

# Comorbidities of Autism, Dhaka Shishu (Children) Hospital Based Study

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**Abstract:** *Introduction:* Autism is a neurodevelopmental disorder which is marked by a persistent deficit in social interaction and social communication and restricted, repetitive patterns of behaviors/ fixated interests or activities. Individuals with ASD vary in language ability, ranging from absent speech to fluent language, and in cognitive development, ranging from profound intellectual disability to above-average intellectual functioning. Individuals may also show associated medical comorbidities including epilepsy and minor physical anomalies, as well as psychiatric comorbidities, thus showing a wide clinical heterogeneity. *Methodology:* This study prospectively carried out in Dhaka Shishu (Children) Hospital, CDC, from January 2017 to December 2017. Total 224 Autism cases, 18m-16years are evaluated to find out comorbidities in addition to core features by preformed questionnaire. First of all, those baby attended in CDC (Child Development centre) with speech delay, not respond to name calling, lack of eye contact, restricted behavior or interest were screened by M-CHAT (<4 years), SCQ (4years or more). General developmental assessment (GDA) was done in all screening positive cases along with fulfilling DSM5 criteria. All data are coded and computer recorded. *Results:* Out of 224 children, 90% are within 2-5 years of age, male 78%, female 22%. urban 77%, rural 23%, 90% fall into middle and upper income group. Comorbidities were found in 66% cases. Psychological comorbidity is more than medical comorbidity (100% Vs 70%). Many patients have more than one comorbidities as well as both medical and psychological comorbidities. Among the co-morbidities minor behavior problem 56.1%, feeding problem 20.5%, constipation 19.4%, ADHD-14.5%, sleep difficulties 13.8%, self injurious behavior 10.8%, malnutrition 9.1%, phobia 7.3%, epilepsy 4.8%, OCD-4.8%, anxiety 6.5%, diarrhoea 2.4%. *Conclusion:* Autism is a lifelong neurodevelopmental disorder. Its management is very much challenging. Without addressing comorbidities, management of autism remains incomplete.

**Keywords:** Autism, Medical Comorbidity, Psychological Comorbidity

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## 1. Introduction

Autism is a neurodevelopmental disorder which is marked by a persistent deficit in social interaction and social communication and restricted, repetitive patterns of behaviors/ fixated interests or activities [1, 2] The etiopathogenesis is multifactorial, originating from a complex interplay between genetic and environmental factors. In the USA, one in 59 children aged 8 years are

diagnosed with ASD. [3] In Bangladesh, some hospital based studies show that the autism related reported cases are increasing which may be due to increased rate of incidence, awareness or both [4]. Autism is four times common in boys as in girls [5].

With the involvement of the Bangladesh Bureau of Statistics a nationwide survey was done in Bangladesh which shows autism spectrum disorder prevalence in 16- to 30-month-old children 17 per 10,000 young children. Boys were

found at higher risk of autism (one in 423 boys; one in 1026 girls). Prevalence of autism spectrum disorder was higher in urban environments than in rural ones – 25/10,000 and 14/10,000, respectively. [6] Individuals with autism commonly express associated comorbidities, thus showing a wide clinical heterogeneity. Comorbidities are the main reasons for seeking physicians. Autism is in comorbidity relationship with epilepsy in 30% with intellectual disability in 50-80% and with attention deficit hyperactivity disorder (ADHD) in 20 to 85% [7]. Intellectual disability, epilepsy and ADHD can share a common neurobiological basis and are factors of poor prognosis of autism [7].

Leader *et al.* expresses common comorbid conditions coexisting with ASD like gastrointestinal symptoms, eating problems, sleep problems, epilepsy, behavior problems, attention deficit / hyperactivity / impulsivity disorder, anxiety and depression. [8]

It must be always considered that epilepsy and intellectual disability (ID) or both, may be frequently associated in children with ASD [9-11].

One study carried out by Anwar Parvez Bhuiyan *et al* for looking psychiatric comorbidity and found 79% Autism spectrum disorder (ASD) children had comorbid psychiatric illness and 21% children had no comorbid psychiatric illness. Most frequent 72.15% was ADHD followed by Specific phobia 11.39%, Social phobia 6.33% and Major Depressive

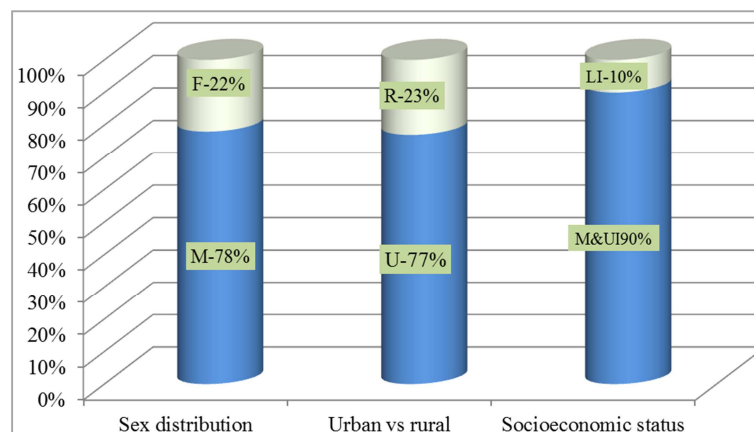
disorder 1.27%. [12] Our study looked both medical and psychiatric comorbidity.

