Addis Ababa University
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Depression, anxiety, and stress level of Cargivers of children with autism spectrum disorder in three selected school in Addis Ababa

A thesis submitted to the school of psychology in partial fulfillment of the requirements for the Degree of Masters of Arts (MA) in counseling psychology

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Addis Ababa University

College of Education and Language Studies School of Psychology

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Approval of the Board of Examiners:

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Declaration

The researcher hereby declares that the thesis on the title “Depression, anxiety, and stress level of Cargivers of children with autism spectrum disorder in three selected school in Addis Ababa ’ is my original work and that all source of materials used for thesis have been properly acknowledged.

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The thesis has been submitted for examination with my approval as a university advisor.

Name of the advisor; Dr. Moges Ayele (PHD)

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Abstract

This study examines of depression, anxiety, and stress level of caregivers of children with autism spectrum disorder in three selected schools in Addis Ababa, Ethiopia involving 85 participants. The data were analyzed quantitatively. Most of the participants in this study were 44(51.8%) female while 41(48.2%) were male. The current study finds that out of 85 parents assessed with the DASS, 12.9% were within the normal range, 11.8% had mild depression, 29.4% had moderate depression, 27.1% had severe depression, and 18.8% had extremely severe depression. Overall, 87.1% of parents experienced some degree of depression above the normal range, reflecting a substantial mental health burden among caregivers of children with ASD. Based on the DASS assessment of 85 parents, 12.9% were in the normal range, 14.1% had mild anxiety, 37.6% experienced moderate anxiety, 22.4% experienced severe anxiety, and 12.9% experienced extremely severe anxiety. In total, 87.1% of parents reported anxiety levels above the normal range, indicating a markedly high prevalence of anxiety among caregivers of children with ASD. Among the 85 parents assessed using the DASS scale, 14.1% were within the normal range, 12.9% reported mild stress, 27.1% reported moderate stress, 34.1% reported severe stress, and 11.8% reported extremely severe stress. Taken together, 87.9% of participants experienced some degree of stress above the normal range, indicating a high burden of stress among parents of children with ASD.

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ACRONYMS AND ABBREVIATIONS

ASD- Autism Spectrum Disorder

CI- Confidence Interval

DASS - Depression Anxiety Stress Scale

IRB - Institutional Review Board

OR- Odd Ratio

SPSS - Statistical Package for the Social Sciences

1. Introduction

1.1 Background

Autism spectrum disorder is a complex neurodevelopmental disorder characterized by repetitive patterns of behavior, social interaction challenges, and communication challenges. ASD is typically diagnosed early in childhood, and is a lifelong disorder. The prevalence of autism is rising globally; recent estimates indicate that 1 in 100 children are affected (WHO, 2022). While autism is increasingly recognized, families in low-resource communities with limited access to health facilities and little public awareness of the disorder continue to face many challenges, including the mental health of parents and caregivers, who often suffer a great deal of psychological stress from caring for an autistic child (Estes et al., 2013).

Research has shown that parents of children with autism have elevated levels of stress, anxiety, and depression compared to parents of typically developing children or children with other developmental disabilities (Dabrowska and Pisula, 2013), and raising a child with ASD can be particularly challenging for parents in high-income countries (Dabrowska and Pisula, 2013). The impact on parental mental health of raising a child with ASD has been well documented in high-income countries (Dabrowska and Pisula, 2013). Caregiving for a child with ASD can be extremely demanding, and caregivers can be faced with significant emotional strain due to the challenges of managing difficult behaviors, communication issues, and accessing appropriate interventions (Weiss et al., 2012).

In Ethiopia, there is limited awareness about ASD. Persons with developmental problems are still stigmatized in society, and autism is often misperceived; there are misconceptions about autism that exist in many societies, including the belief that it is caused by bad parenting or that it is caused by supernatural forces, which marginalizes families with children on the spectrum

(Tekola et al., 2020). As a result, parents of children with autism often experience feelings of isolation, guilt, and embarrassment that can greatly impact their mental health, with mothers often bearing the brunt of caregiving and becoming the subject of social criticism that exacerbates their psychological distress (Tilahun et al., 2016).

While the number of diagnoses of autism in Addis Ababa, Ethiopia, has increased as autism awareness has increased and specialized autism facilities have been established, there are still few resources and therapies available for children with ASD, and most families lack support. There are not enough trained specialists in Ethiopia who specialize in autism care, and public health services are not prepared to meet the needs of autistic children and their caretakers (Tekola et al., 2020). Many parents of children with autism in Addis Ababa report long wait times for a diagnosis and difficulty accessing appropriate therapies; in the resource-limited context, parents also have few autism-specific educational institutions and programs to choose from (Tilahun et al., 2016).

The cost of raising a child with autism also takes a financial toll on families in Addis Ababa. With limited or no public options available, parents are often forced to pay out-of-pocket for special services, therapies, or private education (Tekola et al., 2020). This economic burden compounds the stress caregivers endure, which may already be significant given the financial difficulties experienced by many of them. In addition, the 24-hour care needed by children with autism means that the mother is likely to be unable to work, further straining the family finances (Weiss et al., 2012). Although caregivers of children with ASD face obvious mental health challenges, there is very little research on the parents of children with ASD in Ethiopia, where most research on ASD in the nation has focused on the disorder itself and the needs of the children on the spectrum, rather than on the parents who play such a significant role in the health

of their children. In this particular environment, it is crucial to look into the mental health of parents and guardians of autistic children because of the distinctive cultural, economic, and societal elements that influence the caregiving experience in Addis Ababa.

In order to close this gap, this study will look at the mental health conditions of parents and guardians of autistic children in Addis Ababa, as well as the psychological stressors and coping mechanisms that these individuals use. Comprehending the distinct obstacles encountered by these caregivers will be pivotal in shaping the creation of focused therapies and support networks that might mitigate their psychological loads and enhance their general welfare. Given the strong correlation between parental mental health and the caliber of care given to the kid, addressing the mental health of caregivers is crucial for both their personal wellbeing and the wellbeing of their autistic children. (Hayes and Watson, 2013),

1.2 Statement of the Problem

A neurodevelopmental disorder known as autism spectrum disorder (ASD) affects millions of people globally. Repetitive habits, narrow interests, and ongoing deficiencies in social communication are its hallmarks. The complications of autism affect the whole family, not just the person who has been diagnosed; parents or guardians are frequently the primary caregivers. Around the world, parents of autistic children report much higher levels of stress, anxiety, and depression than parents of neurotypical or other developmental disabled children.(Dabrowska and Pisula, 2010). The daily struggles related to autism, such as behavioral problems, communication difficulties, and the requirement for continual supervision and intervention, lead to this increased stress.

The mental health toll on parents and guardians of autistic children is especially high in Addis Ababa, Ethiopia, where services and knowledge of ASD are scarce. Due to a lack of diagnostic resources and knowledge, the incidence of autism in Ethiopia is not well known, but it is obvious that the rising number of identified children increases the difficulties that families confront in providing treatment. Numerous Addis Ababa-specific socioeconomic and cultural elements exacerbate the severity of this problem. In low- and middle-income countries, such as Ethiopia, parents may have less access to health care and services to support their children, as there is often a lack of medical infrastructure, qualified professionals, and social acceptance of disabilities (Tilahun et al., 2016). Because developmental disorders are stigmatized in society, Ethiopian parents of children with ASD experience great psychological distress, and families are ostracized because it is believed that autism has supernatural causes or is the result of maternal failure (mothers, in particular, are subject to social criticism).

