



**St. Paul's Hospital
Millennium Medical College**
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SCHOOL OF PUBLIC HEALTH

PREVALENCE OF MEDICAL AND PSYCHIATRIC COMORBIDITIES IN
CHILDREN WITH AUTISM SPECTRUM DISORDER WHO ATTENDED ST.
PAULS HOSPITAL MILLENNIUM MEDICAL COLLEGE

BY: MIHIRET ENGIDAWORK ATINAFU

A THESIS TO BE SUBMITTED TO THE SCHOOL OF PUBLIC HEALTH, ST. PAULS
HOSPITAL MILLENNIUM MEDICAL COLLEGE, IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF DOCTOR OF MEDICINE

ADDIS ABABA, ETHIOPIA

APRIL 2026

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DECLARATION

I, the undersigned, declare that this thesis is my original work. All sources of materials used for the thesis have been duly acknowledged. I understand that non-adherence to the principles of academic honesty and integrity, misrepresentation/fabrication of any idea/data/fact/source will constitute sufficient ground for disciplinary action by the college and can also evoke penal action from the sources which have not been properly cited or acknowledged.

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Date of submission: April, 2026 GC.

Place: Addis Ababa, Ethiopia

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

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ACRONYMS AND ABBREAVTIONS

ASD	Autism Spectrum Disorder
ADHD	Attention Deficit Hyperactivity Disorder
CDC	Centers for Disease Control and Prevention
DSM-5	Diagnostic and Statistical Manual of Mental Disorders, 5th Edition
ENT	Ear, Nose, Throat
GI	Gastrointestinal
IRB	Institutional Review Board
OPD	Out Patient Department
SPHMMC	St. Paul's Hospital Millennium Medical College
WHO	World Health Organization

ABSTRACT

Background: Autism Spectrum Disorder (ASD) is a complex neurodevelopmental condition characterized by persistent challenges in social communication and interaction, as well as restricted, repetitive patterns of behavior. Individuals with ASD frequently experience a range of co-occurring medical and psychiatric conditions, known as comorbidities, which can significantly impact their overall health, development, and quality of life. In Ethiopia, there is a critical dearth of localized epidemiological data on the prevalence of these comorbidities, hindering the development of targeted, evidence-based interventions.

Objective: The aim of this study is to assess the prevalence of medical and psychiatric comorbidities in autistic patients attending St. Paul's Hospital.

Methods: An institution-based quantitative cross-sectional study was conducted among 287 patients who visited the St. Paul's Hospital Pediatric Psychiatric Outpatient Department in the time period of Sep 1, 2024- Aug 31, 2025 GC. Data were collected retrospectively from medical records. Descriptive statistics, including frequencies and percentages, were used to summarize socio-demographic characteristics and clinical profiles.

Results: A total of 287 patient records were analyzed. The majority of the patients were male (78.4%, n=225), with an age range of 2 to 18 years. The study found a high prevalence of comorbidities: 88.11% of patients presented with at least one psychiatric comorbidity, and 43.71% had at least one medical comorbidity. The most prevalent psychiatric comorbidities were Language Impairment (65.5%), Intellectual Disability (52.3%), and Attention-Deficit/Hyperactivity Disorder (ADHD) (41.1%). For medical comorbidities, Epilepsy/Seizure Disorder (21.6%), Gastrointestinal Issues (15.7%), and Nutritional Deficiencies (10.1%) were the most common.

Conclusion and Recommendations: The prevalence of both psychiatric and medical comorbidities in children with ASD attending St. Paul's Hospital is significantly high, underscoring the complex and multidimensional nature of ASD management needed in this setting as well as in the country. Implementation of integrated care that include routine screening for common psychiatric and medical conditions, particularly language impairment, intellectual disability, ADHD, and epilepsy, will be important to ensure holistic management.

Key words: Autism Spectrum Disorder, Comorbidity, Prevalence, Psychiatric, Medical, Ethiopia

1. INTRODUCTION

1.1. Background

Autism Spectrum Disorder (ASD) is a complex neurodevelopmental condition characterized by persistent challenges in social communication and interaction, as well as restricted, repetitive patterns of behavior, interests, or activities(1). It is one of the serious developmental disorders with an onset in the developmental period. It can be diagnosed at any age, but the common age of diagnosis is below the age of three years.