## 2. Methodology

This study was prospectively carried out in Dhaka Shishu (Children) Hospital, CDC, from January 2017 to December 2017. Total 224 Autism cases, 18m-16years are evaluated to find out comorbidities in addition to core features by preformed questionnaire. First of all, those baby attended in CDC with speech delay, not respond to name calling, lack of eye contact, restricted behavior or interest were screened by M-CHAT (<4 years), SCQ (4 years& more). General developmental assessment (GDA) was done in all screening positive cases along with fulfilling DSM5 criteria. Written informed consent was taken from all parents and ethical clearance was taken from national coordinator office, Child Development Centre, Dhaka Shishu Hospital.

## 3. Results

We included 224 children in our study. Out of 224 children, 90% are within 2-5 years of age. Incidence of comorbidity among children with autism is 66% (n=224). Psychological comorbidity is more than medical comorbidity (100%vs 70%).



**Figure 1.** Shows demographic characteristics of the children with ASD.

Out of 224 children, 90% are within 2-5 years of age. Among the cases 78% are male, 22% female, maximum reside in urban areas (77%), most of them belong to middle and upper income (more than 30,000 taka per month) family.

**Table 1.** Shows comorbidities of autism as a whole.

Variable	Percentage
Medical comorbidity (70%)	
Feeding problem	20.50%
Constipation	19.40%
Sleep difficulties	13.80%
Malnutrition	9.10%
Epilepsy	4.80%
Diarrhoea	2.40%
Psychological comorbidity (100%)	
Minor behavioural problem	56.10%

Variable	Percentage
ADHD	14.5%
Self injurious behaviour	10.80%
Phobia	7.3%
Anxiety	6.5%
OCD	4.8%

Comorbidities were found in 66% cases. Table 1 displays comorbidities that accompany children with ASD. Comorbidities can be divided into two broad categories; medical and psychological.

Medical comorbidities include feeding problem, sleeping problem, constipation, epilepsy, while psychological comorbidities include minor behavioral problems, ADHD, self injuries, anxiety, phobia etc.

Feeding problem and constipation comprise 20.5% and

19.4% of the patients respectively. Sleep difficulties in 13.8%. Malnutrition was found in 9.1%, epilepsy in 4.8%, diarrhea in 2.4%. Special attention is given to malnutrition related comorbidities because they have specific food

choice, feeding problem, lack of self eating. Figure 2 shows that 9.1% of the patient suffer from malnutrition. Among those 3.9% suffer from severe malnutrition, 1.9% moderate and 1.3% suffers mild malnutrition.

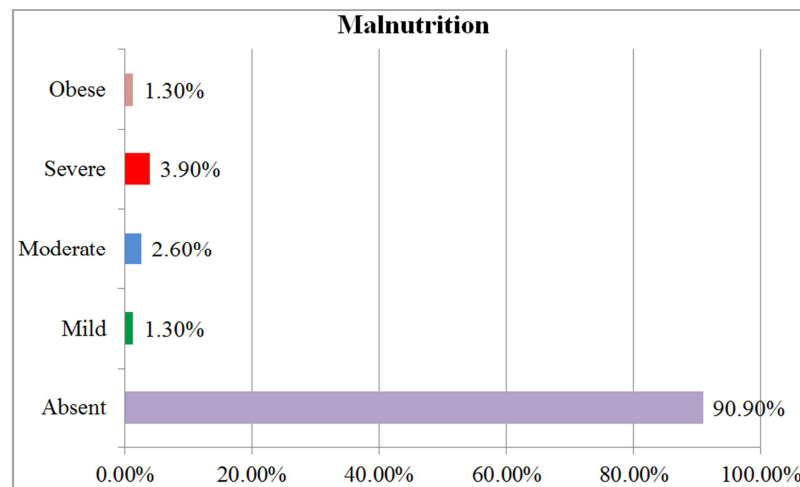


Figure 2. Shows malnutrition status of Autism Children.