The healthcare systems in Addis Ababa are inadequate to meet the special requirements of children with autism and their caregivers, and many families there express a sense of being cut off from their communities and unsupported. This has been documented in previous research and there is also a lack of awareness and trainings (Tilahun et al., 2016). Mental health problems among parents of autistic children are more severe in Addis Ababa, where there are few resources and support for managing ASD and there are few facilities, therapy centers, special schools, and qualified medical personnel to aid the child in Ethiopia (Tekola et al., 2020). The constant, high-stress situation arises when parents are often left on their own to handle the complex needs of their children.

Parents often must meet the complex demands of their children alone, with no assistance, and the resulting financial pressures of accessing special education services or private care further erode

parental mental health. Families often experience financial strain because of high medical costs, loss of jobs due to caregiving responsibilities, and limited access to public services (Tilahun et al., 2016).

In other countries like Saudi Arabia and Eastern china, up to 80 percent of parents of autistic children report high levels of stress, and many meet the clinical criteria for anxiety and depression (Hayes and Watson, 2013). A comprehensive study of these mental health problems has not been conducted in Addis Ababa, but anecdotal data suggests that stress, worry, and depression are extremely common among parents of autistic children, and the lack of official assessments and empirical data about these issues renders these parents invisible in public health policy.

Due to its scale combined with cultural stigma, lack of healthcare resources, financial burden and social isolation, the problem poses a serious public health concern. This study will try to close that gap by examining the mental health of these parents and identifying what triggers their psychological discomfort. This is key to lifting the standard of living for families of children with autism by creating resources and regulations to assist caregivers in Addis Ababa.

1.3 Research questions

1. What is the prevalence of depression, anxiety and stress of caregivers of children with autism spectrum disorder in Addis Ababa?

2. What are the factors associated with depression, anxiety and stress of caregivers of children with autism spectrum disorder?

1.4 Significance of the study

This study provides valuable information about depression, anxiety and stress of the caregiver of autistic children in Addis Ababa, and can inform the design of treatments targeted at providing support for these caregivers by identifying the specific challenges and stressors they face. Furthermore, the results will help generalize the mental health issues of caregivers of autistic children in other areas of Ethiopia and low-resource settings worldwide.

1.5 Objectives

1.5.1 General Objective

- To assess depression, anxiety, and stress of parents and guardians of children with autism in Addis Ababa, Ethiopia 2024.

1.5.2 Specific Objective:

- To identify the factors associated with the mental health challenges of these parents, including social stigma, access to services, financial strain, and caregiving burden.
- To measure the levels of stress experienced by parents and guardians of children with autism.

1.6 Operational Definition

Parental anxiety, depression, and stress Level: were assessed using the Depression, Anxiety, and **Stress** Scale (DASS-21). The tool consists of 21 items divided into three subscales.

Autism spectrum disorder: persistent deficits in social communication and social interactions, along with restricted and repetitive patterns of behavior.

Depression: a state of mind associated with the lowering of a person's mood.

Anxiety: Intense, excessive and persistent worry and fear about a situation.

Stress: feeling of emotional strain and pressure.

2. Litrature review

2.1 Introduction

A neurodevelopmental disorder known as autism spectrum disorder (ASD) is typified by challenges with social interaction, communication, and confined, repetitive behaviors. As autism spectrum disorders (ASD) become more commonplace worldwide, there is a growing recognition of the effects these disorders have on autistic people as well as their families, especially on parents and guardians. Studies regularly show that parents of autistic children encounter different difficulties than parents of neurotypical children, which can lead to increased stress, anxiety, and depression (Hayes and Watson, 2013; Altiere and Kluge, 2009).

The diagnosis and treatment of autism have received a lot of attention in Addis Ababa, Ethiopia; there are increased research funding, expanded diagnostic criteria, and also increased media coverage however, the mental health of parents and guardians raising children with ASD has received less attention, the mental health difficulties that these parents confront could be made worse by the cultural, social, and economic circumstances of Addis Ababa because of societal stigma, a lack of resources, and insufficient social support networks.

By utilizing both international and local research, this review of the literature seeks to investigate the mental health issues that parents of autistic children in Addis Ababa confront, as well as the contributing variables.

2.2 Global Perspective on the Mental Health of Parents of Children with Autism

Several studies have shown that because of the intricacies of autism and the caring responsibilities it involves, raising a child with the disorder can be extremely stressful. These parents' mental health is frequently marked by high levels of stress, anxiety, depression, and emotional tiredness (Annette et al., 2010). As an illustration, parents of autistic children report higher levels of psychological anguish than parents of children with other developmental disorders. (Dabrowska, 2017).

According to a well-known international study conducted in 2009 by Phetrasuwan and Shandor, 60% of moms of autistic children had moderate to severe depression (Phetrasuwan and Shandor, 2009). In a similar vein, Weiss, Cappadocia, MacMullin, Viecili, and Lunsky (2012) found that 25% of parents of children with ASD also fulfilled the clinical criteria for depressive disorders, while 35% of parents of children with ASD met the criteria for anxiety disorders (Weiss et al., 2012). The following elements are frequently cited as causes of these mental health issues:

- **Behavioral challenges of the child**: The difficult behaviors that are frequently linked to ASD, like violence, self-harm, and noncompliance, can be very difficult on caregivers (Hendrix and O'Brien, 2022).
- **Financial burden:** Parental stress is increased when they have to pay large amounts of money for therapy, medical care, and educational help when raising a child with ASD (Sharpe and Baker, 2007).

- **Social isolation:** Because of the stigma associated with autism and the difficulties integrating their kid into conventional social activities, parents of children with ASD often report feeling socially isolated (Gray, 2006).

2.3. Mental Health of Parents of Children with Autism in Low-Resource Settings

The difficulties parents of autistic children encounter may be exacerbated in low-resource environments like Ethiopia by extra social, cultural, and economic issues. For kids with ASD, access to early intervention programs, specialized healthcare, and educational resources is frequently restricted in these environments.(Tekola et al., 2020).

In sub-Saharan Africa, where awareness of and acceptance of autism are still growing, parents are often stigmatized and shunned by their communities; many families report that because autism was once thought to be a result of paranormal causes, they were blamed for their child becoming sick (Tekola et al., 2020). This societal stigma can also be a source of stress for parents, who might feel isolated and unsupported. Research in low-income countries suggests that high levels of psychological suffering are reported by parents of ASD children due to lack of information, lack of resources, and social stigma (Tekola et al., 2020).

2.4. Mental Health of Parents in Addis Ababa: A Local Perspective

Very little research has been done on the mental health of parents of autistic children in Ethiopia, particularly in Addis Ababa, but some initial research is beginning to identify the challenges these parents face. One study of parents of autistic children in Addis Ababa found that most were experiencing significant mental distress (Tekola et al., 2020). These themes included:

- **Lack of Awareness and Services:** The public and even medical professionals are generally unaware of autism, which leads to increased stress for parents due to delayed diagnosis and limited access to effective interventions (Tekola et al., 2020).
- **Stigma:** Many parents experience social stigma in Addis Ababa because autism is considered a reflection of bad parenting or a curse, which often leads to parents, particularly mothers who are often the primary caregivers, feeling ashamed and socially isolated.(Tilahun et al., 2016)
- **Financial stress:** In underdeveloped countries such as Ethiopia, many parents do not have the resources to afford the therapies, medications, and educational support that their autistic child requires (Tekola et al., 2020). This lack of affordable and available care puts added stress on families, especially on families of lower socioeconomic status.
- **Marital stress and family dynamics:** When a child with autism is born, family ties can suffer greatly. Because of traditional gender norms in Ethiopia, women are often the ones who must provide the majority of care, creating marital stress and possibly even conflict in the home (Tilahun et al., 2016).

