

Prevalence of Anxiety Disorders Among Adolescents: A Cross-Sectional Study in An Urban Area of Delhi, India

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ABSTRACT

Background: Adolescence is a critical period and anxiety disorders affect one in seven adolescents globally, yet data on this in the Indian population remain limited. This research aimed to study the prevalence and types of anxiety disorders among adolescents in an urban area of Delhi.

Methods: In this cross-sectional study involving 300 adolescents, participants were selected using systematic random sampling. Data was collected using a pretested semi-structured questionnaire after ethical approval was obtained.

Results: The majority were 10-14 years of age (52.7%), with a mean age of 14.35±2.80. The prevalence of anxiety disorders was 35.3%, with social anxiety (14%) being the most common. Prevalence was higher in females and in the 15-19 years age group.

Conclusion: This study reveals a significant burden of anxiety disorders (35.3%) among urban adolescents in Delhi, with social anxiety being the most prevalent type.

Keywords: Adolescent health, Mental health, Anxiety, Delhi

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INTRODUCTION

Adolescents (10-19 years) comprise 16% of the world population and 21% of the Indian population.^{1,2} This period between childhood and adulthood, with continuous mental and physical changes, dynamic brain development, and complex socio-environmental interactions, can have diverse effects on their mental health.³

Mental health is a state of well-being where individuals understand their capabilities, cope with stressors of everyday life, work productively, and are able to contribute to the community.⁴ Across the world, one in seven adolescents has been found to suffer from mental illnesses. Also, among older adolescents and young adults, suicide is ranked as the third most common cause of death.⁵

Among mental health illnesses, anxiety disorders are most common, with an estimated 31.9% of adolescents affected, and the prevalence is higher among females (38.0%) as compared to males (26.1%).⁶ There is a paucity of data on anxiety disorders among adolescents in the Indian population. This study aimed to determine the prevalence of anxiety disorder and its different types among adolescents in an urban area of Delhi.

METHODOLOGY

This was a community-based cross-sectional study. The study was conducted in the field practice area under the Department of Community Medicine of a medical college in Delhi. The study included adolescents residing in Delhi for at least six months. Adolescents who had severe acute illness, were bedridden, had known cases of other mental health disorders, were diagnosed with intellectual disability, had hearing or vision impairment, or were unable to communicate, were excluded. The chosen exclusion criteria help to select participants who can provide valid data during the interview and remove possible confounding factors like severe physical illness, communication barriers, or other complex mental health disorders to ensure the internal validity of the study. The Study by Madasu et al.,³ had found a prevalence of anxiety disorders to be 22.7% among adolescents. An absolute error of 5% and a non-response rate of 10% were considered during sample size calculation, and the final sample size was calculated to be 300. The total sample size was completed, and practically all selected participants provided complete and valid responses, which were included in the analysis. Study participants were selected from households using a systematic random sampling method at a sampling interval of eleven.

The Screen for Child Anxiety Related Emotional Disorders (SCARED) tool measures total anxiety and specific types of anxiety disorder (separation anxiety disorder, generalized anxiety, social anxiety disorder, school phobia, and panic/somatic symptoms) among

adolescents. The tool developed by Birmaher et al. consists of 41 questions, and a score >21 indicates the presence of an anxiety disorder.^{7,8} The SCARED tool has been validated for diagnostic use in the Indian population. SCARED had good inter-rater reliability and test-retest reliability with intraclass correlation coefficients (ICC) of 0.87 and 0.90, respectively. The SCARED tool exhibited good internal consistency with a Cronbach's alpha of 0.89 and also showed good face and content validity.⁹ Along with this, general demographic details and the Body Mass Index were assessed.

Data was entered into Microsoft Excel and analyzed using SPSS version 25. Descriptive statistics were presented as proportions, mean, and standard deviation. Confidence Intervals (CI) of the outcome measures are also given. The Institutional Ethics Committee approved the study with IEC No: F.1/IEC/MAMC/MD/MS (92/04/2022/No.282). Complete confidentiality of patient information was maintained throughout the study, and participants needing further management were referred to higher facilities.