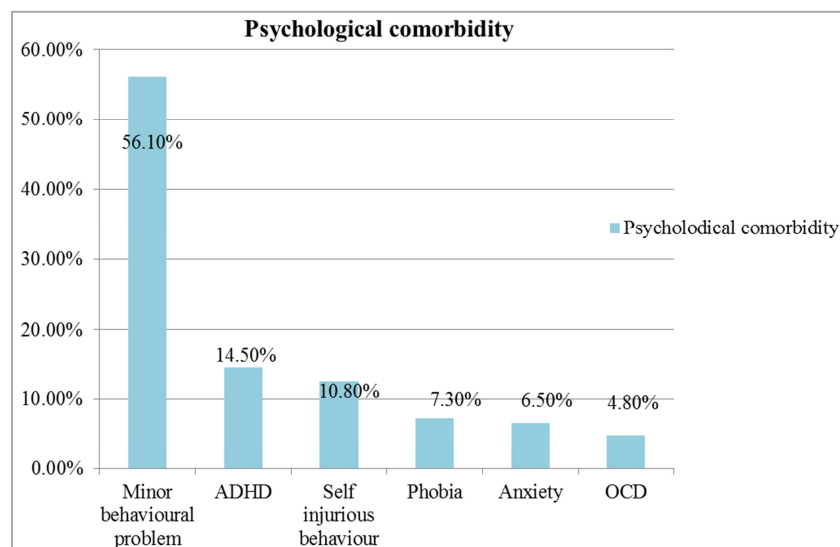


Figure 3. Shows psychological comorbidity.

Psychological comorbidities are part and parcel of ASD. Figure 3 shows that minor behavioral problems accompany majority (56.1%) of the children with ASD. ADHD, self-injurious behaviour, phobia, anxiety, OCD consist of the rest 43.9%. ADHD was found in 13.5%, self-injurious behavior in 10.8%, phobia in 7.3%, anxiety in 6.5%, OCD in 4.8%.

## 4. Discussion

Autism Spectrum Disorder is neurodevelopmental disorder characterized by two key symptoms: persistent deficits in social communication/interaction and restricted, repetitive patterns of behavior and abnormal sensory responses [2].

Children with autism are characterized not only by their core deficits, impairments in social interaction, communication and repetitive stereotyped behaviors but they

also suffer from many comorbid features such as anxiety, depression, ADHD and behavioral problems. [13]

ASD often present co-morbid psychiatric disorders. In a recent review, Hossain et al. reported two studies estimating the prevalence of at least one comorbid psychiatric disorder at 54.8% and up to 94%, with Attention Deficit Hyperactivity Disorder (ADHD), anxiety, depressive disorders and sleep disorders being the most frequent co-morbidities [14]. In our study, comorbidity was found in 66% cases, psychological comorbidity (100%) is more than medical comorbidity (70%) such as minor behavioral problems accompany majority (56.1%) of the children with ASD. ADHD, self-injurious behaviour, phobia, anxiety, OCD consist of the rest 43.9%. ADHD was found in 13.5%, self-injurious behavior in 10.8%, phobia in 7.3%, OCD in 4.8%, anxiety in 6.5%. Minor behavioural problem includes temper tantrum, nail biting,

thumb sucking, spitting, spinning, climbing etc.

Individuals with ASD are also more likely to experience somatic co-morbidities such as epilepsy, gastro-intestinal (GI) disorders or sight/hearing impairments [15].

Autism affects males four times more than females [16]. In our study, out of 224 children, 78% are male, 22% female, maximum reside in urban areas (77%), most of them belong to middle and upper income (more than 30,000 taka per month) family. Though worldwide no consistent socio-demographic variation could not be identified [17].

Many children and adults with a diagnosis of autism spectrum disorder (ASD) have comorbid medical and psychiatric problems. Medical comorbidities are much more prevalent and difficult to recognise in patients with autism in part to communication impairments and aberrant behaviours. Accurate diagnosis and treatment often results in improved level of functioning and decreased severity of symptoms [18]. In our study, Feeding problem and constipation comprise 20.5% and 19.4% of the patients respectively. Children with autism have significantly more feeding problem and eat a narrower range of foods than children without autism. Malnutrition was found in 9.1%, epilepsy in 4.8%, diarrhea in 2.4%. Among malnutrition, 3.9% suffer from severe malnutrition, 1.9% moderate and 1.3% suffer mild malnutrition. Sleep difficulties is found in 3.8%. Mannion *et al.* found that 80.9% of children and adolescents with ASD presented with sleep problems [19].

Prevalence of seizure disorders is significantly higher in people with ASD than is the normal. Epilepsy is more common in ASD children, with a rate varying from 8% to 30% epilepsy is more common in ASD children, with a rate varying from 8% to 30% [20-22]. We found only 4.8% with epilepsy. ASD along with epilepsy have significant impacts on the child's quality of life and increase the stress for the families.

## 5. Limitations and Recommendation

This is a single centre study. So multi centric large population based study need to be done to represent co morbidities of Autism Spectrum Disorder of Bangladeshi children.

## 6. Conclusion

The presence of co morbid medical and psychological conditions in ASD highlights the vast heterogeneity within the disorder. Assessment of co-occurring medical and psychological problems is of critical importance in the initial diagnostic procedure for individuals with ASD as well as in ongoing effective intervention plan.

Without addressing comorbidity, management of autism remains challenging.

## Conflicts of Interest

I declare no conflicts of interest.

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