2.5. Factors Contributing to Mental Health Challenges of Parents with autistic children in Addis Ababa

For example, factors that lead to the mental health difficulties parents and caregivers of children with autism in Addis Ababa face include:

- **Cultural factors:** Cultural and religious beliefs can play a large role in how disabilities are perceived in Ethiopia. As we are still learning about autism, families often look to traditional healers or religious leaders for answers, which may delay a proper diagnosis and treatment (Tekola et al., 2020). This cultural context can put parents under more

stress because they may feel as if they are to blame for the illness of their child, or feel guilty.

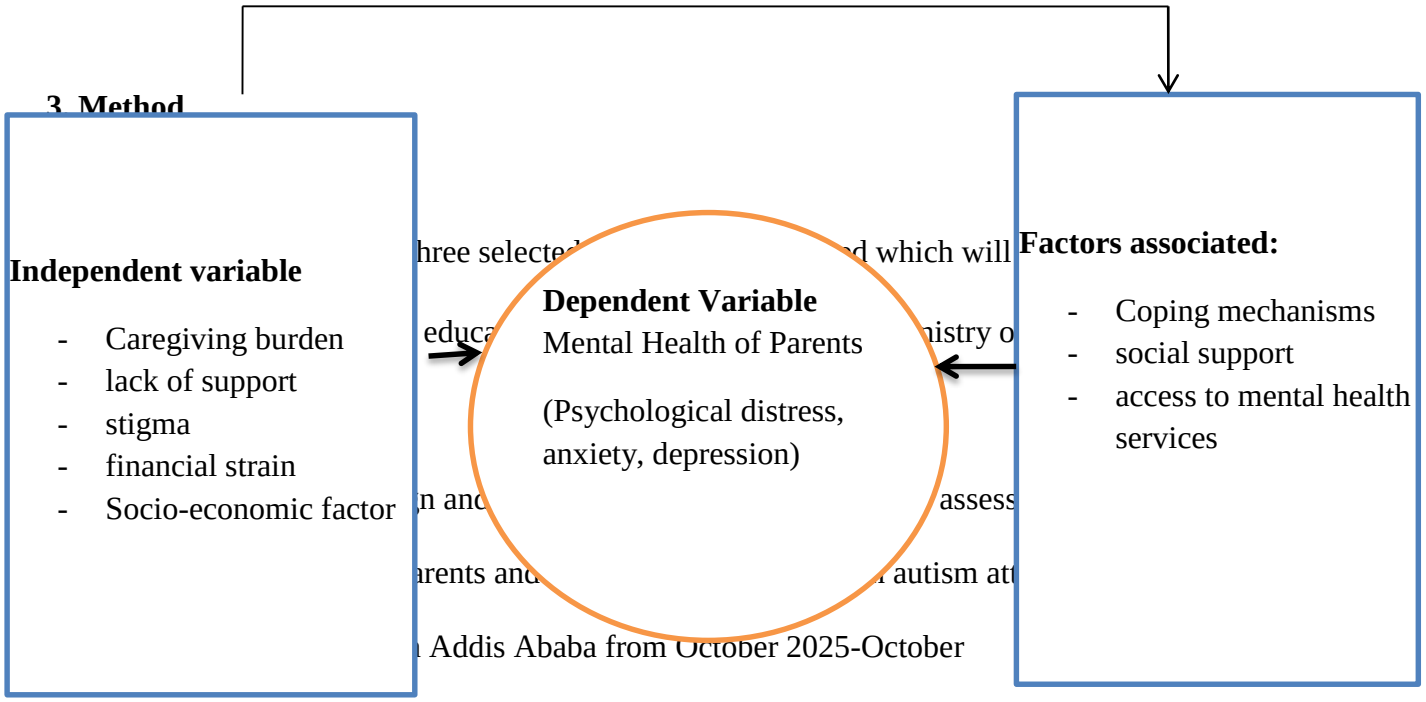
- **Gender roles:** Gender roles: Women are often expected to do most of the care in Addis Ababa. For example, the mothers of autistic children in Ethiopia often experience high levels of stress because of cultural expectations of them for caregiving responsibilities, as well as the lack of support from their husbands or other family members (Tilahun et al., 2016).
- **Limited support systems:** For parents of children with ASD, social support is an important protective factor against stress and mental health problems, but official support systems, such as counseling services, parent support groups, and respite care, are virtually nonexistent in Addis Ababa, which leads to parents feeling isolated and overwhelmed (Tilahun et al., 2016).
- **Financial constraints:** Like other low-resource settings, lack of money is a significant stressor; the high costs of specialized education and therapies. (Tekola et al., 2020).

2.6. Conclusion

Parents and guardians of autistic children in Addis Ababa experience a number of challenges that can impact their mental health, including social stigma, ignorance, and financial difficulty. Although there is currently little study on this subject in Ethiopia, what is known about it suggests that in order to lessen the stress on these families, more public knowledge of autism, improved social support networks, and focused mental health interventions are needed. By addressing these issues, parents' mental health outcomes and the treatment provided to autistic children in Addis Ababa can both improve.

2.7 Conceptual frame work

Figure 1 Conceptual frame work on Mental Health of Parents/Guardians of children with Autism in Addis Ababa, Ethiopia 20



3.3 Study population

Selected parents and guardians of children diagnosed with autism attending specialized autism centers, and schools in Addis Ababa. These include both private and public institutions that offer educational and therapeutic services for children with ASD.

3.4 Data collection procedure and Tools

A comprehensive list of both private and public institutions that offer educational and therapeutic services for children with ASD centers was obtained from the Bureau of Special Needs and Inclusive Education, which operates under the Ministry of Education, and participants was selected using a simple random sampling technique from the rosters of these institutions. Then structured questionnaire were adopted from related literatures and standard, including the

Depression, Anxiety, and Stress Scale (DASS-21) and will be employed to measure psychological distress (Hosmer and Lemeshow, 2000; Porter, 2009). Demographic data and information on social, financial, and caregiving factors will also be collected.

3.5 Inclusion and Exclusion Criteria

3.5.1 Inclusion Criteria

- Parents or guardians of children diagnosed with autism who are receiving care at autism centers or special schools in Addis Ababa.
- Participants who was willing to provide informed consent and participate in the study.

3.5.2 Exclusion Criteria

- Parents or guardians who did not have regular caregiving responsibilities for the child with autism (e.g., those whose children live elsewhere).

3.6 Sample Size Determination

The sample size was calculated using the single population proportion formula:

$$n = \frac{Z2 \cdot P \cdot (1 - P)}{d2}$$

Where:

- Z = 1.96 (the z-value for a 95% confidence interval),
- P = 0.5 (assuming a 50% prevalence of psychological distress among parents of children with autism, as no prior study in Ethiopia provides this data),
- d = 0.05 (the margin of error).

Substituting these values:

$\frac{1.96*1.96*0.5*(1-0.5)}{0.05*0.05}$ =384

Using the correction formula:

S= n/ (1+n/N)

n- Sample size for population

N- Number of total sample size

S= n/ (1+n/N)

= 384/ (1+384/100)

= 77

With an additional 10% to account for non-response the total sample size will be 85 participants.

3.7 Data processing and analysis

Data were entered and analyzed using SPSS version 25. Descriptive statistics included the percentages and frequency tables for categorical data were computed. For the bivariate model, P.V<0.25 was used as a cutoff point in the subsequent model to control possible confounders. Model fitness was checked by using Nagelkerke R^2 and the Hosmer and Lemshow test [18] , which yields values greater than 0.05 and multicollinearity was checked via tolerance>0.2 [19] and variance inflation factor (VIF) <5 [19] and the test of parallel lines was performed to verify the proportional odds assumption. Ordinal logistic regression analysis was carried out to identify independently associated factors. Finally, the results are presented as the crude odds ratio (COR) and adjusted odds ratio (AOR) with 95% confidence interval (CI). P< 0.05 was used as cutoff points to determine the level of significance.