The term "spectrum" reflects the wide variation in the challenges and strengths possessed by individuals with ASD. Although the severity of the disease's symptoms varies from patient to patient, the ability to communicate with others is affected in all forms of ASD. Autism is at least three times more common in males(2,3). Affecting individuals across all racial, ethnic, and socioeconomic groups, ASD is a global health concern with significant implications for individuals, families, and healthcare systems worldwide(4).

Globally, the prevalence of ASD has been rising, underscoring the increasing need for comprehensive understanding and effective management strategies(5). The World Health Organization (WHO) estimates that 1 in 100 children has autism worldwide, underscoring its global impact(4). In the United States, the Centers for Disease Control and Prevention (CDC) reported an estimated prevalence of 1 in 36 children aged 8 years in 2020, and more recently, 1 in 31 (3.2%) children aged 8 years in 2022 across 16 study sites (5,6). This increase is partly attributed to improved diagnostic awareness, changes in diagnostic criteria, and better surveillance methods, highlighting a growing public health concern. Despite these global estimates, there is a notable disparity in data availability, with many low- and middle-income countries lacking robust epidemiological studies on ASD prevalence.

Autism spectrum disorders (ASD) has been rarely diagnosed in Sub-Saharan Africa(7). Its prevalence across Africa remains largely understudied, with significant variation in the reported rates due to differences in study methodology, diagnostic practices, and socio-cultural factors(8).

Ethiopia, with its large population and diverse demographics, faces unique challenges in addressing neurodevelopmental disorders like ASD. While anecdotal evidence and limited studies suggest a growing awareness and need for autism services, official documentation on prevalence and the specific medical comorbidities affecting autistic children in the Ethiopian

context is largely absent (9,10). Existing services, such as those provided by centers in Addis Ababa, are often overwhelmed and have limited capacity, highlighting a critical unmet need (10). Understanding the specific medical challenges faced by autistic children in this setting is crucial for developing targeted interventions and improving management outcomes.

Beyond the core diagnostic criteria, individuals with ASD frequently experience a range of co-occurring medical and psychiatric conditions, often referred to as comorbidities(11,12). These comorbidities can significantly impact the overall health, development, and quality of life for autistic individuals. Common medical comorbidities include, but are not limited to, gastrointestinal problems, epilepsy, sleep disturbances, and feeding issues (13,14). Psychiatric comorbidities such as Attention-Deficit/Hyperactivity Disorder (ADHD), anxiety disorders, and depression are also highly prevalent among autistic children and adolescents (15,16). The presence of these co-occurring conditions can complicate diagnosis, treatment, and management, often leading to poorer outcomes if not adequately addressed.

1.2. Statement of problem

Autism Spectrum Disorder (ASD) is a complex neurodevelopmental condition with a growing global prevalence, yet its understanding and management, particularly in low-income settings, remain significantly underdeveloped(1,5). While the core diagnostic features of ASD are well-established, the high incidence of co-occurring medical and psychiatric disorders presents a substantial challenge to the health and well-being of autistic individuals(11). These comorbidities, which include conditions such as epilepsy, gastrointestinal issues, sleep disturbances, and various psychiatric disorders, can exacerbate the core symptoms of ASD, complicate diagnosis, and significantly impact the effectiveness of interventions and overall quality of life (13,15).

Both psychiatric and somatic comorbidities further complicate the diagnosis of ASD as they can either exacerbate or mitigate typical symptoms of autism. This can lead to misdiagnosis with inadequate management or delays in diagnosis with missed opportunity for treatment. Additionally, numerous studies have demonstrated the negative impacts of co-morbidities on autistic individuals as well as their surroundings, both in terms of quality of life and economic burden(17).

In Ethiopia, the challenges are particularly acute. Despite a large population and a potential genetic predisposition to ASD in East African populations, there is a critical dearth of

epidemiological data on ASD prevalence and, more specifically, on the medical and psychiatric comorbidities affecting autistic children within the country(9,18,19).

This lack of localized evidence means that healthcare providers and policymakers operate with limited information, making it difficult to develop targeted, evidence-based interventions and allocate resources effectively. Existing healthcare infrastructure, even in urban centres like Addis Ababa, is often ill-equipped to handle the complex and multifaceted needs of autistic children with co-occurring medical conditions, leading to delayed diagnoses, inadequate treatment, and potentially poorer long-term outcomes(10,20).

Furthermore, the correlation between ASD and these associated medical and psychiatric disorders in the Ethiopian context is largely unexplored. This knowledge gap not only hinders clinical practice but also impedes the development of comprehensive public health strategies tailored to the unique needs of autistic children in Ethiopia.

