

PREVALENCE AND FACTORS ASSOCIATED WITH ANXIETY DISORDERS AMONG SCHOOL GOING ADOLESCENTS IN VILLUPURAM DISTRICT OF TAMIL NADU-A CROSS SECTIONAL STUDY

Mohammed Shuaib Sait ¹, Krishna Prasanth Baalann ^{2*},
Mamata Subhakar R ³ and Thatiparthi Stephen ⁴

¹ Post Graduate Student, Department of Community Medicine, Sree Balaji Medical College & Hospital, Bharath Institute of Higher Education & Research, Chennai.

² Assistant Professor and Epidemiologist, Department of Community Medicine, Sree Balaji Medical College & Hospital, Bharath Institute of Higher Education & Research, Chennai.

³ Assistant Professor, Department of Ophthalmology, ACS Medical College & Hospital, Dr. MGR Educational and Research Institute, Chennai.

⁴ Professor, Department of Community Medicine, Sree Balaji Medical College & Hospital, Bharath Institute of Higher Education & Research, Chennai.

*Corresponding Author Email: mail2kristain@gmail.com

DOI: [10.5281/zenodo.13120629](https://doi.org/10.5281/zenodo.13120629)

Abstract

Background: Anxiety disorders among school-going adolescents in Villupuram district of Tamil Nadu have emerged as a pressing concern, mirroring broader patterns across India. This study aims to estimate the prevalence and identify factors associated with anxiety disorders in this demographic, providing insights for targeted interventions and comprehensive strategies to address adolescent mental health. **Methods:** A cross-sectional study design was employed, sampling school-going adolescents aged 10 to 17 years from private schools in Villupuram District, Tamil Nadu. A structured questionnaire and the Screen for Child Anxiety Related Disorders (SCARED) scale were utilized for data collection, with the analysis performed using descriptive and inferential statistics in SPSS version 22. **Results:** The study involved 361 participants, highlighting a high prevalence of anxiety disorders at 75.05%, with a higher incidence among girls (81.3%) compared to boys (69.0%). Sociodemographic factors such as gender, absence of leisure time, and academic pressure showed significant associations with the occurrence of anxiety disorders. Female adolescents, in particular, exhibited a two-fold increase in the prevalence of anxiety disorders compared to males. **Conclusion:** The study's findings affirm the significant prevalence of anxiety disorders among school-going adolescents in Villupuram district, with notable gender disparities and correlations with academic pressures and lifestyle factors. These insights emphasize the need for a multidisciplinary approach involving gender-sensitive interventions, educational reforms, and integrated mental health services, urging stakeholders to collaborate in creating a supportive environment for the mental well-being of adolescents in India.

Keywords: Anxiety Disorders, Adolescents, School-Going, Mental Health Interventions.

INTRODUCTION

Anxiety disorders among school-going adolescents have emerged as a significant concern, warranting attention due to their prevalence and the associated factors contributing to their occurrence. In Villupuram district of Tamilnadu, this issue mirrors the broader patterns observed across various regions of India, highlighting the urgent need for targeted interventions and comprehensive strategies to address the mental health of this vulnerable demographic.

Recent studies conducted in Tamilnadu and other parts of India shed light on the gravity and multifaceted nature of anxiety disorders among adolescents. A study by Daya and Karthikeyan (2018) in the Tirunelveli district of Tamilnadu reported a striking prevalence of anxiety disorders at 86.5% among school-going adolescents, indicating

a significant mental health burden that could impede their educational and personal development (1). Similarly, Madasu et al. (2019) identified a prevalence of 22.7% for anxiety disorders among adolescents in a rural community of northern India, with social anxiety disorder being the most common form. Notably, female adolescents, individuals from lower-middle socioeconomic backgrounds, and those who had experienced stressful events within the past year were more likely to suffer from anxiety disorders (2).

These findings are corroborated by another study by Madasu et al. (2019) in the same region, which reported a 16.6% prevalence of anxiety disorders among adolescents. This study highlighted social anxiety disorders and specific phobias as the most prevalent anxiety disorders, with female sex and low socio-economic status being significant associated factors(3).