3.8 Data quality management

To ensure high data quality pre-testing of the questionnaire was conducted to ensure clarity and relevance. Data collectors was trained on autism and research ethics and also regular monitoring was conducted during data collection to check for accuracy and completeness.

3.9 Dependent and independent variables

Dependent variable: depression, anxiety and stress level of parents of children with autism spectrum disorder.

Independent variable: age, gender, employment, marital status, number of children

3.10 Ethical consideration

The study was reviewed and approved by the institutional review board (IRB) of Addis Ababa University. Oral informed consent was obtained from all participants before data collection begins. All data was anonymized, and participants were assured that their responses will be kept confidential. Participants were informed of their right to withdraw from the study at any time without penalty.

4. Result

4.1 Socio-demographic characteristics of parents

A total of 85 participants participated in the study with a 100% response rate. Among them 44(51.8%) were female and 41(48.2%) were male.

The majority of the participants which take 32.9% has degree and above while 23.5% has secondary, 22.4% has diploma, and 21.2% has primary level of education. More than half of the participants are married and they take 51.8% and 48.2% are single. In case of employment

54.1% of the participants are employed and 45.9% of them are not employed. And 45(52.9%) of them get financial coverage while 40(47.1%) are not getting any financial coverage.

And 54.1% have a hired person to help them while 45.9% don't have hired person to help them.

Among the children 44(51.8%) are female and 41(48.2%) are male. Most of the children 70.6% were diagnosed as autistic disorder while 29.4% were diagnosed as Asperger's syndrome.

Most of the participants (20%) were informed about ASD for the first time by pediatrician.

Table 1 Distribution of socio-demographic characteristics

Variables	**Category**	**Fequency**	**Percent**
Gender of parent	Male	41	48.2%
	Female	44	51.8%
Highest completed educational level	Primary	18	21.2%
	Secondary	20	23.5%
	Diploma	19	22.4%
	Degree and more	28	32.9%
Marital status	Married	44	51.8%
	Single	41	48.2%
Employmet	Yes	46	54.1%

	No	39	45.9%
Financial coverage	Any coverage	45	52.9%
	None	40	47.1%
Person helps in taking care	Having hired person	46	54.1%
	Not having hired person	39	45.9%
Gender of children	Male	41	48.2%
	Female	44	51.8%
Diagnosis	Autistic disorder	60	70.6%
	Asperger's syndrome	25	29.4%
	Other pervasive developmental disorders	0	0
Informed about ASD for the first time	Neurologist	15	17.6%
	Psychiatrist	14	16.5%
	Psychotherapist	6	7.1%
	Pediatircian	17	20%

	On their own	12	14.1%
	Psychologist	10	11.8%
	Educational professional	11	12.9%

The age distribution of parents who participated in the study ranged from 26 years to 56 years and above. Nearly one-third of the parents were within the age categories of 26–35 years (29.4%) and 46–55 years (29.4%), respectively. About one-fourth of the participants were aged 36–45 years (25.9%), while the smallest proportion of parents were aged 56 years and above (15.3%). Overall, the findings suggest that the majority of the respondents were concentrated in the middle age categories (26–55 years), with relatively fewer older parents (≥56 years).

Table 2 Distribution of the age of parents

Age of Parents category	Frequency	Percent
26-35	25	29.4
36-45	22	25.9
46-55	25	29.4
>=56	13	15.3
Total	85	100.0

A total of 85 children of parents were included in the study. Of these, 29 (34.1%) were aged 3–6 years, 23 (27.1%) were aged 7–10 years, and 33 (38.8%) were aged 11–15 years. The largest

proportion of children belonged to the 11–15 years age group, followed by the 3–6 years group, while the 7–10 years group represented the smallest proportion.

Table 3 Distribution of the age of child

Age of child Category	Frequency	Percent
3-6	29	34.1
7-10	23	27.1
11-15	33	38.8
Total	85	100.0

4.2 Mental health of parents

4.2.1 Prevalence of Parental Depression

Out of 85 parents assessed with the DASS, 12.9% were within the normal range, 11.8% had mild depression, 29.4% had moderate depression, 27.1% had severe depression, and 18.8% had extremely severe depression. Overall, 87.1% of parents experienced some degree of depression above the normal range, reflecting a substantial mental health burden among caregivers of children with ASD (Table 5).

Table 4 Distribution of Parental Depression Levels with 95% Confidence Intervals (n = 85)

Parental Depression level	**Frequency**	**Percent**	**95% Confidence Interval**	
			Lower	**Upper**
Normal	11	12.9	7.1	22.4

Mild	10	11.8	4.7	18.8
Moderate	25	29.4	18.8	39.8
Severe	23	27.1	17.9	36.5
Extremely Severe	16	18.8	10.6	28.2
Total	85	100.0	100.0	100.0

4.2.2 Prevalence of Parental Anxiety

Based on the DASS assessment of 85 parents, 12.9% were in the normal range, 14.1% had mild anxiety, 37.6% experienced moderate anxiety, 22.4% experienced severe anxiety, and 12.9% experienced extremely severe anxiety. In total, 87.1% of parents reported anxiety levels above the normal range, indicating a markedly high prevalence of anxiety among caregivers of children with ASD (Table 5).

Table 5 Distribution of Parental Anxiety Levels with 95% Confidence Intervals (n = 85)

Parental Anxiety Level	**Frequency**	**Percent**	**95% Confidence Interval**	
			Lower	**Upper**
Normal	11	12.9	5.9	20.8
Mild	12	14.1	8.2	22.1
Moderate	32	37.6	27.1	46.9
Severe	19	22.4	14.1	31.8
Extermely Severe	11	12.9	6.1	18.8

Total	85	100.0	100.0	100.0

4.2.3 Prevalence of Parental Stress

Among the 85 parents assessed using the DASS scale, 14.1% were within the normal range, 12.9% reported mild stress, 27.1% reported moderate stress, 34.1% reported severe stress, and 11.8% reported extremely severe stress. Taken together, 87.9% of participants experienced some degree of stress above the normal range, indicating a high burden of stress among parents of children with ASD (Table 6).

Table 6 Distribution of Parental Stress Levels with 95% Confidence Intervals (n = 85)

Parental Stress level	Frequency	Percent	95% Confidence Interval	
			Lower	Upper
Normal	12	14.1	7.1	20.0
Mild	11	12.9	6.1	18.8
Moderate	23	27.1	18.1	37.6
Severe	29	34.1	23.5	44.5
Extremely Severe	10	11.8	3.9	17.6
Total	85	100.0	100.0	100.0

4.3 Treatment and behavioral intervention

		Frequency	Percent
ABA therapy	Yes	44	51.8%
	No	41	48.2%
Academic classes	Yes	45	52.9%
	No	40	47.1%
Occupational therapy	Yes	38	44.7%
	No	47	55.3%
Physical therapy	Yes	40	47.1%
	No	45	52.9%
Social skill intervention	Yes	44	51.8%
	No	41	48.2%
Physical training	Yes	39	45.9%
	No	46	54.1%