1.3. Justification of study

Autism Spectrum Disorder (ASD) is a lifelong neurodevelopmental condition marked by social communication deficits and repetitive behaviors, often accompanied by medical and psychiatric comorbidities that increase morbidity and reduce quality of life (1,11). These comorbidities—such as epilepsy, gastrointestinal issues, ADHD, anxiety, and depression—can worsen behavioral challenges and complicate diagnosis and treatment if not properly addressed (13). Recognizing and treating these conditions is essential, as they may trigger abnormal behaviors that improve once the underlying medical issues are managed (14).

This study is justified by the critical need for localized, empirical data in Ethiopia. Currently, clinical practice and policy decisions regarding ASD in the country rely heavily on data from high-income countries, which may not accurately reflect the local patient population, diagnostic practices, or resource constraints. By assessing the prevalence of medical and psychiatric comorbidities at a major referral center like SPHMMC, this research will:

Inform Clinical Practice: Provide clinicians with evidence-based data on the most common co-occurring conditions, enabling them to implement standardized screening and integrated management protocols.

Guide Resource Allocation: Offer policymakers and hospital administrators the necessary data to justify the allocation of resources for specialized services, such as pediatric neurology, gastroenterology, and speech/language therapy, within the ASD care pathway.

Contribute to Local Knowledge: Establish a baseline for future epidemiological studies on ASD in Ethiopia and the wider East African region, helping to bridge the current knowledge gap.

2. LITERATURE REVIEW

Comorbidities are more common in children with ASDs than in the general population(14). The presence of co-occurring medical and psychiatric conditions, or comorbidities, is a common and significant feature of ASD. A systematic review revealed Majority (74%) of individuals with ASD had at least one comorbidity, and had a greater average number of comorbidities than their non-ASD siblings. Many ASD children, adolescents, and adults may have medically relevant disorders that may negatively impact their developmental progress and behavior, often having a profound impact on the health, functioning, and quality of life of affected individuals(12,16). These comorbidities can present unique challenges in diagnosis and management due to the communication difficulties often associated with ASD, which can mask or alter the presentation of physical symptoms.

Neurological Comorbidities: Epilepsy is one of the most frequently reported neurological comorbidities in ASD, with prevalence rates significantly higher than in the general population, ranging from 5% to 46% depending on the study population and diagnostic criteria(14). Risk factors include the presence of developmental delay/intellectual disability, female sex, age, and an underlying genetic condition. Due to higher prevalence of epilepsy in ASD, it is important to have a high index of suspicion for seizures and refer to a neurologist if there are concerns(24). According to studies, children with autism are also more prone to a variety of neurological disorders, including epilepsy, macrocephaly, hydrocephalus, and cerebral palsy(14,25)

Gastrointestinal (GI) Issues: Gastrointestinal problems are highly prevalent in children with ASD, occurring in 46% to 84% of autistic children. These can include chronic constipation, diarrhea, abdominal pain, and reflux. The etiology of GI issues in ASD is complex and may involve dietary factors, gut microbiome dysregulation, and sensory sensitivities. Addressing

GI issues is crucial as they can contribute to behavioral problems, irritability, and sleep disturbances.

Sleep Disturbances: Sleep problems, including insomnia, difficulty falling asleep, frequent night awakenings, and early morning awakenings, are common in autistic children occurring in about 80% of them. These disturbances can significantly impact daytime functioning, behavior, and learning, as well as parental stress and family quality of life(14,16).

Feeding Issues: Many autistic children experience feeding difficulties, such as selective eating, food refusal, and pica, often due to sensory sensitivities, rigid routines, or oral motor challenges. These issues can lead to nutritional deficiencies and impact growth and development.

Psychiatric Comorbidities: Psychiatric comorbidities are exceptionally common in ASD, often more so than medical comorbidities. According to Nature research, Attention-Deficit/Hyperactivity Disorder (ADHD) was the most common comorbidity, affecting more than 1 in every 3 children with ASD (35.3%). Anxiety disorders, including generalized anxiety disorder, social anxiety, and obsessive-compulsive disorder, are also highly prevalent among autistic individuals. Depression is another significant concern, particularly in adolescents and adults with ASD. The presence of these psychiatric conditions can significantly complicate the clinical picture and require integrated therapeutic approaches(2,16).

