, and some may have minimal speaking skills. Others may have rich vocabularies and be able to talk about specific subjects in great detail (National Institute on Deafness and Other Communication Disorders, 2009).

Table 4.5 gives the frequency and percentage of knowledge scores on the domain of communication deficits. With regard to the awareness of the communication deficits in ASD deficits, participants responded yes/no. When they were unsure, they reported I don't know.

Table-4.5

Communication Deficits OF ASD

Sl. No	Question	ஆம்		இல்லை		எனக்கு தெரியாது	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1.	குழந்தை பேசுவதில் தாமதம்.	54	27%	135	67.5%	11	5.5%
2.	சொன்ன வார்த்தைகளையே திரும்ப திரும்ப பேசுதல்	53	26.5%	135	67.5%	12	6.0%
3.	பேசத் தொடங்கிய தலைப்பை விட்டு வேறு செய்திகளை பேசுதல்.	57	28.5%	130	65.0%	13	6.5%
4.	குழந்தை காமெடி மற்றும் சில உணர்வுகளை புரிந்து கொள்ள முடியாமை.	58	29.0%	128	64.0%		-
5.	தங்கள் தேவை மற்றும் உணர்வுகளை வெளிப்படுத்த சிரமப்படுதல்.	60	30.0%	128	64.0%	12	6.0%

4.1.3 Behavior & Sensory motor deficits of ASD

Children with autism may exhibit odd emotional behavior and Social fears. These can manifest as compulsive behaviors and aggression. Many require order and routine to be maintained as they transition from one activity to another. They may endlessly repeat certain behaviors. Changes in routine can easily frighten them, resulting in tantrums and aggression. Aggression may result in self-injurious behaviors and other behavioral issues.

Table 4.6 gives the frequency and percentage of knowledge scores in the domain of Behavior & Sensory, Motor Deficits. With regard to the awareness of the communication deficits in ASD deficits, participants responded yes/no. When they were unsure, they reported I don't know.

Table 4.6 *Behaviour & Sensory, Motor Deficits*

Sl. No	Question	ஆம்		இல்லை		எனக்கு தெரியாது	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
1.	சுற்றுச் சூழல் மாற்றவங்களுக்கு ஒத்துப் போக சிரமப்படுதல்.	51	25.5%	139	69.5%	10	5.0%
2.	கைகளை உதறுதல்,ஆடுதல் ,குதித்தல் சுழதுதல் ஆகிய செயல்களை திரும்ப திரும்ப செய்தல்.	55	27.5%	132	66.0%	13	6.5%
3.	ஏதாவது ஒரு பொருள் அல்லது செயலில் அதிக ஆர்வம் காட்டுதல்.	41	20.5%	146	73.0%	13	6.5%
4.	வழக்கமான செயல் பாடுகளில் சிறிய மாற்றம் ஏற்பட்டாலும் எரிச்சலடைவது.	49	24.5%	136	68.0%	15	7.5%
5.	குழந்தை தனது தேவைகளை சுட்டிக்காட்ட ஆள்காட்டி விரலைப் பயண்படுத்துதல்.	59	29.5%	130	65.0%	11	5.5%
6.	தொடுதல்,வெளிச்சம்,சப்தம் ஆகியவற்றால் அதிக உணர்ச்சிவசப்படுதல்.	58	29.0%	128	64.0%	14	7.0%

7.	தன்னிடம் மற்றும் பிறரிடம் முரட்டுத்தனமாக நடந்து கொள்ளுதல்.	52	26.0%	133	66.5%	15	7.5%
8.	ஏந்த செயலிலும் நீடித்த கவனம் செலுத்தாமல் நடந்து கொள்ளுதல்.	51	25.5%	135	67.5%	14	7.0%
9.	விநோதமான வித்தியாசமான உண்ணும் பழக்கம்.	61	30.5%	128	64.0%	11	5.5%
10.	மிக்ஸி மற்றும் குக்கர் விசில் சாதத்துக்கு குழந்தைகள் தங்கள் காதுகளை கைகளால் மூடிக் கொள்கிறார்களா ?	51	25.5%	135	67.5%	14	7.0%
11.	குழந்தைகள் தங்கள் நிழல் உடன் அதிகமாக விளையாடுகிறார்களா?	61	30.5%	128	64.0%	11	5.5%
12.	அதிக வெளிச்சம் வெடிச்சத்தம் ஆகியவற்றுக்கு எரிச்சல் அடைகிறார்களா?	53	26.5%	132	66.0%	15	7.5%
13.	எல்லா பொருட்களையும் உருட்டுவது சுத்தி விளையாடுகிறார்களா	57	28.5%	133	66.5%	10	5.0%

From the table 4.4, 4.5, 4.6 it can be observed that around 27% of the general population had knowledge of social & emotional deficits, communication deficits, Behavior and Sensory, Motor Deficits, while around 73 % didn't possess enough knowledge on the three domains. Hence the three domains social & emotional deficits, communication deficits, Behavior and Sensory, Motor Deficits in children with Autism Spectrum Disorder becomes an important focus with regard to public education.