4.4. Perceived fulfillment of needs

		Frequency	Percentage
Early diagnosis	Met	25	29.4%
	Unmet	35	41.2%
	Extremely unmet	25	29.4%
Trained specialists	Met	33	38.8%
	Unmet	27	31.8%
	Extremely unmet	25	29.4%
Financial support	Met	29	34.1%
	Unmet	27	31.8%
	Extremely unmet	29	34.1%
Inclusive education	Met	32	37.6%
	Unmet	28	32.9%
	Extremely	25	29.4%

	unmet		
Acceptance by society	Met	30	35.3%
	Unmet	31	36.5%
	Extremely unmet	24	28.2%
Support by families	Yes	43	50.6%
	No	42	49.4%
Support by friends	Yes	46	54.1%
	No	39	45.9%
Support by significant others	Yes	44	51.8%
	No	41	48.2%
Support by parental support g	Met	24	28.2%
Roups	Unmet	31	36.5%
	Extremely unmet	30	35.3%
Multidisciplinary team	Met	24	28.2%
	Unmet	38	44.7%

	Extremely unmet	23	27.1%
Having barriers to become a member of parental support group	Yes	45	52.9%
	No	40	47.1%

4.5 Factor associated with parents' stress level

In the multiple ordinal logistic regression model, three variables were significantly associated with parental stress out of eleven candidate variables. Parents of children aged 7–10 years were 3.37 times more likely to experience higher stress levels compared to parents of children aged 11–15 years (AOR = 3.367, 95% CI: 1.169–9.690, $p < 0.05$). Parents who reported that access to trained specialists was met had a 70% lower likelihood of reporting higher stress levels compared to those who reported services as unmet (AOR = 0.299, 95% CI: 0.106–0.850, $p < 0.05$). Similarly, parents whose children were placed at home were 59% less likely to report higher stress compared to those whose children were not placed at home (AOR = 0.408, 95% CI: 0.178–0.937, $p < 0.05$) (Table 6)

Other variables, including age of parents, financial coverage, barriers to joining parental support groups, co-occurring chronic conditions, ABA therapy, acceptance by society, place of residence, and physical training, were not statistically significant in the final model. However,

they were retained as candidate variables for multiple ordinal logistic regression since they met the bivariable screening threshold of $p < 0.25$ (Table 6).

Table 7 Factors associated with stress levels among parents of children with Autism Spectrum Disorder (ASD), 2025 (n = 85).

Variable	Category	Mental Health (Stress)					COR (95% CI)	Sig.	AOR (95% CI)
		Normal	Mild	Moderate	Severe	Extremely severe			
Age of	26-35	3	4	7	9	2	0.423 (0.124 – 1.448)	0.297	0.499(0.135 –1.843)
Parents	36-45	4	3	6	4	5	0.541 (0.154 – 1.893)	0.435	0.589(0.156 – 2.226)
	46-55	4	5	8	6	2	0.292 (0.084 – 0.993)	0.080	0.313 (0.085– 1.148)
	>=56	2	2	2	5	2	1	.	1
Age of	3-6	4	6	8	9	2	0.963 (0.395 – 2.350).	0.998	1.001(0.375– 2.672)
child	7-10	3	2	5	8	5	3.05 (1.13 – 8.22)	0.024	**3.367 (1.169– 9.690)***
	11-15	7	3	10	10	3	1		1
Additiona	Any	3	3	16	14	9	2.77 (1.26 – 6.10)	0.310	1.623 (0.637– 4.132)
l financial	coverage								
coverage	None	9	8	7	11	5	1	.	1
Barriers	Having	3	4	10	17	3	1.59 (0.73 – 3.46)	0.402	1.428 (0.620– 3.285)
to become	barriers								
a member	No	9	7	13	12	7	1	.	1
of	barriers								
parental									

support group									
Co-occuring chronic conditions	No	10	10	16	17	8	0.56 (0.24 – 1.32)	0.765	0.869 (0.344– 2.192)
	Yes	2	5	7	8	3	1	.	1
ABA therapy	No	4	4	12	14	7	1.86 (0.86 – 4.03)	0.254	1.644 (0.701– 3.855)
	Yes	8	7	11	15	3	1		1
Trained specialists	Extremely unmet	2	2	6	11	4	1.09 (0.41 – 2.94)	0.806	1.145 (0.389– 3.374)
	Met	8	9	7	6	3	0.24 (0.09 – 0.63)	0.023	**0.299 (0.106– 0.850)***
	Unmet	2	4	6	12	3	1		1
Acceptance by society	Extremely unmet	3	4	4	7	6	2.79 (1.05 – 7.43)	0.073	2.784 (0.910– 8.523)
	Met	4	2	10	12	2	1.65 (0.67 – 4.07)	0.090	2.390 (0.874– 6.540)
	Unmet	7	5	7	10	2	1		1
Place of residence	Addis Ababa	10	7	13	17	6	0.66 (0.30 – 1.45)	0.231	0.573 (0.230– 1.425)
	Other	2	4	10	12	4	1		1
Children Placement at home	No	7	5	10	15	2	0.66 (0.31 – 1.43)	0.035	**0.408 (0.178– 0.937)***
	Yes	5	6	13	14	8	1		1
Physical training	No	7	5	16	15	3	0.63 (0.29 – 1.36)	0.227	0.583 (0.243– 1.400)
	Yes	5	6	7	14	7	1	.	1

*Significant at P-value<0.05, COR = Crude Odd Ratio, CI= Confidence interval, AOR=Adjusted odd ratio

4.6 Factors associated with Parents' depression level

In a multivariable ordinal logistic regression analysis, out of nine candidate variables two variables were shown to be significantly correlated with the level of depression in parents of children with autism. Parents of children aged 3-6 years were 64 percent less likely to have a higher incidence of depressive symptoms than those of children aged 11-15 years (AOR = 0.362, 95-CI: 0.133-0.986, $p<0.05$). In addition, parents with Asperger's syndrome were almost 4.7 times more likely to report a higher level of depression than parents with autistic children (AOR = 4.687, 95-CI: 1.768-12.429, $p<0.01$) (Table 7).

Other variables met the inclusion criteria ($p < 0.25$ in bivariable analysis) and therefore, they are included in the multivariable model as candidate variables. These included highest completed educational level of parents, marital status, gender of the child, the source of first information about ASD, the presence of co-existing chronic conditions in the child, the lack of physical therapy and the lack of peer support. However, none of these have retained their statistical significance after the modification (Table 8).

Table 8 Factors associated with depression level among parents of children with Autism Spectrum Disorder (ASD), 2025 (n = 85).

Variable	Category	Mental Health (Depression)	COR (95% CI)	Sig.	AOR (95% CI)

		Normal	Mild	Moderate	Severe	Extremely Severe			
Age of child	3-6	6	3	9	7	4	0.58 (0.24 – 1.43)	**0.047**	**0.362 (0.133– 0.986)***
	7-10	2	2	7	8	4	1.05 (0.40 – 2.70)	0.815	1.131 (0.403– 3.171)
	11- 15	3	5	9	8	8	1	.	1
Highest completed education al level	Primary	3	2	3	5	5	1.48 (0.47 – 4.65)	0.386	1.776 (0.484– 6.503)
	Secondary	6	6	5	7	4	0.49 (0.18 – 1.38)	0.456	0.647 (0.207– 2.030)
	Diploma	5	3	3	4	4	0.81 (0.27 – 2.47)	0.979	1.016 (0.293– 3.529)
	Degree and above	3	3	6	5	3	1	.	1
Marital status	Married	7	7	12	11	7	0.60 (0.28 – 1.28)	0.736	0.852 (0.335– 2.164)
	Single	4	3	13	12	9	1	.	1
Gender of child	Female	4	3	10	14	10	1.65 (0.77 – 3.55)	0.818	1.103 (0.478– 2.545)
	Male	7	7	11	13	6	1	.	1
Diagnosis of children	Asperger syndrome	4	4	4	6	7	2.37 (1.01 – 5.55)	**0.002**	**4.687 (1.768– 12.429)***
	Autistic disorder	10	6	21	14	9	1	.	1
Informed about ASD for the first time	Educational professional	3	2	2	2	2	0.42 (0.07 – 2.51)	0.152	0.239 (0.034– 1.696)
	Neurologist	3	3	3	3	2	0.43 (0.08 – 2.34)	0.079	0.198 (0.032– 1.209)
	On their own	2	2	3	3	2	0.84 (0.14 – 4.84)	0.890	0.878 (0.141– 5.473)
	Pediatrician	2	3	2	2	4	0.65 (0.12 – 3.43)	0.409	0.476 (0.081– 2.781)