Some genetic disorders are more common in children with ASD, such as Fragile X syndrome, Down syndrome, Duchenne muscular dystrophy, neurofibromatosis type I, and tuberous sclerosis complex. Several categories of inborn errors of metabolism have been observed in some patients with autism. Some children with ASD have evidence of persistent neuroinflammation, altered inflammatory responses, and immune abnormalities.

Allergic disorders are other significantly more common problems in ASD and run through all age groups(14). Studies also show that people with an ASD diagnosis are more likely to be overweight or obese(26).

A retrospective cohort of 36,000 patients done in US shows the most common comorbidities among patients with ASD were neurological and psychological conditions. Attention-deficit/hyperactivity disorder (ADHD) was the most common comorbidity (50.09%), followed by mood disorder (17.47%) and anxiety (24.84%). Developmental delay was observed in 14.91% of the patients. ADHD was observed more in adolescents (10–17 years old) than other age groups. Anxiety was frequently observed in both adolescents and adults (18 years and older). Mood disorders were mostly prevalent in adults, while developmental delays were mostly observed in young children (0–9 years old)(23).

A review done in US as well revealed, of the 119 participants with ASD, 115 (96%) presented with one or more co-occurring conditions, including language disorder in 101 (85%), Learning Disabilities in 23 (19%), ADHD in 50 (42%), and Intellectual Disability in 30 (25%). Psychiatric co-occurring conditions included anxiety disorders in 24 (20%) and depressive disorders in 8 (6%). School-age children with autism were more likely to be diagnosed with ADHD combined type and language disorders, whereas adolescents with autism were more likely to be diagnosed with depressive disorders, with no other differences between the groups(27).

In a study on Psychiatric Comorbidities in Children and Adolescents with High-Functioning Autism Spectrum Disorder in an Italian sample, according to the overall pooled prevalence estimates of mental health conditions in ASD, 28% are attention deficit/hyperactivity disorder (ADHD), 20% are anxiety disorders; 13% are sleep-wake disorders; 12% are disruptive, impulse-control, and conduct disorders; 11% are depressive disorders; 9% are obsessive compulsive disorder (OCD); 5% are bipolar disorders; and 4% are schizophrenia spectrum disorders(21).

In a cross-sectional study conducted in Democratic Republic of the Congo involving 120 subjects with ASD, with boys outnumbering girls 3:1 and mean age 7.9 years, Intellectual disability (75.83 %) and epilepsy (72.50%) were the main co-morbidities significantly associated with autism(7).

From a retrospective chart review conducted in South Africa, the most common comorbidity was ADHD (43%), 17% of participants exhibited intellectual impairment, Concomitant epilepsy or seizures were present in 15% of study participants. Sleep disturbances and behavioral disorders were present in 11% of study participants, respectively. It has been suggested that sleep disorders may be a primary contributor to behavioral difficulties in children with or without ASD but occur more commonly in children with ASD. Constipation is a recognized independent comorbidity in children with ASD but may be compounded by food selectivity (28).

3. OBJECTIVES OF THE STUDY

3.1. General Objective

To assess the prevalence of medical and psychiatric comorbidities in children with Autism Spectrum Disorder attending St. Paul's Hospital, Addis Ababa, Ethiopia.

3.2. Specific Objectives

- To determine the magnitude of the common medical disorders co-occurring in children with Autism Spectrum Disorder attending SPHMMC.
- To determine the magnitude of the common Psychiatric disorders co-occurring in children with Autism Spectrum Disorder attending SPHMMC.

4. METHODS AND MATERIALS

4.1. Study area and period

The study area selected for this research is St. Paul's Hospital millennium medical college found in Addis Ababa, capital city of Ethiopia. It is the second largest referral hospital in the country. It was established in 1968 through a visionary collaboration between Emperor Haile Selassie I and the German Evangelical Church. Initially serving as a general and referral hospital, it provided essential healthcare services to patients from all corners of Ethiopia, focusing on general medicine, surgery, pediatrics, and obstetrics. It is also one of the pioneering health facilities in providing mental health services. This study was conducted retrospectively, reviewing records from September 1, 2024, to August 31, 2025.

4.2. Study Design

An Institution based quantitative cross-sectional study was conducted.

4.3. Source population

All patients coming to SPHMMC Pediatric psychiatry OPD in the time frame of September 1, 2024, and August 31, 2025.