Khanna et al. (2020) conducted a comparative study in urban and rural schools of Union Territory, India, and found that 36% of the adolescent students had anxiety disorders, with a higher prevalence among students from urban schools. This study highlights the influence of geographical and socio-demographic factors on the prevalence of anxiety disorders among adolescents(4).

The study aims to estimate the prevalence of anxiety disorders and determine the associated factors among school-going adolescents. These studies underscore the pressing need for evidence-based interventions and policies to address the mental health concerns of adolescents, considering the diverse sociodemographic and environmental factors influencing their well-being. It's imperative to integrate mental health services into the educational and community settings to ensure early identification, intervention, and support for adolescents struggling with anxiety disorders.

METHODS

The study employs a cross-sectional design to assess the prevalence of anxiety disorders and associated factors among school-going adolescents in Villupuram District, Tamil Nadu. Adolescents aged 10 to 17 years, studying in 6th to 12th standard in private schools, constitute the study population. Students whose parents do not provide consent are excluded. The study utilizes a simple random sampling method, drawing participants from a list of private schools in the district where permission for the study has been secured. This approach ensures a representative sample and minimizes selection bias.

The sample size is determined based on the findings of a previous study by Swapna Madasu et al.,(3) which reported a 22.7% prevalence of anxiety disorders among adolescents. Using the formula $n = z^2pq/L^2$, with a confidence level of 95% ($z = 1.96$), $p = 22.7\%$, $q = 77.3\%$, and an absolute precision (L) of 5%, the sample size is initially calculated to be 280. To account for a potential 10% non-response rate, the sample size is adjusted to 300.

Data collection is conducted through face-to-face interviews on designated days in the participating schools, with the necessary permissions from school authorities. A pretested structured questionnaire is employed to gather detailed information, covering sociodemographic factors, prevalence of anxiety disorders, and potential associated factors. Additionally, the SCARE (Screen for Child Anxiety Related

Disorders) scale, a validated tool, is used to assess anxiety levels among the participants.(5)

The data analysis is performed using SPSS version 22. Descriptive statistics are applied to summarize the study's findings, while inferential statistics, such as chi-square tests and odds ratios, are used to explore the relationships between independent variables (like sociodemographic and other potential risk factors) and the dependent variable (presence of anxiety disorders). The study spans over six months, allowing sufficient time for comprehensive data collection and analysis, and ensuring that external variables minimally impact the study's outcomes.

RESULTS

Table 1 provides an overview of the socio-demographic characteristics of school-going adolescents in the Villupuram district of Tamil Nadu. The study involved 361 participants, with half falling within the 10 to 13 years age range. The gender distribution was fairly equal, maintaining a male-to-female ratio of approximately 1:1. Primary classes comprised 40% of the participants. About 40% of both parents had attained secondary education. Notably, 99% of the adolescents' fathers were employed, while only 30% of the mothers were engaged in employment. Furthermore, 45% of families reported a monthly income below 5000 INR. These insights shed light on the socio-demographic landscape of school-going adolescents in the region.

In Table 2, detailing the behavioural characteristics of school-going adolescents in Villupuram District, Tamil Nadu, notable findings emerge. An overwhelming 99% of adolescents reported abstaining from tobacco and alcohol use. Academic pressures were apparent, with 75% feeling pressured by parents to excel academically. About half of the adolescents showcased a competitive spirit with their batchmates. Sleep patterns varied, with 40% reporting adequate sleep. A majority, 78%, found the school environment to be friendly, and 77% enjoyed a friendly relationship with their parents. However, dietary habits raised concerns, as 42% of participants acknowledged consuming junk food 3-4 times a week. These insights provide a comprehensive understanding of the behavioural landscape among school-going adolescents in the region.

Prevalence of Anxiety Disorder:

A total of adolescents was found to be suffering from anxiety disorders with a prevalence of 75.05% (75.05%; 95% CI: 74.99 – 75.14). The prevalence was found to be higher among girls (81.3%) than boys (69.0%) ($P < 0.05$) [Table 3]

Sociodemographic and Other Associated Factors:

Female sex was found to be associated with anxiety disorders at a rate seven times higher than that of male sex, with an Unadjusted Odds Ratio (OR) of 7.33 (95% CI 3.45 – 9.666; $P < 0.001$). The absence of sufficient time for favourite activities was associated with 1.20 times higher odds of anxiety disorders compared to adolescents who had enough time for such activities Unadjusted (OR 1.20; 95% CI 0.73 -1.98; $P < 0.001$).