	Psychiatrist	2	2	3	3	3	2.74 (0.48 – 15.59)	0.327	2.550 (0.393– 16.57)
	Psychologist]	2	2	2	2	3	0.60 (0.10 – 3.70)	0.184	0.253 (0.034– 1.916)
	Psychotherapist	2	2	3	2	2	1	.	1
Co-occurring chronic conditions	No	8	9	18	16	10	0.61 (0.26 – 1.43)	0.135	0.476 (0.179 – 1.261)
	Yes	3	3	5	7	6	1	.	1
Physical therapy	No	6	3	14	10	12	1.62 (0.75 – 3.49)	0.889	0.942 (0.408– 2.177)
	Yes	5	7	11	13	4	1	.	1
Support from friends	No	3	6	9	10	11	1.91 (0.88 – 4.13)	0.059	2.226 (0.971– 5.106)
	Yes	8	4	16	13	5	1	.	

*Significant at P-value<0.05, COR = Crude Odd Ratio, CI= Confidence interval, AOR=Adjusted odd ratio

4.7 Factors associated with parents' Anxiety level

In the multivariable ordinal logistic regression analysis, from 8 (Eight) candidate variable factors 6 (six) variable factors were significantly is associated with anxiety levels in parents of children with ASD. Parents aged 26–35 years were 77.7% less they are likely to report higher anxiety levels than parents aged ≥56 years (AOR = 0.223, 95% CI: 0.053–0.93, $p < 0.05$). Parents with a secondary education had a 68.8% lower odds of higher anxiety compared with parents holding a degree or above (AOR = 0.312, 95% CI: 0.091–1.069, $p < 0.05$), and those with a diploma had

84.7% lower odds (AOR = 0.153, 95% CI: 0.041–0.579, p < 0.01). Having a hired person to help in child care reduced the odds of higher anxiety by 71.4% (AOR = 0.286, 95% CI: 0.112–0.728, p < 0.01). Additionally, parents of children diagnosed with Asperger syndrome were 64.7% less likely to report higher anxiety than those whose children had autistic disorder (AOR = 0.353, 95% CI: 0.132–0.945, p < 0.05). Regarding the child's educational setting, attending a regular education classroom decreased the odds of higher anxiety by 75.8% (AOR = 0.242, 95% CI: 0.063–0.936, p < 0.05), while attendance in a special education classroom reduced the odds dramatically by 99.7% (AOR = 0.0034, 95% CI: 0.000055–0.213, p < 0.01). Parents whose financial support needs were met were 81.1% less likely to report higher anxiety compared with those whose needs were unmet (AOR = 0.189, 95% CI: 0.054–0.660, p < 0.01) (Table 7).

Other variables were included in the multivariable model as candidate predictors (p < 0.25 in bivariable analysis) but were not statistically significant after adjustment. These included age of the child, and physical therapy received (Table 7).

Table 9 Factors associated with Anxiety level among parents of children with Autism Spectrum Disorder (ASD), 2025 (n = 85).

Variable	Category	Anxiety Level					COR (95% CI)	Sig.	AOR (95% CI)
		Normal	Mild	Moderate	Severe	Extremely Severe			
Age of	26-35	5	5	8	4	3	0.36 (0.10 – 1.21)	0.039	**0.223 (0.053– 0.93)***

Parents	36-45	3	3	6	7	3	0.86 (0.25 – 2.96)	0.763	1.255 (0.288– 5.474)
	46-55	2	2	12	4	5	0.97 (0.29 – 3.23)	0.658	0.720 (0.169– 3.074)
	>=56	2	2	4	3	2	1	.	1
Age of	3-6	6	6	8	5	4	0.51 (0.21 – 1.27)	0.295	0.579 (0.208– 1.612)
child	7-10	2	3	10	5	3	0.88 (0.34 – 2.29)	0.101	0.384 (0.122– 1.204)
	11-15	3	3	14	9	4	1	.	1
Highest	Primary	2	2	4	6	2	0.57 (0.18 – 1.81)	0.205	0.414 (0.106 – 1.619)
completed	Secondary	2	3	6	6	3	0.41 (0.14 – 1.17)	0.064	**0.312 (0.091– 1.069)***
educationa	Diploma	3	3	9	2	2	0.35 (0.11 – 1.12)	0.006	**0.153 (0.041– 0.579)***
l level	Degree and above	5	4	11	4	4	1	.	1
Person	Having hired person	8	7	20	9	2	0.36 (0.16 – 0.80)	0.009	**0.286 (0.112– 0.728)***
helping in taking care	Not having hired person	3	5	12	10	9	1	.	1
Diagnosis of children	Asperger syndrome	6	6	5	6	2	0.42 (0.18 – 0.99)	0.038	**0.353 (0.132– 0.945)***
	Autistic disorder	5	6	27	13	9	1	.	1
Child’s	Home-based	2	2	7	6	2	0.82 (0.26 – 2.59)	0.482	0.608 (0.152– 2.433)
Education	Special educational classroom with nursing care	3	5	11	6	3	0.52 (0.18 – 1.49)	0.776	0.839 (0.249– 2.824)

	Regular education classroom	5	3	5	2	2	0.25 (0.07 – 0.82)	0.040	**0.242 (0.063– 0.936)***
	Special education classroom	3	3	6	5	4	0.12 (0.003 – 4.84)	0.007	**0.0034 (0.000055– 0.213)***
	Mixture of classes						1	.	1
Physical therapy	No	7	7	19	8	4	0.52 (0.24 – 1.13)	0.059	0.427 (0.177– 1.031)
	Yes	4	5	13	11	7	1	.	1
Financial support	Extremely unmet	4	4	7	9	5	1.03 (0.40 – 2.64)	0.688	0.795 (0.260– 2.430)
	Met	5	5	11	5	3	0.44 (0.17 – 1.15)	0.009	**0.189 (0.054– 0.660)***
	Unmet	2	3	12	5	5	1	.	1

*Significant at P-value<0.05, COR = Crude Odd Ratio, CI= Confidence interval, AOR=Adjusted odd ratio

5. Discussion

In this study 87.9 percent of pediatric ASD caregivers in Addis Ababa reported stress levels on the DASS-21 above the normal range reflecting a substantial psychological burden. This prevalence is consistent with other research showing elevated mental health issues among caregivers of children with ASD, such as a study in Addis Ababa that found caregivers of children with ASD were nearly five times more likely to experience depression compared to other groups (AOR = 4.7, 95% CI: 2.06–10.54) (Minichil et al, 2019). Similarly, qualitative and mixed-method studies from Joy and Nehemiah Autism Centers have documented financial strain,

stigma, and lack of services as major contributors to caregiver distress (Befkadu et al, 2022;Asmare et al., 2023;Befkadu et al., 2022). Although discrepancies exist due to the limited number of prevalence studies using the DASS in Ethiopia, the consistently high psychological distress among this population can be justified by systemic challenges, cultural stigma, and insufficient mental health and social support services. These findings imply an urgent need for psychosocial interventions, policy reforms to expand affordable ASD-related services, public awareness campaigns to reduce stigma, and further research to benchmark prevalence and identify protective factors, given that caregiver stress directly influences both parental well-being and child developmental outcomes.