4.4. Study population

This study includes all ASD patients who presented for a visit to the SPHMMC Pediatric Psychiatric OPD between September 1, 2024, and August 31, 2025, and whose medical records were complete and accessible.

4.5. Inclusion and Exclusion Criteria

- **Inclusion Criteria:** Children up to the age of 18 with a confirmed diagnosis of Autism Spectrum Disorder (ASD) by a qualified mental health professional based on DSM-5 criteria.
- **Exclusion Criteria:** Children with other primary neurological disorders that may confound the diagnosis of ASD or the assessment of comorbidities (e.g., severe intellectual disability without an ASD diagnosis, cerebral palsy as a primary diagnosis).

4.6. Study variables

Dependent variable- Medical comorbidities

- Psychiatric comorbidities

Independent variable

- ✓ Age
- ✓ Sex
- ✓ Religion
- ✓ Area of living (urban vs rural)
- ✓ Educational level
- ✓ caregiver status and relationship
- ✓ Socio economic status
- ✓ Autism diagnosis

4.7. Operational Definitions

Medical comorbidity is defined as the presence of one or more chronic or recurrent physical health conditions that co-occur with a primary diagnosis of Autism Spectrum Disorder (ASD), confirmed through clinical evaluation or documented in medical records. These conditions may include, but are not limited to, epilepsy, gastrointestinal disorders, sleep disturbances, immune dysfunction, or metabolic syndromes(29).

Psychiatric comorbidity refers to the presence of one or more diagnosable mental health disorders that co-occur with Autism Spectrum Disorder (ASD) in a child, confirmed through standardized diagnostic criteria such as DSM-5 or ICD-10, and assessed via clinical interviews, validated screening tools, or documented psychiatric evaluations(28).

4.8. Sample Size and Sampling procedure

The sample size will be calculated based on the single population proportion, by taking P= 50% since there are no previous similar studies done this topic.

$$n_0 = \frac{Z_{\alpha/2}^2 p(1-p)}{d^2}$$

Assuming the margin of error (d) as 0.05 and confidence level of 95%

Where:

Z= Confidence level at 95% (standard value of 1.96)

P =Estimated prevalence of self medication among medical students

E =Sampling error (5%)

$N = (1.96)^2 \cdot 0.5(1-0.5) / (0.05)^2 = 384$

A systematic random sampling method was planned to recruit participants from SPHMMC Pediatric psychiatry outpatient department. However, due to the retrospective nature of the study and the specific time frame, all eligible records were only 287 within the defined period, and these records were ultimately used for the final analysis.

4.9. Data collection procedures

Data for this study were obtained through a retrospective review of medical records maintained in the SPHMMC database. Prior to initiating data collection, ethical clearance and formal approval were secured from administrative authorities to ensure compliance with research ethics and data protection standards.

The medical records of selected patients diagnosed with Autism Spectrum Disorder (ASD) who visited the Pediatric Psychiatric Outpatient Department (OPD) during the defined study period—from September 1, 2024, to August 31, 2025—will be reviewed. A structured data extraction checklist(see Appendix 3) was developed based on the study objectives to systematically capture relevant information, including demographic details, clinical diagnoses, documented comorbidities, and visit history.

Data quality control- Data quality control measures were undertaken to increase the reliability of the final out comes. The data collection form was checked by an investigator for its appropriateness.

4.10. Data processing and analysis

After checking for the completeness of the collected data were cleaned, coded, and analyzed using SPSS software. Descriptive statistics including frequencies and percentages were used to summarize sociodemographic characteristics and clinical profiles. The prevalence and magnitude of each psychiatric comorbidity were calculated and presented using tables and graphs.

4.11. Ethical Considerations

Ethical clearance was obtained from the Institutional Review Board (IRB) of St. Paul's Hospital Millennium Medical College. Before the data collection begins, an oral permission request, explaining the nature of the study and asking for access to the medical files of participating children with ASD, was asked from the SPHMMC Psychiatry department. The study was conducted only after getting permission from the department.

As the study involved retrospective review of anonymized patient records, confidentiality was maintained by ensuring that no personal identifiers were recorded during data abstraction.

4.12. Dissemination of Results

The study's findings will be sent to SPHMMC's public health department, and library to be accessible for utilization for future researchers. The results will also be presented to the Graduate Studies Coordinating Office as part of the fulfillment of the requirements for the Degree of Doctor of Medicine, it will also be presented on different forums and publications.