Adolescents facing academic pressure from their parents were found to have almost three times higher odds of experiencing anxiety disorders compared to those not under such pressure (OR 3.04; 95% CI 2.31–3.99; $P < 0.001$). Similarly, adolescents displaying a competitive spirit with their batchmates had 2.3 times higher odds of

having anxiety disorders compared to those without such competitiveness (OR 2.34; 95% CI 1.42 –3.88; $P < 0.001$).

Notably, factors such as age, standard, parents' employment status, family income, sleep schedule, school environment, relationship with parents, and the consumption of tobacco, alcohol, and junk food were found to be statistically insignificant in this model [Table 3]

Factors Associated with Anxiety Disorder among of School-Going Adolescents (Multivariable/Adjusted Analysis):

Multivariable analysis was conducted, incorporating the following variables: Gender, having sufficient time for favourite activities, family pressure to excel in academics, and competitiveness with batchmates (see Table-4).

The study revealed that the prevalence of anxiety disorders was significantly higher among females, with a two-fold increase compared to males. The Adjusted Odds Ratio (OR) was found to be 2.04 (95% CI 1.23 – 3.38; $P < 0.001$).

Adolescents experiencing academic pressure from their parents demonstrated a 1.3 times higher likelihood of encountering anxiety disorders in comparison to those without such pressure (Adjusted Odds Ratio: 1.35; 95% CI 0.54 – 4.41; $P < 0.001$).

Similarly, adolescents exhibiting a competitive spirit with their batchmates were associated with 2.6 times higher odds of experiencing anxiety disorders compared to their non-competitive counterparts (Adjusted Odds Ratio: 2.61; 95% CI 1.54 – 4.41; $P < 0.001$) (refer to Table-4).

DISCUSSION

The examination of anxiety disorders among school-going adolescents in the Villupuram district of Tamil Nadu reveals a multifaceted panorama of mental health challenges that resonate with findings from various regions across India. The study's revelations about the prevalence, sociodemographic influences, and behavioural characteristics of anxiety disorders offer critical insights, which, when juxtaposed with findings from recent Indian studies, provide a comprehensive understanding of the issue at a national level.

The prevalence of anxiety in the present study was found to be 75%, which includes almost two third of the study participants. A study done by Jayashree et al., (6) found the prevalence to be 54%. Studies done by Lohiya et al., Mary et al., Ranasinghe et al., and Shaikh et al., (7-10) found similar higher prevalence standing at 64%, 82%, 76% and 59% respectively. Comparatively lower prevalence was found in studies done by Karn A et al (12%), Krubashankar A et al (36%), Madasu S et al (22.7%) and Nair MK et al (12.4%). These disparities in prevalence may be attributed to the differences in the sociodemographic details of the study population employed in these studies and scales used to quantify anxiety. (11-14)

Notably, our study, along with research by Jayashree et al.,(6) highlights a significant prevalence of anxiety disorders among adolescents, particularly emphasizing the heightened vulnerability of females. This gender disparity in mental health issues is a recurring theme in Indian research, reflecting a broader, nationwide trend of mental health challenges being more pronounced among female adolescents. These may be attributed to factors like low self-esteem, biological vulnerability and gender inequality

as proposed in a study done by Bharathi DR et al in a study done in Patna. (15). Similar findings were observed in a study done by Racine N et al. (16) This observation underscores the need for gender-sensitive mental health interventions and policies that address the unique stressors and societal expectations placed on young females in India.

The impact of societal and familial factors on adolescent mental health, a critical aspect highlighted in the our study, finds echoes in the study done by Muthusamy A et al. (17). Their research draws attention to how familial dynamics and societal contexts intricately shape the mental well-being of adolescents. A study done by Kapoor I et al., (18) found similar findings. In a patriarchal society like India, parenting style is usually authoritative. (19). This leads to lots of expectations to be place upon children, failing which or the fear of failure puts them in lots of stress and anxiety. (20) This interconnectedness underscores the importance of a holistic approach to mental health, which encompasses not just the individual but also their immediate and extended socio-familial environments.

