

Prevalence and psycho-social determinants of anxiety among school going adolescents of Kanpur Nagar

Naresh Pal Singh¹, Santosh K Barman², Dhananjay Chaudhari³, Seema Nigam⁴, Tanu Midha⁵, Punit Varma⁶, Samarjeet Kaur⁷

^{1,2,4,5,6,7}Department of Community Medicine, Ganesh Shankar Vidyarthi Memorial Medical College, Kanpur, Uttar Pradesh
Department of Psychiatry, Ganesh Shankar Vidyarthi Memorial Medical College, Kanpur, Uttar Pradesh

CORRESPONDING AUTHOR

Dr Naresh Pal Singh, Resident, Department of Community Medicine, Ganesh Shankar Vidyarthi Memorial Medical College, Kanpur, Uttar Pradesh 208002

Email: nareshpalsingh2000@yahoo.co.in

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ABSTRACT

Background: Adolescence involves critical changes that heighten vulnerability to psychiatric disorders, especially anxiety. In India, limited mental health resources and social stigma hinder early intervention. Addressing adolescent mental health through timely diagnosis and community-based care is essential to improve youth well-being and developmental outcomes. **Aim & Objective:** The proposed study aims to explore prevalence and psycho-social determinants of anxiety disorders among school-going adolescents in Kanpur Nagar. **Methods & Material:** Multistage random sampling from eight schools in Kanpur Nagar, selecting one section from each class (IX-XII). Pretested questionnaire, self-report method, with consent and assent obtained from participants and parents. Includes bio-social characteristics, lifestyle and behaviour, and Beck's Anxiety Inventory (BAI). Data analyzed using SPSS with descriptive and inferential statistics. **Results:** Among the participants, 53% are female and 47% are male. The participants are distributed across grades, with 26.1% in 9th, 25.5% in 10th, 25% in 11th, and 23.4% in 12th. Sleep duration also demonstrated a significant correlation ($p=0.01$), as participants sleeping less than 6 hours per day exhibited higher levels of severe anxiety (20.5%). **Conclusions:** A nearly equal gender distribution (53% female, 47% male) and wide representation across religion, caste, school type, and socio-economic status strengthen the generalizability of findings. Statistically significant associations were found between anxiety levels and gender, religion and educational class with 12th-grade students and females experiencing higher levels of severe anxiety. Students engaging in regular physical activity reported lower anxiety, while inadequate sleep correlated with higher anxiety levels.

KEYWORDS

Beck's Anxiety Inventory (BAI), Adolescent Health, Mental Health

INTRODUCTION

Adolescence is a pivotal developmental phase marked by significant physical, hormonal, and behavioral transformations, often accompanied by psychosocial challenges. These transitions can strain mental health due to academic pressures, evolving relationships, and social expectations. Psychiatric morbidity in this age group encompasses emotional, behavioral, or relational disturbances that deviate from typical development and cause distress. Such issues

frequently go unrecognized, misinterpreted as intentional behavior, leading to stigma, punishment, or exclusion, thereby lowering self-esteem and delaying support.⁽¹⁾

Anxiety disorders are notably prevalent among adolescents, affecting nearly a quarter globally, with females more frequently impacted.⁽²⁾ These disorders such as separation anxiety, generalized anxiety, social phobia, and panic disorder manifest differently but significantly impair adolescents' daily functioning, and development. Often, these

disorders co-occur, complicating diagnosis and treatment. (3)

In India, adolescents constitute 21.4% of the population, yet mental health services for this group are insufficient. Addressing these issues at the community level through early diagnosis and treatment can enhance educational and life outcomes, underscoring the urgent need for focused mental health research and support systems in India. (4)

Kanpur Nagar was selected due to its large, diverse adolescent population and prevalent academic and social stressors. The presence of my college and its field practice area ensures accessibility, community engagement, and practical feasibility. This study is important from a public health perspective as early identification and intervention in adolescent mental health can reduce long-term psychiatric burden and improve overall community well-being.

Aim & Objectives: The proposed study aims to explore the determinants of anxiety disorders among school-going adolescents in Kanpur Nagar. It will focus on assessing the socio-demographic profile of the participants, determining the prevalence of anxiety and identifying factors associated with it.

