



Prevalence of Anxiety in Children Suffering from Autism Attending the Out-Patient Department of a Tertiary Care Centre

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KEYWORDS

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ABSTRACT:

Introduction: Autism spectrum disorders are common neurocognitive disease which are multifactorial, begins at early childhood, persists throughout the life in a non-remitting course and may be associated with multidimensional behavioural comorbidities. Social anxiety (SA), also known as social phobia, is especially common among children with ASD with prevalence estimates reported to be as high as 50%.

Objective: To estimate the prevalence of anxiety among children suffering from autism spectrum disorder and its associated factors

Methods: A prospective observational study was conducted among 30 children with autism spectrum disorder and 30 children without any overt psychiatric disorders (control group) attending the psychiatric out-patient department of a tertiary care hospital. Data was collected after using a structured, pre-designed and pre-tested schedule which consisted of questions on socio demographic profile, M-CHAT screening tool and DSM-5 diagnostic criteria to diagnose and confirm autism spectrum disorder and its severity, respectively. It also included the 'RCADS' scale to diagnose the presence of anxiety among the study participants.

Results: The baseline characteristics of both the test and control groups were found to be comparable. The mean age of the test group and control groups were 6.9 ± 2.06 years and 7.23 ± 2.37 years respectively. More than half (66.7%) of both the groups were males. The prevalence of anxiety was found to be significantly higher among the children with ASD compared to their controls (53.3% vs 16.7%). Duration of ASD was found to be significantly associated with anxiety, and prevalence of anxiety was higher among children having the disease for longer duration.



INTRODUCTION

Autism spectrum disorders are common neurocognitive disease which are multifactorial, begins at early childhood, persists throughout the life in a non-remitting course and may be associated with multidimensional behavioural comorbidities. The prevalence of Autism spectrum disorder (ASD), as per Centres for Disease Control and Prevention is around 11.3/10000, ranging from 0.7/10000 to 72.6/10000. Due to lack of researches, the exact prevalence in our country is still unavailable, although the number is around 6/10000 in OPD patients as per some sources. Due to difficulty in communication comorbidity assessment in autistic children is difficult and quite complex. About 50% of the patients show profound intellectual deficiency, making the process more difficult. Most studies show increased rates of anxiety and attention disorder in these children. Many ASD symptoms overlap with anxiety, and diagnostic overshadowing may occur because it is challenging to actually differentiate between the disorders. Diagnostic overshadowing refers to the misattribution of emotional and behavioural disorder to the ASD.

Autism spectrum disorders (ASD) are common lifelong neurodevelopmental conditions, characterised by qualitative impairments in social communication and interaction, engagement in rituals and routines, and hypo- or hyper-sensory sensitivities. It is widely accepted that many young people and adults with ASD experience anxiety. In part due to the heterogeneous profile, there is debate about whether anxiety is best conceptualised as being derived of, or co-morbid to, ASD. In either instance, data from a range of epidemiological and clinical samples, employing a range of data collection methods, consistently indicate that individuals with ASD have high rates of anxiety disorders.[1]

Social anxiety (SA), also known as social phobia, is especially common, with prevalence estimates reported to be as high as 50%; substantially higher than estimates of 7–13% cited for the non-ASD population (NICE, 2013a). Disparities in prevalence estimates across studies may be attributable to a number of reasons, including differences in sampling and selection criteria (e.g. epidemiological vs. clinical samples), methods of assessment (e.g. self- vs. clinician-rated measures, or use of one vs. multiple measures), diagnostic overshadowing (whereby co-morbid symptoms are wrongly attributed to

ASD alone), or impairments in cognitive functioning (e.g. in introspection) which render it difficult for individuals with ASD to describe their internal states.[2]