Furthermore, our study's emphasis on academic pressure and competitiveness as pivotal factors contributing to anxiety resonates with studies done by Mayya S et al in Karnataka and Patel D et al in Rajkot, Gujarat. (21,22). A study done by Sibnath DSS et al found that academic pressure especially around exam time found to be one of the major factors contributing to stress. Studies done by Varma S at al and Anup S et al found that, academic peer pressure in schools also played a role in anxiety among school students. (24,25) These studies underscore the tremendous pressure adolescents face in academic and social spheres, spotlighting the need for educational and social reforms that foster a more supportive and less stressful learning environment.(26)

While our study does not explicitly explore the nutritional aspect of adolescent life, Joshi et al. (2021) shed light on the dual burden of mental and nutritional health issues. This correlation points towards the intricate interplay between physical and mental health, suggesting that nutritional interventions might also play a role in mitigating mental health issues among adolescents, thereby advocating for a more integrated approach to adolescent health.(26)

Moreover, the urgent need for focused attention on adolescent mental health, as underscored by Mangal et al. (2020), aligns with the implications of the Villupuram study. Both highlight the critical demand for comprehensive mental health strategies that include early screening, intervention, and the involvement of multiple stakeholders such as educational institutions, families, and healthcare systems.(27)

Contrary to popular belief, the present study did not find any association between anxiety and sleep. A study done by Haugland BS et al, (28) reported that, adolescent anxiety is associated with insomnia and could lead to depression in later life. These findings were supported by a study done by Chorney DB et al. and Danielsson NS et al (30).

The present study, in conjunction with these Indian studies, paints a detailed picture of the mental health landscape among adolescents. The high prevalence of anxiety disorders, especially among females, the profound impact of academic pressures, the influence of societal and familial factors, and the pressing need for targeted interventions emerge as common threads. These findings collectively highlight the complex nature of adolescent mental health challenges in India and call for a

comprehensive, multidisciplinary approach to address this pressing public health concern.

Table 1: Socio-demographic Characteristics of the School Going Adolescents in Villupuram District of Tamil Nadu (N=361)

S.no	Characters	Frequency (n)	Percentage (%)
1.	Age (in years)		
	10 – 13	175	48.48
	14 - 17	186	51.52
2.	Gender		
	Male	184	50.97
	Female	177	49.03
3.	Standard		
4.	Primary	147	40.72
	Secondary	108	29.92
	Higher Secondary	106	29.36
	Father's education		
	primary	39	10.80
	secondary	150	41.55
	higher secondary	67	18.56
	graduate	46	12.74
	post graduate	6	1.66
5.	Mother's education		
	primary	46	12.74
	secondary	149	41.27
	higher secondary	85	23.55
	graduate	34	9.42
	post graduate	8	2.22
6.	Father's employment status		
	Employed	358	99.17
	Unemployed	3	0.83
7.	Mother's employment status		

Table 2: Behavioural Characteristics of the school going adolescents in Villupuram district of Tamil Nadu (N=361)

S.no	Characters	Frequency (n)	Percentage (%)
1.	Tobacco consumption		
	Yes	2	0.55
	No	359	99.45
2.	Alcohol consumption		
	Yes	3	358
	No	358	99.17
3.	Family pressure to perform good in academics		
	Yes	82	22.71
	No	279	77.29
4.	Competitive with your batchmates		
	Yes	172	47.65
	No	189	52.35
5.	Enough sleep during night		
	Yes	150	41.55
	No	211	58.45
6.	Friendly school environment		
	Yes	285	78.95
	No	76	21.05
7.	Consumption of junk food		
	occasionally	28	7.76
	3-4 Times a week	154	42.66
	daily	46	12.74
	once a week	133	36.84
8.	Relationship with parents		
	Afraid from parents	13	3.60
	non-friendly relationship with parents	24	6.65
	friendly relationship with parents	278	77.01
	talkative terms with Parents	46	12.74

Table 3: Association of Socio-Demographic Characteristics with Anxiety Disorder among of School-Going Adolescents in Villupuram District, Tamil Nadu. (N=361)