RESULTS

Among 300 adolescents in the study, 52.7% were in the age group of 10-14 years (early adolescents), and the rest were in the age group of 15-19 years (late adolescents). The study participants had a mean age of 14.35 ± 2.80 . There were 64.3% males and 35.7% females, all undergoing schooling, with the majority (35.3%) completing high school. Most (79%) adolescents received education in government schools, and the rest from private schools; 55% had English as their medium, and the rest from Hindi medium. Almost all (98.3%) had a passing mark in their last exam except 5 of the participants (1.7%).

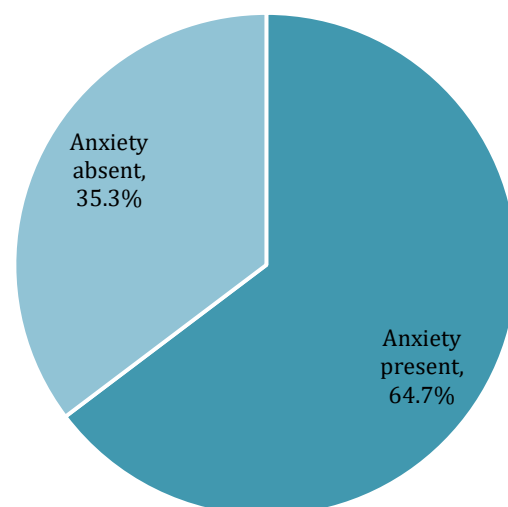


Figure 1a: Prevalence of anxiety disorders among participants

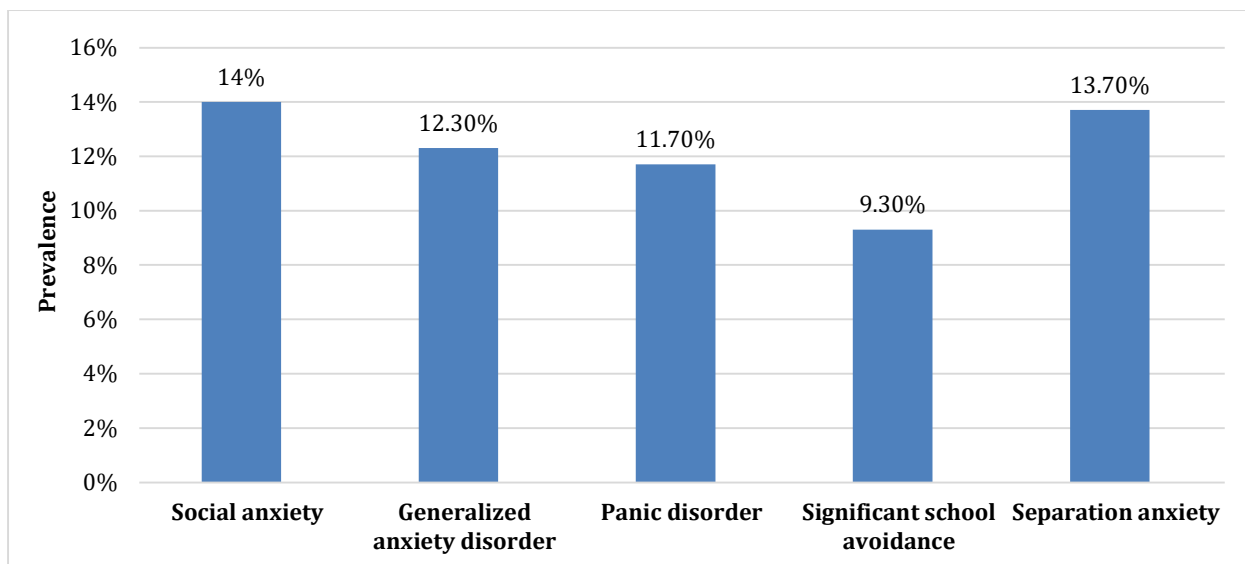


Figure 1b: The proportion of different types of anxiety disorders among adolescents