In the present study conducted in Addis Ababa, three variables were significantly related to parental stress in a multiple-odds logistic regression model: age of child, access to trained specialists, and child placement at home. Parents of children aged 7–10 years were more than three times more likely to report higher stress levels than children 11–15 years (AOR = 3.37, 95% CI: 1.17–9.69). This finding suggests that middle childhood may represent a particularly challenging period for caregivers, possibly due to increased educational demands, behavioral expectations, and social comparisons at school. Qualitative work from Addis Ababa highlights how navigating schooling and daily routines is a major stressor for families of autistic children, especially during the transition into formal education, aligning with our age effect (Befkadu and Adamek, 2022). This may be as children in Addis Ababa often enter structured schooling earlier, with heightened social and academic pressures that may intensify parental stress.

Access to trained specialists was also found to have a protective effect. Parents who reported that their needs for specialist services were met had a 70% lower likelihood of experiencing higher stress compared to those who reported services as unmet (AOR = 0.299, 95% CI: 0.106–0.850).

This is consistent with Ethiopian situational analyses showing that specialist services are scarce, centralized in the capital, and beset by long waits; when families do reach competent providers, the burden related to uncertainty, repeated referrals, and ineffective advice is reduced (24,25). The finding emphasizes the importance of scaling up professional training, ensuring equitable distribution of services, and integrating affordable care models to alleviate parental stress.

Child placement at home was significantly associated with lower parental stress. Parents who cared for their children at home were 59% less likely to experience higher Stress compared to those whose children have not been placed (AOR = 0.408, 95% CI: 0.178–0.937). In Addis Ababa, parents may benefit from greater access to informal networks, urban-based resources, and cultural norms that encourage family-centered caregiving. This suggests that in resource-constrained urban contexts, home-based care when combined with support systems may buffer parental stress more effectively than institutional or alternative placements. Studies suggest that consistent routines and dependable support around the home buffer caregiver strain, whereas fragmented services and frequent travel amplify it; our finding may reflect the stabilizing effect of home-based arrangements when adequate guidance is available (Befkadu and Adamek, 2022;Dereje et al., 2025).

In this study, 87.1% of parents of children with ASD experienced depression above the normal range, with nearly half reporting severe or extremely severe symptoms, indicating a substantial mental health burden among caregivers. This prevalence is consistent with prior evidence showing that care for a child with ASD or other developmental disorders significantly increases parental psychological distress. For instance, a study of Primary carers of children with mental health problems in Addis Ababa found that those who care for children with ASD were nearly five times more likely to develop depression than those who care for children with other

conditions. (AOR = 4.7, 95% CI: 2.06–10.54). Similarly, qualitative research from autism centers in Addis Ababa also demonstrated that financial burden, social stigmatization, and limited service availability exacerbate parental emotional distress (Befkadu et al., 2022; Asmare et al., 2023). Although our depression prevalence is higher than rates reported in some studies conducted in Ethiopia on caregivers of children with other chronic conditions, this difference can be explained by the specific demands of raising a child with ASD, which necessitates long-term emotional, financial, and social investment in the absence of institutional support. Moreover, community-based interventions aimed at reducing stigma and strengthening coping resources could buffer the high levels of depression were observed, and future research should further investigate protective factors that can reduce parental depression in the Ethiopian cultural setting.

Our study in Addis Ababa found that parents of children 3 to 6 years of age were 64 percent less likely to report a higher level of depressive symptoms than parents of children 11 to 15 years of age (AOR = 0.362, 95-CI: 0.133 to 0.986, $p<0.05$).This suggests an accumulating emotional burden of chronic caregiving as children grow older, particularly when developmental support requirements increase. Supporting this, a large-scale study among 416 the mental health care providers in Addis Ababa reported that caregivers of older children were more prone to depression, especially when autism spectrum disorder (ASD) was involved (AOR = 4.7) (19). Additionally, a recent cross-sectional study involving 352 caregivers of children with neurodevelopmental disorders in Addis Ababa demonstrated significantly lower quality of life scores across physical, psychological, environmental, and social domains among older caregivers and those with depressive symptoms, aligning with the trend of worsening well-being over time (Dereje et al., 2025).

In addition, parents of children with Asperger's syndrome were almost 4.7 times more likely to have a higher level of depression than parents with autistic children (AOR = 4.687, 95.95.civ: 1.768-12.429, p<0.01). This finding resonates with local data showing that ASD diagnosis regardless of subtype is a strong predictor of parental depression, possibly reflecting the ambiguous and socially demanding symptomatology associated with Asperger presentations (Minichil et al., 2019). Another contextual point of reference is the national studies of carers of children with disabilities, which reported a marked decrease in family quality of life, an indicator closely associated with increased psychological distress in carers who manage less visible but still challenging forms of ASD (de Leeuw et al., 2024).

In this study, 87.1% of parents of children with ASD experienced anxiety above the normal range, with nearly 73% reporting moderate to extremely severe symptoms, indicating a markedly high psychological burden among caregivers. This prevalence aligns with previous Ethiopian research demonstrating elevated mental health challenges among carers of children with ASD or other developmental disorders. For example, a study in Addis Ababa reported that parents of children with ASD were significantly more likely to experience depression and anxiety compared with caregivers of children without developmental disorders (AOR = 4.7, 95% CI: 2.06–10.54) (Minichil et al., 2019). Additional qualitative studies from local autism centers also emphasize that lack of services, financial burden, and social stigma contribute to caregiver stress and anxiety (Befkadu et al., 2022;Asmare et al., 2023). Although the high prevalence of anxiety observed in our study may seem higher than reports from other caregiver populations, it is likely accounted for by the special demands of raising a child with ASD, including behavioral challenges, social expectations, and lack of institutional support. These results emphasize the need for routine mental health screening for caregivers, targeted psychosocial interventions,

available educational and financial support, and community-based stigma reduction. In addition, understanding protective factors such as social support networks and coping mechanisms could inform culturally tailored interventions to mitigate anxiety among parents of children with ASD.

Parents aged 26–35 years were 77.7% less likely to report higher anxiety compared to those aged ≥56 years (AOR = 0.223, 95% CI: 0.053–0.93, $p < 0.05$). Younger parents may exhibit greater resilience and adaptability, reducing anxiety (Mak and Kwok, 2010). Interestingly, some international studies report minimal age differences in parental anxiety (Fulda, 2012), suggesting cultural and contextual factors in Addis Ababa such as family structures and support networks may amplify age-related differences.

Parents with secondary education or a diploma had lower odds of higher anxiety compared with those holding a degree or above (AOR = 0.312 and 0.153, respectively). While higher education often correlates with better resource access, it may also increase awareness of ASD challenges, elevating anxiety (Hayes and Watson, 2013). This contrasts with studies where lower education generally predicts higher anxiety (Tekola et al., 2023), highlighting potential urban-specific stressors for highly educated parents in Addis Ababa.

Having hired assistance for childcare reduced odds of higher anxiety by 71.4% (AOR = 0.286, 95% CI: 0.112–0.728, $p < 0.01$). This aligns with global evidence emphasizing the buffering effect of external support (Pisula, 2011). The implication is clear: interventions facilitating childcare support in urban Ethiopian settings could substantially reduce parental anxiety.

Parents of children with Asperger syndrome were 64.7% less likely to report higher anxiety than those with autistic disorder (AOR = 0.353, 95% CI: 0.132–0.945, $p < 0.05$), consistent with literature showing symptom severity influences parental anxiety (Lai et al., 2014). This may

reflect differences in symptom severity and caregiving demands between the two conditions. However, similar anxiety levels across ASD subtypes, suggesting that context-specific caregiving demands may modulate these differences.