5. RESULTS

5.1. Sociodemographic characteristics

In this study about 287 patient medical records were reviewed and included in the final analysis.

The majority of the study participants were male, consistent with the known epidemiology of ASD.

The age of the patients ranged from 2 to 18 years. The patients were categorized into three age groups, with the largest proportion falling into the 5-9 year range.

		Frequency(N)	Percentage (%)
Age	0-4	54	18.8
	5-9	152	53
	10-14	60	20.9
	15-18	21	7.3
	Total	287	100
Sex	Male	225	78.4
	Female	62	21.6
	Total	287	100

Table 1 : Patient Demographics

5.2. Prevalence of Psychiatric Comorbidities

Psychiatric Comorbidity	Frequency (n)	Prevalence (%)
Language impairment	186	64.8
Intellectual disability	57	19.9
Attention-Deficit/Hyperactivity Disorder (ADHD)	47	16.4
Disruptive Behavior Disorder (DBD)	41	14.3
Eating Disorder	30	10.5
Psychotic Disorder	5	1.7
Depression	1	0.3
Substance Use	1	0.3
Total with at least one psychiatric comorbidity	252	87.8

Table 2 : Prevalence of psychiatric comorbidities

The analysis revealed a very high prevalence of psychiatric comorbidities. Overall, **87.8%** (n=253) of the children with ASD had at least one co-occurring psychiatric condition.

The three most prevalent psychiatric comorbidities were **Language Impairment** (64.8%), **Intellectual Disability** (19.9%), and **ADHD** (16.4%).

5.3. Prevalence of Medical Comorbidities

Medical Comorbidity	Frequency (n)	Prevalence (%)
Epilepsy/Seizure Disorder	47	16.4
Gastrointestinal (GI) Issues	12	4.2
Vision or Hearing Impairment	12	4.2
Nutritional Deficiencies	12	4.2
Respiratory Conditions	11	3.8
Genetic syndromes	11	3.8
Sleep Disturbances	9	3.1
Endocrine/Metabolic Disorders	6	2.1
Cardiovascular conditions	2	0.7
Allergy	1	0.3
Total with at least one medical comorbidity	125	43.6

Table 3 : prevalence of medical comorbidities

The prevalence of medical comorbidities was also substantial, with **43.6%** (n=125) of the patients having at least one co-occurring medical condition.

The most frequently observed medical comorbidities were **Epilepsy/Seizure Disorder** (16.4%), **Gastrointestinal Issues**, **Nutritional Deficiencies** and **Vision or hearing impairments** each contributing 4.2%.

6. DISCUSSION

The findings of this study confirm a high burden of both psychiatric and medical comorbidities in children with ASD attending SPHMMC, which is consistent with global literature but provides essential localized data for the Ethiopian context.

The prevalence of psychiatric comorbidities (**87.8%**) is notably high. The most common conditions—**Language Impairment** (64.8%), **Intellectual Disability** (19.9%), and **ADHD** (16.4%)—are all well-documented co-occurring conditions in ASD [11, 15, 16]. The high rate of Language Impairment and Intellectual Disability may reflect the severity of cases presenting to a tertiary referral center like SPHMMC, or it may highlight a diagnostic bias where children with more obvious developmental delays are identified earlier in the Ethiopian healthcare system. Even though the 16.4% prevalence of ADHD is lower than most international studies (30% to 50%) [16], it was reported in significant amount of the study population, emphasizing the need for integrated diagnostic and therapeutic approaches that address both ASD and ADHD symptoms.

The prevalence of medical comorbidities (**43.6%**) is also substantial. The finding that **Epilepsy/Seizure Disorder** is the most common medical comorbidity (16.4%) is a critical result. This figure is at the range of global prevalence (5% to 46%) [14], and is higher than the 15% reported in a South African retrospective review [28]. This high rate necessitates routine neurological screening and management protocols. The 4.2% prevalence of **Gastrointestinal (GI) Issues** is lower than most international reports (46% to 84%) but still indicates a significant clinical problem[13]. The presence of **Nutritional Deficiencies** (4.2%) may be linked to restrictive eating behaviors common in ASD, compounded by potential socioeconomic factors in the local context. **Vision and hearing impairment**(4.2%), the other common comorbidity necessitates integrated ENT approach for children with ASD.