Based on Shapiro's Wilcoxon test of normality, all the participant's responses across age, gender, and type of setup were found to be not normally distributed. Hence suitable nonparametric tests were used for comparisons as discussed below.

4.2 Comparison of knowledge scores across gender

Mann-Whitney Test was done to find the comparison between gender of the participant's and their knowledge scores. The test revealed no significant difference in knowledge scores across gender (/z/=0.741; P=0.458). Mann-Whitney tests were also done to compare knowledge scores across the three sections- social, emotional deficits, communication deficits and behaviour, sensory motor deficits. While no significant difference was seen with social and emotional deficits and behavior, sensory-motor deficits, significant difference was seen across gender with respect to Communication deficits (/z/=2.213; P<0.05). Similar findings were reported by Abusukkar et al. (2020) who conducted series of studies on a population from Saudi. Also in the present study, the mean knowledge scores were higher for females (104) than for males (98) indicating that females being usually the primary caregivers would be better able to indentify the features of ASD.

4.3 Comparison of knowledge scores across age category

Kruskal Wallis test was done to find a comparison of knowledge scores across

age of the participants. No significant difference was seen in knowledge scores among the participants across age. Thus there was no difference in knowledge about ASD between younger and older subjects of the population $x^2(2)=4.190$ $x=0.123$. Kruskal Wallis test was also done to compare knowledge scores across the 3 domains of social and emotional deficits, Communication deficits, Behaviour, and Sensory Motor deficits. No significant difference was seen in knowledge scores across ages for the three domains. This shows there is no difference in awareness of Autism Spectrum Disorder between younger and older individuals.

4.4 Comparison of knowledge scores across work set up

Mann-Whitney Test was done to find the comparison between type of work set and the total knowledge scores among the participants. Significant difference in knowledge scores was seen across type of work setup ($/z/=2.059$; $P < 0.05$). Mann Whitney Test was also done to compare three sections of social and emotional deficits, communication deficits, behaviour and sensory, motor deficits. While no significant difference was seen with social and emotional deficits and Communication deficits, significant difference was seen across work set up with respect to behavior and sensory-motor deficits ($/z/=3.303$; $P<0.05$).

This shows that in Government jobs, people have more knowledge and awareness than those working in Private set ups. This could be because government employees may have had better exposure to health-related aspects as they have accessibility to attend webinars, seminars, and workshops. However, this kind of exposure might be less for people in private setups.

Owing to reduced knowledge and awareness of Autism Spectrum Disorder among general population of Neyveli, significant effort should be taken to organize

more public awareness and public education programs. Health professionals like doctors, nurses, paramedical, etc., should also be directed to educate government and Private set-ups to raise awareness about Autism Spectrum Disorder.

Chapter V

Summary and conclusion

The present study aimed to investigate the awareness and knowledge of ASD among the general population in Neyveli Township, Cuddalore District, Tamil Nadu. A 25-item questionnaire was designed. The questions aimed to probe into the deficits of Autism Spectrum Disorder in 3 main domains such as social-emotional skills, communication skills, and sensory-motor behavior domain. The questionnaire was translated into the Tamil for a use as survey tool among the general population of Neyveli Township. The questionnaire was validated by three SLPs with more than five years of experience in the field of ASD. The final questionnaire was developed based on the comments and suggestions given by the validators, as well as the ratings obtained during content validation. The validated questionnaire was distributed as a survey tool to 200 participants. The content in the questionnaire included information regarding three different sections social and emotional deficits, Communication deficits, Behaviour, and Sensory Motor deficits. A Survey of general population opinion on Autism Spectrum Disorder revealed that 41.0% had heard of Autism Spectrum Disorder, while 59.0% had not heard of Autism Spectrum Disorder. Thus majority of the participants were not even aware about the disorder. More number of females had better knowledge regarding autism compared to males. Among the 3 domains the females had significantly more knowledge scores for Communication Deficits. No significant difference was seen in knowledge scores among the participants across age. With regard to the different work set up across persons in Government jobs, had more knowledge and awareness than those working in Private work set up. Significant difference between the work set ups was obtained for behavior and sensory motor domains with individuals in Government set up faring better. This could be because