MATERIAL & METHODS

Study Design: Cross-sectional study

Study Subjects: School-going Adolescents in Kanpur Nagar, aged 14-19 years.

Study Period: 18 months

Sample Size: Sample size of 981 calculated using a pilot study (N=50) with prevalence of anxiety 23%. Sample size (N) = $(Z^2 \times p \times q) / d^2$ Where: Z=1.96 (value for a 95% confidence interval), P=23 (prevalence of anxiety using Beck's Anxiety Inventory (BAI)), Q=100-P=77, d=2.78% (absolute error), 10% Non-response rate

Sampling Technique: Multistage random sampling from eight schools in Kanpur Nagar, selecting one section from each class (IX-XII).

Inclusion Criteria: School-going adolescents aged 14-19 years in Kanpur Nagar, with consent and assent. **Exclusion Criteria:** Participants refusing consent/assent or receiving psychiatric treatment.

Data collection tool: Permissions obtained from DIOS (District inspector of school) and school authorities. Pretested questionnaire, self-report method, with consent and assent obtained from participants and school authority during school hours, includes bio-social characteristics, lifestyle and behaviour, and Beck's Anxiety Inventory (BAI).

Pilot Study: Pretested questionnaire at Government Girls Inter College Chunni Ganj, modified as needed. (N=50)

Validity and Reliability: Validated through a pilot study, using Beck's Anxiety Inventory (BAI) for anxiety assessment.

Statistical Analysis: Data analyzed using SPSS with descriptive and inferential statistics (chi-square).

Ethical Considerations: Ethical clearance with reference no. EC/205/May/2024 obtained from GSVM Medical College, with privacy and confidentiality maintained.

RESULTS

Sample size of 981 participants represents a broad socio-demographic range. Among the participants, 53% are female and 47% are male. Regarding religion, 77.9% identify as Hindus, 17.5% as Muslims, and 4.6% belong to other religions. In terms of caste, 55.6% are from the General category, 30.6% from OBC, and 13.9% from SC/ST. The participants are fairly evenly distributed across grades, with 26.1% in 9th, 25.5% in 10th, 25% in 11th, and 23.4% in 12th. Furthermore, 56% of the students attend private schools, while 44% are enrolled in government schools. Socio-economic distribution shows that most participants come from the Upper Class (36.8%), followed by Lower Middle Class (20.5%) and Lower Class (16.3%).

Table 1. Anxiety in Relation to Socio-demographic profile among Study Subjects.

Variables	Mild (N=621)		Moderate (N=247)		Severe (N=113)		Total (N=981)		P Value
	n	%	n	%	n	%	n	%	
Gender									
Male	360	78.1	83	18	18	3.9	461	100	.001
Female	261	50.2	164	31.5	95	18.3	520	100	
Type of School									
Government	266	62	121	28	45	10	432	100	0.162
Private	355	65	126	23	68	12	549	100	
Religion									
Hindu	395	64.9	196	25.7	72	9.4	764	100	.002
Muslim	191	56.4	40	23.3	35	20.3	172	100	
Others	35	62.2	11	24.4	6	13.3	45	100	

Variables	Mild (N=621)		Moderate (N=247)		Severe (N=113)		Total (N=981)		P Value
	n	%	n	%	n	%	n	%	
Caste									
General	334	61.3	145	26.6	66	12.1	545	100	0.079
OBC	193	64.3	67	22.3	40	13.3	300	100	
SC/ST	94	69.1	35	25.7	7	5.1	136	100	
Education (Class)									
9th	177	69.1	60	23.4	19	7.4	256	100	0.030
10th	160	64	62	24.8	28	11.2	250	100	
11th	138	56.3	75	30.6	32	13.1	245	100	
12th	146	63.5	50	21.7	34	14.8	230	100	
Total	621	63.3	247	25.2	113	11.5	981	100	

Table no.1 show that a significant difference in the severity of anxiety was observed based on gender ($p=0.001$), with more males having mild anxiety (78.1%). Religion also showed a significant difference ($p=0.002$), with Hindus having a higher percentage of mild anxiety (64.9%) compared to

Muslims (56.4%) and others (62.2%). No significant difference was found between the type of school ($p=0.162$) or caste groups ($p=0.079$). However, there was a significant difference in severity across educational classes ($p=0.030$).