The study's findings underscore the complexity of managing ASD in a low-resource setting. The high rates of comorbidity mean that treatment cannot focus solely on the core symptoms of ASD but must adopt a holistic, multidisciplinary approach involving pediatricians, psychiatrists, neurologists, and speech/language therapists. The data strongly support the need for comprehensive care models that address the full spectrum of challenges faced by children with ASD in Ethiopia.

7. LIMITATION

A sample size of 384 was calculated to collect the data from, but the total number of children with ASD diagnosis visiting the hospital pediatric OPD during the stated time period was 287, and the data was collected only from those children.

On the other hand, a difficulty which was faced during data collection was that some psychiatric and medical comorbidities like eating disorder and sleep disorder were not strictly documented in the diagnosis, even though they were found to be present in the history part of the medical records. This caused a doubt that the magnitude of these comorbidities might be underestimated in this research, and the discrepancy on the result of these comorbidities from the international data might be due to this reason.

8. CONCLUSION AND RECOMMENDATIONS

8.1. Conclusion

This study successfully assessed the prevalence of medical and psychiatric comorbidities in children with ASD attending St. Paul's Hospital Millennium Medical College. The results demonstrate an significantly high prevalence of co-occurring conditions, with **87.8%** of patients having at least one psychiatric comorbidity and **43.6%** having at least one medical comorbidity. **Language Impairment, Intellectual Disability, ADHD, and Epilepsy** were identified as the most pressing co-occurring conditions. These findings provide essential, localized empirical data that confirm the complex and multifaceted nature of ASD management in the Ethiopian context.

8.2. Recommendations

Based on these findings, the following recommendations are made:

For St. Paul's Hospital Millennium Medical College:

- ✓ **Implement Integrated Care Models:** Establish a multidisciplinary clinic for ASD that integrates pediatric psychiatry, neurology, and developmental pediatrics to ensure holistic screening and management of both core ASD symptoms and comorbidities.

- ✓ **Standardize Screening Protocols:** Develop and implement standardized screening tools for the most prevalent comorbidities, particularly for Language Impairment, Intellectual Disability, ADHD, and Epilepsy, to ensure early detection and intervention.

For Future Researchers:

- ✓ Conduct prospective studies at higher scale to validate the prevalence rates found in this retrospective review and to explore the potential risk factors associated with the most common comorbidities, such as Epilepsy and Intellectual Disability.
- ✓ Investigate the impact of these comorbidities on the quality of life of children with ASD and their families in the Ethiopian context.

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10. ANNEXES

Data Collection Checklist

Study Title: prevalence of medical and psychiatric comorbidities in autistic patients who attended St. Paul's Hospital Millennium Medical College.

Setting: SPHMMC

Population: Children and Adolescents (<18 years) with documented ASD diagnosis

Method: quantitative cross sectional study

Patient Identification & Eligibility

- Medical record number (MRN)
- Age (in years)
- Sex: ☐ Male ☐ Female
- Region/sub-city/woreda
- Date of first visit
- Confirmed ASD diagnosis in chart: ☐ Yes ☐ No

Psychiatric Comorbidities

Comorbidity	Present
ADHD	☐ Yes ☐ No
Anxiety disorders	☐ Yes ☐ No
Depression	☐ Yes ☐ No
Bipolar disorder	☐ Yes ☐ No
OCD	☐ Yes ☐ No
Psychotic disorders	☐ Yes ☐ No
PTSD or trauma-related disorder	☐ Yes ☐ No
Disruptive behaviour (ODD/CD)	☐ Yes ☐ No

Eating disorders (ARFID, etc.) ☐ Yes ☐ No

Substance use (if adolescent) ☐ Yes ☐ No

Intellectual disability ☐ Yes ☐ No

Other psychiatric conditions ☐ Yes ☐ No

Medical Comorbidities

Comorbidity	Present
Epilepsy / Seizure disorder	☐ Yes ☐ No
Gastrointestinal issues	☐ Yes ☐ No
Sleep disturbances	☐ Yes ☐ No
Feeding difficulties	☐ Yes ☐ No
Allergies / Immune conditions	☐ Yes ☐ No
Endocrine/metabolic disorders	☐ Yes ☐ No
Genetic syndromes	☐ Yes ☐ No
Vision or hearing impairment	☐ Yes ☐ No
Cardiovascular issues	☐ Yes ☐ No
Respiratory conditions	☐ Yes ☐ No
Nutritional deficiencies	☐ Yes ☐ No
Other medical conditions	☐ Yes ☐ No