government employees have better exposure to health-related aspects as they have the accessibility to attend webinars, seminars, and workshops. This kind of exposure might be less for people in private setups. Other than the signs and symptoms, the general population is also unaware of diagnosis and treatment methods. As parents are the primary caregivers, significant efforts should be aimed at raising knowledge levels among them regarding autism through awareness campaigns. This would help in early identification and management of Autism Spectrum Disorder. Also, significant efforts should be taken to raise knowledge and awareness of ASD among the general population. Hence more public awareness and public education programs have to be organized. Health professionals like doctors, nurses, paramedics, etc., should also be directed to educate the general population including people from government and Private set-ups to raise awareness about Autism Spectrum Disorder.

5.1 Limitation of the study

- The study was restricted to one region (Neyveli Township) in the Cuddalore District of Tamil Nadu. Probing into other regions would give a better picture of awareness of autism Spectrum Disorder across Cuddalore District.
- Due to time constraints, public education programs could not be planned to raise awareness of Autism Spectrum Disorder among the general population of Neyveli.

5.2 Future directions

- Similar research on a large scale can be taken up, including more subjects.
- Different groups of subjects, such as only Parents or Teachers (Primary Secondary), Medical students, etc., can be taken for future studies.
- This study would further help in planning public education about Autism Spectrum Disorder.

- Similar research from different places will help compare knowledge and awareness about Autism Spectrum Disorder in other areas.

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APPENDEX A

SURVEY OF KNOWLEDGE AND AWARENESS REGARDING AUTISM SPECTRUM DISORDER AMONG PARENTS IN NEYVELI TOWNSHIP, CUDDALORE DISTRICT OF TAMIL NADU.

I, Ms.Kiruthika am pursuing my Master's degree at AIISH All India Institute of Speech and Hearing Mysore, As part of my Master's dissertation,I am conducting a survey to determine the knowledge and awareness regarding autism spectrum disorder among general population in Neyveli Township Cuddalore district of Tamil Nadu.This is conducted under a guidance of Dr. Anjana B Ram. Assistant Professor in Speech Pathology ,Department of Speech-Language Pathology ,All India Institute of Speech and Hearing, Mysuru.

Your participants is entirely voluntary. This survey would approximately take 10-15 minutes to answer. Your answer would have a valuable impact on the survey.

THANK YOU IN ADVANCE FOR YOUR PARTICIPATION

. Name

_____

!. Your gender

Mark only one oval.

- ◯ Male
- ◯ Female

Age(In years)

Tick all that apply.

- [ ] 20-30 years
- [ ] 30-40 years
- [ ] 40-60 years
- [ ] Above 60 years

Occupation

_____

ஆட்டிசம் பத்தி கேள்வி பட்டுட்டு உண்டா.

Mark only one oval.

- ◯ ஆம்
- ◯ இல்லை

எதில் இருந்து கேள்வி பட்டு உண்டு.

Tick all that apply.

- [ ] செய்திகள்
- [ ] புத்தகம்
- [ ] டாக்டர்
- [ ] சொந்தகாரங்கள்
- [ ] மற்றவை

குழைந்தை கண்களை நேராக பார்த்து பேசுவதை தவிர்த்தல்.

Mark only one oval.

- ◯ ஆம்
- ◯ இல்லை
- ◯ எனக்கு தெரியாது

மற்ற குழந்தைகளுடன் விளையாடுதல் பகிர்தல் மற்றும் பேசுதலில் ஆர்வம் காட்டாமை.

Mark only one oval.

- ஆம்
- இல்லை
- எனக்கு தெரியாது

தனிமையில் இருப்பதை விரும்புதல்.

Mark only one oval.

- ஆம்
- இல்லை
- எனக்கு தெரியாது

குழந்தை தொடுதல் அனைத்துக்கொள்ளுதல் ஆகிய வற்றை தவிர்த்தல் அல்லது மறுத்தல் .

Mark only one oval.

- ஆம்
- இல்லை
- எனக்கு தெரியாது

குழந்தை பேசுவதில் தாமதம்.

Mark only one oval.

- ஆம்
- இல்லை
- எனக்கு தெரியாது

சொன்ன வார்த்தைகளையே திரும்ப திரும்ப பேசுதல்.