Table 2 Anxiety in Relation to Physical exercise & Sleep/day among Study Subjects.

Variables	Mild (N=621)		Moderate (N=247)		Severe (N=113)		Total (N=981)		P Value
	n	%	n	%	n	%	n	%	
Exercise or play regularly									
Yes	401	68.3	137	23.3	49	8.3	587	100	.001
No	220	55.8	110	27.9	64	16.2	394	100	
Type of exercise									
Sedentary	104	58.4	49	27.5	25	14	178	100	0.359
Moderate	338	63.1	134	25	64	11.9	536	100	
Heavy	179	67	64	24	24	9	267	100	
Total number of hours Sleep/day									
<6 hours/day	74	43.5	61	36	35	20.5	170	100	0.01
6-8 Hour/day	465	66.5	162	23	72	10.5	699	100	
>8 Hour/day	82	73.2	24	21.4	6	5.4	112	100	
Total	621	63.3	247	25.2	113	11.5	981	100	

A significant association was observed between regular physical activity and anxiety levels ($p=0.001$). Sleep duration also demonstrated a significant correlation ($p=0.01$), as participants sleeping less than 6 hours per day exhibited higher

levels of severe anxiety (20.5%), whereas those sleeping more than 8 hours reported the highest rate of mild anxiety (73.2%) and the lowest rate of severe anxiety (5.4%).

Table 3 - Anxiety in Relation to Abuse among Study Subjects.

Variables	Mild (N=621)		Moderate (N=247)		Severe (N=113)		Total (N=981)		P Value
	n	%	n	%	n	%	n	%	
Being bullied									
Yes	57	44.9	34	26.8	36	28.3	127	100	.001
No	564	66	213	24.9	77	9	854	100	
Physical abuse									
Yes	48	51.1	25	26.6	21	22.3	94	100	.001
No	573	64.6	222	25	92	10.4	887	100	
Verbal abuse									
Yes	88	49.7	49	27.7	40	22.6	177	100	.001
No	533	66.3	198	24.6	73	9.1	804	100	
Total	621	63.3	247	25.2	113	11.5	981	100	

Table 3 show that the participants who reported being bullied had notably higher rates of severe anxiety (28.3%) compared to those who were not bullied (9%), with a p-value of .001. Similarly, those who experienced physical and verbal abuse showed increased levels of severe anxiety 22.3% & 22.6% respectively also statistically significant ($p=.001$).

DISCUSSION

In the present study, the majority of adolescents experienced mild anxiety (63.3%), followed by moderate (25.2%) and severe anxiety (11.5%). This distribution is consistent with the findings of Nag et al. (2019), 5 who reported 49.4% mild, 43.3% moderate, and 7.3% severe anxiety. Gender-wise, 78.1% of males in our study had mild anxiety, 18% moderate, and 3.9% severe, whereas in females, 50.2% had mild, 31.5% moderate, and 18.3% severe anxiety. This aligns with Nag et al., who also noted that severe anxiety was more prevalent among females (10.9%) than males (3.8%). Class-wise, most students with mild anxiety were from class 9 (69.1%), moderate anxiety from class 11 (30.6%), and severe anxiety from class 12 (14.8%). Nag et al. similarly found a higher prevalence of mild anxiety in class 9 (75.5%), moderate in class 10 (57.9%), and severe in class 12 (12.1%). In terms of religion, in our study, 64.9% of Hindus had mild anxiety, 25.7% moderate, and 9.4% severe, while among Muslims, 56.4% had mild, 23.3% moderate, and 20.3% severe anxiety. Other religions showed 62.2%, 24.4%, and 13.3% respectively. The association with gender, class, and religion was statistically significant, unlike Nag et al., who found religion not significantly associated with anxiety.

In the present study, a significant association was observed between regular physical activity and anxiety levels ($p=0.001$). Participants engaging in regular exercise exhibited a higher proportion of mild anxiety (68.3%) compared to non-exercisers, who demonstrated elevated rates of moderate (27.9%) and severe anxiety (16.2%). These findings align with those of Singh M (2023),⁶ who reported that physical activity serves as an effective intervention for managing anxiety and depression among adolescents and adults in India.