Hallmark characteristics of SA include autonomic symptoms of anxiety manifesting in specific or general social situations, a fear of negative evaluation or judgement by others, and avoidance of or escape from cues that evoke anxiety. In non-ASD individuals, SA symptoms often emerge during adolescence with wide-ranging and long-term consequences. Causal and maintaining mechanisms for SA in neurotypical individuals are considered to be multi-faceted. These primarily comprise psycho-social and environmental factors, potentially underpinned by a genetic or biological predisposition. Psychological frameworks for SA indicate that this may develop and be maintained by some or all of the following factors: an inhibited temperament; adverse social experiences during formative years; overestimation of the threat associated with social situations; negative beliefs about the self, others or the world; biases in information, attention and emotion processing; negative imagery; and 'safety behaviours' such as avoidance, mental rehearsal and post-event processing, which indirectly reinforce anxiety over time.[3]

With this background, this study was conducted to estimate the prevalence of anxiety among children suffering from autism spectrum disorder and its associated factors if any, among children attending the psychiatry out-patient department of a tertiary care hospital.

MATERIALS AND METHODS

Methods

This prospective, observational study was conducted in the psychiatry out-patient department of NRS Medical College and Hospital, Kolkata from March 2020 to April 2021 30 children (aged between 4 to 12 years) who attended the OPD, suffering from any of the autism spectrum disorder were purposive included in to the study and 30 children without any overt psychological disorders were taken as controls. Children with life-threatening disease resulting in significant disability were excluded.



Data was collected using a structured, pre-designed and pre-tested schedule which consisted of questions on sociodemographic profile, M-CHAT screening tool and DSM-5 diagnostic criteria to diagnose and confirm autism spectrum disorder and its severity, respectively. It also included the 'RCADS' scale to diagnose the presence of anxiety among the study participants.

The study participants were screened by MCHAT questionnaires initially for presence of autism, where score 0-2 is low risk, 2-7 is medium risk and 8 or more is high risk. Those newly screened patients and the other ones of different age group will be confirmed by DSM-5 criteria to diagnose autism spectrum disorders (this excludes already diagnosed patients by any psychologist). In this study, only those patients are eligible who are falling in the 'severity level 1' and 'severity level 2' in DSM-5 autism severity scale.

Those patients were further screened by RCADS scale, a 47 questionnaire scale to assess anxiety. In this scale a score of 65 means that the score is roughly in top 7% of scores of un-referred young people of the same age (described as borderline clinical by the developer) and a score of 70 means that the score is roughly in the top 2% of scores of un-referred young people of the same age (described as the clinical threshold by the developer). These data were then compared with the same of the 30 mentally healthy children.

The data entered in into Microsoft excel spreadsheet and then analysed by SPSS (version 25.0; SPSS Inc., Chicago, IL, USA) and Graph Pad Prism version 5. Data had been summarized as mean and standard deviation for numerical variables and count and percentages for categorical variables. Two-sample t-tests for a difference in mean involved independent samples or unpaired samples. Paired t-tests were a form of blocking and had greater power than unpaired tests. A chi-squared test (χ^2

test) was any statistical hypothesis test wherein the sampling distribution of the test statistic is a chi-squared distribution when the null hypothesis is true. Without other qualification, 'chi-squared test' often is used as short for Pearson's chi-squared test. Unpaired proportions were compared by Chi-square test or Fischer's exact test, as appropriate. P value of <0.05 was considered significant.

RESULTS

Among the 30 test participants, mean age was found to be 6.9 ± 2.06 years whereas mean age of the 30 children belonging to the control group was 7.23 ± 2.37 years. This difference was not found to be statistically significant. In case of gender both the groups had 66.7% female children. Around 56% of the children in the test group and 53.3% in the control group belonged to upper lower socioeconomic class. (table 1)

The M-CHAT mean scores were found to be significantly higher among the test group than the control group (7.7 ± 3.0 vs 1.3 ± 1.0). According to the DSM-5, 55.2% of the children in test group had autism spectrum disorder (ASD) of level 1 severity, and the rest had level 2 severity. Anxiety among the participants was assessed using RCADS scale and the prevalence of anxiety was found to be significantly higher among the ASD group, compared to the control group (53.3% vs 16.7%). The mean IQ score in the ASD group was 73.06 ± 6.60 and that of the control group was 68.28 ± 7.87 . This difference was not found to be statistically significant.

A statistically significant association was found between the mean disease (ASD) duration and anxiety among the children. No association of was found between the anxiety among children with ASD and age, gender or socioeconomic status.