Mark only one oval.

- ஆம்
- இல்லை
- எனக்கு தெரியாது

குழந்தை காமெடி மற்றும் சில உணைர்வுகள் புரிந்து கொள்ள முடியாமை.

Mark only one oval.

- ஆம்
- இல்லை
- எனக்கு தெரியாது

தங்கள் தேவை மற்றும் உணரவுகள் வெளிப்படுத்த சிரமப்படுதல்.

Mark only one oval.

- ◯ ஆம்
- ◯ இல்லை
- ◯ எனக்கு தெரியாது

நீ அல்லது நீங்கள் என் பதற்கு பதிலாக நான் என்ற பதத்தை பயன் படுத்துதல்.

Mark only one oval.

- ◯ ஆம்
- ◯ இல்லை
- ◯ எனக்கு தெரியாது

கைகளை உதறுதல்,ஆடுதல் ,குதித்தல் சுழதுதல் ஆகிய செயல்களை திரும்ப திரும்ப செய்தல்.

Mark only one oval.

- ◯ ஆம்
- ◯ இல்லை
- ◯ எனக்கு தெரியாது

ஏதாவது ஒரு பொருள் அல்லது செயலில் அதிக ஆர்வம் காட்டுதல்.

Mark only one oval.

- ◯ ஆம்
- ◯ இல்லை
- ◯ எனக்கு தெரியாது

வழக்கமான செயல் பாடுகளில் சிறிய மாற்றம் ஏற்பட்டாலும் எரிச்சலடைவது.

Mark only one oval.

- ◯ ஆம்
- ◯ இல்லை
- ◯ எனக்கு தெரியாது

குழந்தை தனது தேவைகளை சுட்டிக்காட்ட ஆள்காட்டி விரலைப் பயண்படுத்துதல் .

Mark only one oval.

- ◯ ஆம்
- ◯ இல்லை
- ◯ எனக்கு தெரியாது

தொடுதல்,வெளிச்சம்,சப்தம் ஆகியவற்றால் அதிக உணர்ச்சிவசப்படுதல்.

Mark only one oval.

- ◯ ஆம்
- ◯ இல்லை
- ◯ எனக்கு தெரியாது

தன்னிடம் மற்றும் பிறரிடம் முரட்டுத்தனமாக நடந்து கொள்ளுதல்.

Mark only one oval.

- ◯ ஆம்
- ◯ இல்லை
- ◯ எனக்கு தெரியாது

ஏந்த செயலிலும் நீடித்த கவனம் செலுத்தாமல் நடந்து கொள்ளுதல்.

Mark only one oval.

- ◯ ஆம்
- ◯ இல்லை
- ◯ எனக்கு தெரியாது

விநோதமான வித்தியாசமான உண்ணும் பழக்கம்.

Mark only one oval.

- ◯ ஆம்
- ◯ இல்லை
- ◯ எனக்கு தெரியாது

மிக்ஸி மற்றும் குக்கர் விசில் சாதத்துக்கு குழந்தைகள் தங்கள் காதுகளை கைகளால் மூடிக் கொள்கிறார்களா ?

Mark only one oval.

- ◯ ஆம்
- ◯ இல்லை
- ◯ எனக்கு தெரியாது

குழந்தைகள் தங்கள் நிழல் உடன் அதிகமாக விளையாடுகிறார்களா?

Mark only one oval.

- ◯ ஆம்
- ◯ இல்லை
- ◯ எனக்கு தெரியாது

. அதிக வெளிச்சம் வெடிச்சத்தம் ஆகியவற்றுக்கு எரிச்சல் அடைகிறார்களா?

Mark only one oval.

- ◯ ஆம்
- ◯ இல்லை
- ◯ எனக்கு தெரியாது

. எல்லா பொருட்களையும் உருட்டுவது சுத்தி விளையாடுகிறார்களா ?

Mark only one oval.

- ◯ ஆம்
- ◯ இல்லை
- ◯ எனக்கு தெரியாது

. குழந்தைகள் காயப்படும்போது சொல்வார்களா

Mark only one oval.

- ◯ ஆம்
- ◯ இல்லை
- ◯ எனக்கு தெரியாது

. குழந்தைகள் பேரு சொல்லி அழைக்கும் பொது பதில் அலைகிறார்களா

Mark only one oval.

- ◯ ஆம்
- ◯ இல்லை
- ◯ எனக்கு தெரியாது