Regarding sleep duration, a significant correlation with anxiety levels was identified ($p=0.01$). Participants sleeping less than 6 hours per day exhibited higher levels of severe anxiety (20.5%), whereas those sleeping more than 8 hours reported the highest rate of mild anxiety (73.2%) and the lowest rate of severe anxiety (5.4%). This observation is consistent with the findings of Kaur M and Chandola R (2023),⁷ who noted that poor

sleep quality significantly elevates anxiety and stress levels among college students.

However, no significant association was found between the type of exercise and anxiety levels ($p=0.359$), indicating that the mere engagement in physical activity, regardless of its intensity, may be beneficial in mitigating anxiety symptoms.

In our study, the prevalence of bullying victimization among adolescents was 12.9% (127 out of 981). This is notably lower than the 44.6% reported in a national survey by Sharma et al. (2023)(8) and the 63.5% observed in Bangalore by Ahmed et al. (2019)(9). Regarding physical abuse, our findings indicate a prevalence of 9.6% (94 out of 981), which is significantly lower than the 22.3% reported in a study from North India by Singh et al. (2020).(10) For verbal abuse, 18% (177 out of 981) of participants in our study reported experiencing it, which is less than the 55.1% prevalence found in Chandigarh by Singh et al. (2020).

CONCLUSION

This study, involving a diverse sample of 981 adolescents, provides valuable insights into the socio-demographic and psychosocial factors associated with anxiety. A nearly equal gender distribution (53% female, 47% male) and wide representation across religion, caste, school type, and socio-economic status strengthen the generalizability of findings. Statistically significant associations were found between anxiety levels and gender, religion and educational class with 12th-grade students and females experiencing higher levels of severe anxiety. Lifestyle factors also played a crucial role: students engaging in regular physical activity reported lower anxiety, while inadequate sleep correlated with higher anxiety levels. Notably, psychosocial stressors such as bullying, physical, and verbal abuse had a strong, significant impact on anxiety severity. These results underline the importance of early identification and multi-faceted interventions targeting physical health, academic stress, and peer-related challenges to mitigate anxiety among adolescents.

RECOMMENDATION

- Implement targeted mental health programs for high-risk groups, especially females and 12th-grade students.
- Encourage regular physical activity and healthy sleep habits among adolescents.
- Strengthen school-based awareness campaigns on bullying and abuse.
- Establish safe reporting systems and support mechanisms within schools.

- Integrate mental health education into the school curriculum.
- Conduct regular anxiety screenings by trained counselor.
- Promote a collaborative approach involving teachers, parents, and healthcare professionals to support students' emotional well-being.

LIMITATION OF THE STUDY

This study has certain limitations. Being cross-sectional, it cannot establish causal relationships. Data were self-reported, which may be affected by recall or social desirability bias. The sample was limited to school-going adolescents, excluding out-of-school youth who may have different or higher anxiety levels. As the study was conducted only in urban Kanpur Nagar, findings may not be generalizable to rural populations. Additionally, reliance on a single screening tool (BAI) without clinical diagnosis may not fully capture the complexity of anxiety disorders. These factors should be considered when interpreting the results and applying them to wider contexts.

RELEVANCE OF THE STUDY

This study aims to address the lack of data on anxiety among school-going adolescents in Kanpur Nagar, a group increasingly vulnerable to mental health issues. It seeks to determine the prevalence of these conditions and identify socio-demographic correlates, such as risk and protective factors. Understanding these dynamics is essential for developing targeted interventions that can improve mental health outcomes. By assessing the extent of depression and anxiety and exploring the impact of various determinants, the study will provide valuable insights to guide educators, healthcare providers, and policymakers in creating effective support systems within schools.

AUTHORS CONTRIBUTION

NP conceived the study and prepared the initial draft. SK assisted in literature review and interpretation of results. All authors contributed to revising the manuscript and approved the final version.

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Nil

CONFLICT OF INTEREST

Nil

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DECLARATION OF GENERATIVE AI AND AI ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

The authors haven't used any generative AI/AI assisted technologies in the writing process.

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