Table 1: Distribution of study population according to baseline characteristics

Variables	Test group (n=30) n(%)	Control group (n=30) n(%)	Significance
Age			
≤8 years	16 (55.3)	17 (56.7)	p= 1.0
> 8 years	14 (46.7)	13 (43.3)	
Gender			
Female	10 (33.3)	10 (33.3)	p=0.78
Male	20 (66.7)	20 (66.7)	



Socioeconomic status			
Upper middle			
Lower middle	1 (3.3)	2 (6.7)	p= 0.67
Upper lower	1 (3.3)	3 (10.0)	
Lower	11 (36.7)	9 (30.0)	
	17 (56.7)	16 (53.3)	

Table 2: Distribution of study participants according to factors associated with anxiety (as per RCADS) (n=60)

Variables	Anxiety (n=27) n (%)	No anxiety (n=33) n(%)	Significance
Age			p= 0.22
≤8 years	12 (44.4)	21 (63.6)	
> 8 years	15 (55.6)	12 (36.4)	
Gender			p=0.78
Female	7 (60.6)	13 (39.4)	
Male	20 (74.1)	20 (60.6)	
Duration of ASD (mean± SD)	3.9±1.55	2.4±1.33	p= 0.01
IQ score (mean± SD)	73.06±6.60	68.28±7.87	p= 0.08

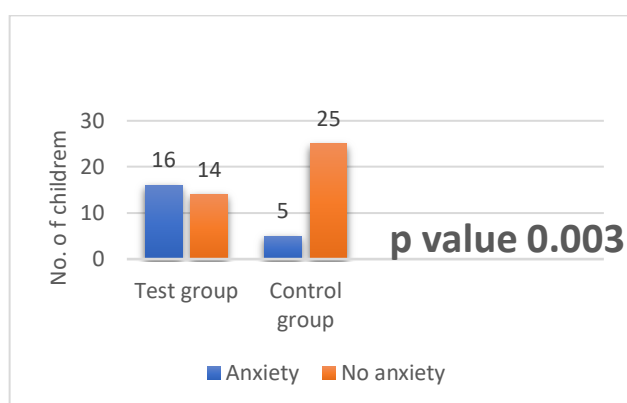


Fig 1: Distribution of anxiety as per RCADS scale among the test and control groups. (n=60)

DISCUSSION

Anxiety is one of the most common co-occurring psychiatric conditions among children with autism spectrum disorders (ASD). In this study the prevalence of anxiety was found to be significantly higher among the test group, compared to the control group (53.3% vs 16.7%). Published literature have reported the prevalence ranging from 22 to 84%. [3-4] In a

metanalysis by Steensel et al., at least one anxiety-related disorder was found to be present among 39% of children with ASD out of which specific phobia was the most common, followed by obsessive-compulsive disorder and social anxiety disorder. [5] Another study by D Ung et al., reported the prevalence of social phobia and generalized anxiety disorder among 41.7% and 25.9% of the children with ASD respectively. [6]

The high prevalence of anxiety among children with ASD has prompted the exploration of possible risk factors and correlates of this condition, as was done in the present study. Studies have reported the association of anxiety with age, some reporting the an increase in its prevalence with age [7] while others reporting a decrease in the prevalence in anxiety from childhood to adulthood. [8] However, in the present study no association was demonstrated between age and prevalence of anxiety.

In this study, no association between the age of the study participants and their socioeconomic status. This finding was in line with those reported in a study by Sukhodolsky et al. [9]



Studies have reported association of anxiety in ASD children with physiological factors such as overactivity of the hypothalamic-pituitary-adrenal axis [10] and overarousal of the sympathetic system. [11] A genetic component has also been reported to be a risk factor for anxiety and ASD in a study by Conner et al. [12] However, evaluation of these correlates were beyond the scope of the present study.

CONCLUSION

The prevalence of anxiety was significantly higher among the children with autism spectrum disorder compared to those belonging to the control group. Duration of the disease was found to increase the risk of developing anxiety. However no other associated factors could be demonstrated. Further study on a larger study population exploring other possible risk factors should be done for early prevention of anxiety among such children and maximizing social functioning.

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