S.no	Characteristics	Number of events (%)	Unadjusted OR (95% CI)	P value*
1.	Age (in years)			
	10 – 13	135 (77.14)	1	
	14 - 17	136 (73.12)	0.80 (0.49 – 1.30)	0.377
2.	Gender			
	Male	127 (69.02)	1	
	Female	144 (81.36)	7.33 (3.45 – 9.66)	<0.001
3.	Standard			
	Primary	123 (83.67)	1	
	Secondary	73 (67.59)	0.40 (0.22 – 0.73)	0.013
	Higher Secondary	75 (70.07)	0.47 (0.25 – 0.86)	0.015
6.	Father's employment status			
	Employed	268 (74.86)	2.97 (2.34 – 3.78)	0.316
	Unemployed	3 (99.99)	1	
7.	Mother's employment status			
	Employed	22 (73.33)	0.90 (0.38 – 2.11)	0.819
	Unemployed	249 (75.23)	1	
8.	Total Family Income in INR (monthly)			
	<5000	45 (93.33)	1	
	5000 - 10000	68 (66.02)	0.13 (0.04 – 0.47)	0.012
	10001 – 15000	41 (74.55)	0.20 (0.05 – 0.78)	0.020
	>15000	120 (75.95)	0.22 (0.06 – 0.76)	0.017
10.	Enough time to do favourite activities			
	Yes	105 (77.21)	1	
	No	166 (73.78)	1.20 (0.73 -1.98)	<0.001
11.	Tobacco consumption			
	Yes	271 (75.49)	3.07 (2.42- 3.91)	0.57
	No	1 (50.00)	1	
12.	Alcohol consumption			
	Yes	269 (75.14)	1	
	No	2 (66.67)	1.51 (0.13 – 16.86)	0.73
13.	Family pressure to perform good in academics			
	Yes	61 (74.39)	3.04 (2.31 – 3.99)	<0.001
	No	210 (75.27)	1	
14.	Competitive with batchmates			
	Yes	143 (83.14)	2.34 (1.42 – 3.88)	<0.001
	No	128 (67.72)	1	
15.	Competitive with siblings			
	Yes	171 (73.08)	1.36 (0.81 – 2.28)	0.236
	No	100 (78.74)	1	
	Enough sleep during night			
	Yes	119 (79.33)	1.49 (0.90 – 2.24)	0.115
	No	152 (72.04)	1	

16.	Friendly school environment			
	Yes	210 (73.68)	0.68 (0.36 – 1.28)	0.241
	No	61 (80.26)	1	
17.	Consumption of junk food			
	occasionally	125 (77.64)	1	
	daily	146 (73.00)	0.77 (0.47 – 1.26)	0.312
18.	Relationship with parents			
	non-friendly relationship	27 (72.97)	1	
	friendly relationship	244 (75.31)	1.12 (0.52 – 2.43)	0.756

Table 4: Multivariable Analysis Showing the Factors Associated with Anxiety Disorder among of School-Going Adolescents in Villupuram District, Tamil Nadu. (N=361)

S.no	Characteristics	Number of events (%)	Adjusted OR (95% CI)	P value*
1.	Gender			
	Male	127 (69.02)	1	
	Female	144 (81.36)	2.04 (1.23 – 3.38)	<0.001
2.	Enough time to do favourite activities			
	Yes	105 (77.21)	1	
	No	166 (73.78)	0.80 (0.51 -1.45)	0.600
3.	Family pressure to perform good in academics			
	Yes	61 (74.39)	1.35 (0.54 – 4.41)	<0.001
	No	210 (75.27)	1	
4.	Competitive with batchmates			
	Yes	143 (83.14)	2.61 (1.54 – 4.41)	<0.001
	No	128 (67.72)	1	

CONCLUSION

The collective insights from the present study and corroborating Indian research underscore the critical prevalence of anxiety disorders among adolescents, particularly accentuating the vulnerability of females and the impact of academic pressures. These findings call for a nuanced, multidisciplinary approach, integrating gender-sensitive strategies, educational reforms, and comprehensive mental health support systems to address this pressing public health issue effectively. It's imperative that stakeholders across various sectors collaborate to foster a supportive environment that nurtures the mental well-being of adolescents in India.

Ethics Committee Approval: This study was duly approved by the ethics committee of Sree Balaji Medical College & Hospital, Chennai.

Source of Funding: Self-funded

Conflict of Interest: None declared

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