Figure 1: Prevalence of anxiety disorders and the proportion of different types of anxiety disorders among adolescents (N=300)

Table 1: Distribution of study participants according to sociodemographic, family, and personal characteristics (N=300)

Variable	Participants (%)
Education	
Primary school	15 (5.0)
Middle School	87(29.0)
High School	106(35.3)
Intermediate and above	92(30.7)
Type of family	
Nuclear	172(57.3)
Joint/Extended	123(41.0)
Broken/Separated	5(1.7)
Number of siblings	
None	8(2.7)
1-3	243(81.0)
≥4	49(16.3)
Birth order	
1	121(40.3)
2	113(37.7)
≥3	66(22.0)
Socioeconomic status (B. G. Prasad Scale)	
Class I	62(20.7)
Class II	81(27.0)
Class III	69(23.0)
Class IV & V	88(29.3)
History of substance use among participants	
Absent	277(92.3)
Present	
Alcohol	9(3.0)
Tobacco	14(4.7)
History of substance use in family	
Absent	207(69.0)
Present	
Only Alcohol	45(15.0)
Only Tobacco	30(10.0)
Alcohol and Tobacco	18(6.0)

In this study, the majority (57.3%) of adolescents belonged to nuclear families, with 97.3% belonging to the Hindu community and the rest to the Muslim

community. While looking at their parents' employment status, almost all of their fathers were employed, and most of their mothers were unemployed. Only 2.7% of adolescents were single children to their parents, and 40.3% were firstborn.

It was found that 7.0% of adolescents reported the presence of mental illnesses in the family, and 21% reported a history of adverse life events like the death of their loved ones, any history of abuse, separation or divorce of parents, and problems like violence in the family. Almost all (91.3%) participants were getting adequate sleep of 6-8 hours. In 31% of families, there is some form of substance abuse, and 7.7% of participants themselves reported having a history of substance abuse.

Most of the adolescents had a normal BMI (67%), 13.7% were underweight, 13.7% were overweight, and 5.7% were obese. Nearly one-fourth (24.7%) of them were not satisfied with their body image, with Males and late-adolescents more unsatisfied with their body image than females and early-adolescents. Other relevant population descriptions are given in Table 1.

The Prevalence of anxiety disorders among adolescents was found to be 35.3% (CI: 29.89%, 40.71%). The proportion of different types of anxiety disorders, namely - social anxiety was 14.0% (CI: 10.07%, 17.59%), separation anxiety was 13.7% (CI: 9.81%, 17.59%), Generalized anxiety was 12.3% (CI: 8.58%, 16.02%), panic disorder was 11.7% (CI: 8.06%, 15.34%), and significant school avoidance was 9.3% (CI: 6.01%, 12.59%), as shown in Figure 1b (Multiple responses were included). It was found in this study that panic disorder and separation anxiety were more common among females. In contrast, social anxiety, generalized anxiety disorder, and significant school avoidance were more common among males.

DISCUSSION

In this study conducted to determine the prevalence of anxiety disorders and the different types of anxiety disorders among adolescents, the majority were early adolescents, and 64.3% were males, with the majority of participants having high school education. Most adolescents belonged to a nuclear family, and almost all belonged to the Hindu community. The fathers of almost every participant were employed, whereas the majority of the mothers were unemployed. Among the adolescents, 31% reported a history of substance use in the family, and 7.7% of the adolescents themselves reported a history of substance use. Two-thirds of the participants had a normal BMI, and one-fourth reported being unsatisfied with their body image. The study found a prevalence of anxiety disorders to be 35.3% by the SCARED tool. Among the different types of anxiety disorders, social anxiety was found to be the most common type among the participants.