Children in regular classrooms had 75.8% lower odds of parental anxiety, while those in special education classrooms had 99.7% lower odds. These findings reinforce the importance of tailored educational environments. Compared to Ethiopian rural studies where special education access is limited (Dereje et al., 2025;Tekola et al., 2023), urban settings like Addis Ababa provide structured educational support that significantly reduces anxiety. These results indicate that parents can be reassured about the development of their child in appropriate educational settings. The odds of higher anxiety were reduced by 81.1% (AOR = 0.189, 95% CI: 0.054–0.660, $p < 0.01$), indicating that economic security is a key protective factor (Estes et al., 2013). This is particularly important in low- and middle-income settings, such as Ethiopia, where social welfare and insurance coverage are minimal, and financial insecurity can worsen the psychological toll of caregiving.

Conversely, ensuring financial support enables parents to access essential services, reduces daily stressors, and improves overall family resilience. These results imply that targeted financial assistance programs, subsidies for therapy, and social protection schemes could play a pivotal role in mitigating parental anxiety and improving child outcomes.

6. Conclusion and recommendation

6.1 Conclusion

The study found a number of factors that were significantly associated with parental stress, depression and anxiety in parents of children with ASD in Addis Ababa. Caregiving was

particularly stressful during middle childhood (ages 7–10), which may be attributed to academic and social demands, and access to trained specialists and home-based child placement were protective factors, suggesting that service availability and family-centered care are crucial. Parents of older children and those who cared for children with Asperger syndrome reported greater depression, which may indicate the cumulative emotional toll of caregiving and the specific challenges of ASD. Contextual influences such as younger parental age and having hired childcare assistance were associated with lower anxiety, whereas higher parental education was associated with greater anxiety, which was an unexpected finding in urban Ethiopia; and financial security and access to appropriate educational placements were important in alleviating parental anxiety. Taken together, these findings demonstrate the intricate interplay of socio-demographic, clinical, and service-related factors in caregiver mental health.

6.2 Recommendations

- Expand Services and Training: Scale up training for ASD professionals and decentralize services to the periphery to ensure equitable access.
- Family-Centered Care Models: Promote home-based caregiving support and informal and community networks to buffer caregiver stress.
- Targeted Psychosocial Interventions: Develop mental health programs specific to parents of children in middle childhood and those caring for children with Asperger syndrome, who experience additional stressors.
- Financial and Social Protection: Implement financial assistance programs, subsidies for therapy, and caregiver support schemes to reduce the economic burden of ASD care.
- Educational Integration: Expand structured and inclusive educational opportunities, both mainstream and special education, to provide reassurance and reduce parental anxiety.

- Policy priorities: Integrate the well-being of carers into the national strategies on mental health and disability of children, recognising the importance of parental mental health for positive outcomes of children.

Limitations of the study

This study has limitations which should be considered. First, its cross-sectional design precludes causal inference between identified factors and parental mental health outcomes. Second, the study relied on self-reported measures, which may be influenced by recall bias or social desirability.

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Annex

Questioner

ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH AND MEDICAL SCIENCES

A survey questionnaire to assess Mental Health of Parents/Guardians of Students with Autism In Addis Ababa, Ethiopia 2024.

Hello, my name is----------; I am one of the data collectors in this study. The interview is prepared to get appropriate information on the assessment of Mental Health of Parents/Guardians of Students with Autism in Addis Ababa city.

The information that I will obtain using this interview will be used only for research purpose. I would like to answer some personal questions. Your answers are confidential. The study has no risk to you and your organization. Therefore I politely request your willingness to participate in this interview. You do have the right not to respond at all or to withdraw in the meantime, but your input has great value for the success of my objective, would you be willing to participate?

Yes _____ No _____

Thanks for your cooperation!!!

I. Socio-demographic Characteristics of parents

Age	_____
Gender	1. Male 2. Female
Highest completed educational level	1. Primary 2. Secondary 3. Diploma 4. Degree and above
Employment	1. Yes 2. No
Marital status	1. Married 2. Single
Number of children	_____
Family monthly income	_____
Additional financial coverage	1. Any coverage 2. None
Place of residence	1. Addis Ababa 2. Other
Person helps in taking care	1. Having hired person 2. Not having hired person
Member of parental support group	1. Yes 2. No
Barriers to become a member of support group	1. No barriers

	2. Having barriers
Characteristics of children	
Age	_____
Gender	1. Male 2. Female
Placement at home	1. Yes 2. No
Diagnosis	1. Autistic disorder 2. Asperger syndrome 3. Other pervasive developmental disorders
Informed about ASD for the first time	1. Neurologist 2. Psychiatrist 3. Psychotherapist 4. Pediatrician 5. On their own 6. Psychologist 7. Educational professional
Education	1. Home-based 2. Mixture of classes 3. Regular education classroom 4. Special educational classroom
Co-occurring chronic conditions	1. Yes

	2. No

II. Mental Health of parents

SCALES

The DASS yields three subscale scores for depression, anxiety, and tension/stress.

DASS_Anxiety = 2 + 4 + 7 + 9 + 15 + 19 + 20

DASS_Depression = 3 + 5 + 10 + 13 + 16 + 17 + 21

DASS_Stress = 1 + 6 + 8 + 11 + 12 + 14 +18

$DASS_{21}$ **Name:** **Date:**

Please read each statement and circle a number 0, 1, 2 or 3 that indicates how much the statement applied to you over the past week. There are no rights or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all

1 Applied to me to some degree, or some of the time

2 Applied to me to a considerable degree, or a good part of time

3 Applied to me very much, or most of the time

1.	I found it hard to wind down	0	1	2	3
2.	I was aware of dryness of my mouth	0	1	2	3

3.	I couldn't seem to experience any positive feeling at all	0	1	2	3
4.	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5.	I found it difficult to work up the initiative to do things	0	1	2	3
6.	I tended to over-react to situations	0	1	2	3
7.	I experienced trembling (e.g., in the hands)	0	1	2	3
8.	I felt that I was using a lot of nervous energy	0	1	2	3
9.	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10.	I felt that I had nothing to look forward to	0	1	2	3
11.	I found myself getting agitated	0	1	2	3
12.	I found it difficult to relax	0	1	2	3
13.	I felt down-hearted and blue	0	1	2	3
14.	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15.	I felt I was close to panic	0	1	2	3
16.	I was unable to become enthusiastic about anything	0	1	2	3
17.	I felt I wasn't worth much as a person	0	1	2	3
18.	I felt that I was rather touchy	0	1	2	3
19.	I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	0	1	2	3
20.	I felt scared without any good reason	0	1	2	3
21.	I felt that life was meaningless	0	1	2	3

III. Treatment and behavioral interventions

Treatment or intervention	
ABA therapy	1. Yes 2. No
Academic classes	1. Yes 2. No
Occupational therapy	1. Yes 2. No
Physical therapy	1. Yes 2. No
Social skills intervention	1. Yes 2. No
Physical training	1. Yes 2. No

IV. Perceived fulfillment of needs

Needs	**Response**
Early diagnosis	1. Met 2. Unmet 3. Extremely unmet
Trained specialists	1. Met 2. Unmet

	3. Extremely unmet
Financial support	1. Met 2. Unmet 3. Extremely unmet
Inclusive education	1. Met 2. Unmet 3. Extremely unmet
Acceptance by society	1. Met 2. Unmet 3. Extremely unmet
Support from families	1. Yes 2. No
Support from friends	1. Yes 2. No
Support from significant other	1. Yes 2. No
Support from parental support groups	1. Met 2. Unmet 3. Extremely unmet
Multidisciplinary team	1. Met 2. Unmet 3. Extremely unmet
Having barriers to become a member of parental support	1. Yes

group	2. No