Anxiety disorders among the participants, as found in this study, were similar to the prevalence reported in the study done by Kumar et al.¹⁰ in Delhi (33.3%) and Waghachavare et al.¹¹ in Maharashtra (38.7%), whereas studies done by Madasu et al.³ in rural areas of North India, Nair et al.¹² in South Kerala reported a relatively lower prevalence of 22.7% and 25.8%, respectively. In comparison, a study conducted in Mangalore by Jayashree et al.¹³ reported a higher prevalence of 54.7%. This might be due to differences in study settings, sociodemographic features, and study tools. Mallya et al., in their study, tried to determine the prevalence of depression, anxiety, and stress among adolescents in both rural and urban areas of Karnataka. They found that there was a lower prevalence in rural areas than in urban areas.¹⁴ In urban areas, children were mostly living in nuclear families and might lack emotional support due to the unavailability of working parents. Also, increasing focus on preparation for competitive exams burdening the children could be some of the reasons for the high proportion of anxiety disorders found in this study.

In the present study, it was found that a higher proportion of females had anxiety disorders as compared to males. Similar findings were found in the study by Nair et al.,¹¹ Mallya et al.,¹⁴ and Auerbach et al.¹⁵ Mallya et al. also found that there is a significant difference between males and females having anxiety disorders in both rural and urban areas.¹⁴ Female preponderance in anxiety disorders was seen in most studies irrespective of the geographic settings and the tools used. The study conducted by Wesselhoeft et al. among nearly 1 million Danish children in the age group of 3 to 18 years found that female gender is significantly associated with post-pubertal anxiety disorders.¹⁶ Another study by Huerta et al. also found that anxiety was associated with puberty, with females having higher tanner stages having higher anxiety scores.¹⁷ Puberty is a period of brain remodeling and marks the beginning of menstrua-

tion and associated hormonal fluctuations. These changes may be responsible for the predisposition of adolescent females to anxiety disorders.¹⁸ Reardon et al., in their review on anxiety disorders and puberty, notes that there is an increased risk of females having anxiety disorders during puberty as compared to males.¹⁹ These findings point toward the vulnerabilities faced by adolescent females and emphasize the risk that gender poses as a risk factor for adverse mental health outcomes.

In this study, late adolescents had a higher prevalence of anxiety disorders. The global health data indicates that 5.5% of older adolescents have anxiety disorders compared to 4.4% of younger adolescents.⁵ Study by Kumar et al. in Delhi reported that a higher proportion of late adolescents had anxiety disorders as compared to early adolescents. However, the findings did not show any significant difference.⁹ The late adolescence is a phase in children's lives where they are under academic stress, and along with puberty, are at risk for developing anxiety disorders.

Madasu et al.³ in their study found that social anxiety disorder was the most common anxiety disorder found among 14.3% of the participants, followed by panic disorder (13.4%), generalized anxiety disorder (8.8%), separation anxiety disorder (6.6%), and significant school avoidance (5.6%). Similar to their findings, in this study, we found that social anxiety disorder was the most common anxiety disorder. The second most common disorder identified was generalized anxiety disorder, followed by panic disorder, significant school avoidance, and separation anxiety disorder.

CONCLUSION

This cross-sectional study among 300 adolescents found that 35.3% had anxiety disorders using the SCARED (Screen for Child Anxiety Related Emotional Disorder), and the subtype of anxiety disorder having the highest prevalence was found to be social anxiety disorder with a prevalence of 14% among the study population. It was also found that females and late adolescents had a higher proportion of anxiety disorders.

There is a need for increased awareness of anxiety disorders among adolescents, their families, teachers, and healthcare professionals. This helps us to reduce stigma, promote early detection and intervention, and helps to reduce suicide rates. Mental health services need to be accessible and affordable to accommodate the needs of adolescents. Targeted interventions focusing on late adolescents, and adolescent females to guide and support them. School mental health programs should be strengthened, and teachers should be trained to identify problems among adolescents and improve their mental health.

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Availability of Data: The data will be provided upon request.

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