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Research Paper

Prevalence and sociodemographic factors associated with anxiety symptoms among rural and urban adults in district Rampur, Uttar Pradesh

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ABSTRACT

Background: Anxiety disorders are among the most prevalent mental health conditions globally. However, limited empirical evidence exists regarding the distribution of anxiety symptoms. Objective: This study aimed to assess the prevalence of anxiety symptoms among adults in rural and urban areas of Rampur District and to examine their association with selected sociodemographic variables.
Methods: A community-based cross-sectional study was conducted among 426 adults in rural and urban areas of Rampur District, Uttar Pradesh. Sociodemographic data were collected using a structured questionnaire, and anxiety levels were assessed using the validated Generalized Anxiety Disorder-7 (GAD-7) scale. Data analysis was performed using IBM SPSS Statistics. Descriptive statistics, chi-square tests, independent-samples t-tests, and one-way ANOVA were applied to determine associations between variables. A p-value of ≤0.05 was considered statistically significant.
Results: Overall, 78.4% of participants had GAD-7–defined anxiety symptoms (GAD-7 score ≥5). Mild anxiety was the most common category (43.7%), followed by moderate (26.3%) and severe anxiety (8.4%). Significant associations were observed between anxiety levels and sociodemographic factors, particularly educational attainment, employment status, and place of residence.
Conclusion: Anxiety symptoms are highly prevalent among adults in Rampur District, with increased vulnerability observed among individuals with lower education levels, unemployment, and rural residence.

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1. INTRODUCTION

Anxiety disorders are among the most prevalent mental health problems worldwide and a significant public health problem. They do not go away, increase in number, and have a significant impact on quality of life. Those who have anxiety problems often suffer from persistent worry, constant fear and emotional ups and downs. It's not just in their head, it affects their jobs, friends and self-esteem. According to World Health Organization, anxiety disorders are a significant contributor to the world burden of disease. They sap productivity, disrupt sleep, make people feel bad about themselves socially, and make people feel worse as a whole [1], [2].

Epidemiological studies of anxiety disorders published recently have described a growing prevalence of anxiety disorders in recent times related to rapid urbanization, socio-economic instability, work stress, education stress, as well as lifestyle and psychosocial factors. Anxiety disorders occur in people of all ages but their frequency and severity is determined by a number of socio-demographic factors such as age, gender, education status, marital status, profession, and background of residence [3]. Hormonal, psychosocial, and emotional factors may account for higher prevalence of anxiety in females than males. Likewise, those with a lower level of educational attainment, unemployment, and financial instability are at a higher risk for being diagnosed with an anxiety disorders [4].

Despite the low level of awareness about psychiatric disorders and access to mental health services in developing countries like India, mental health problems are emerging as a major healthcare problem. Limited access to mental health facilities, lack of mental health literacy, social stigma and lack of trained counselors are common challenges among rural communities that may result to more severe anxiety symptoms and a higher delay in seeking mental health services [5], [6]. On the other hand, urban settings can lead to occupational stress, social competition, and rapid lifestyles, which can also add to psychological stress and emotional strain.

The Generalized Anxiety Disorder-7 (GAD-7) is a widely-recognized screening and assessment instrument that measures the severity of anxiety in epidemiological and clinical studies. The GAD-7 has shown to have high levels of reliability, validity and sensitivity in detecting anxiety symptoms in community and healthcare settings [6], [7]. The GAD-7 scale has been used in recent community-based studies to identify prevalence of anxiety and demographic factors associated with anxiety among adults [8], [9].

A number of previous studies have discussed the association of anxiety prevalence and severity with sociodemographic factors. Penninx et al. reported that demographic variables such as gender, education, employment status, and socioeconomic condition significantly influence anxiety outcomes and mental health burden. Similarly, Bandelow et al. emphasized that social disadvantage, unemployment, and poor psychological support systems contribute substantially to anxiety-related disorders [10].

Stress, socioeconomic burden, and poor coping behavior significantly contribute to anxiety severity among adults [11]. The importance of psychological awareness and coping strategies in reducing anxiety-related distress and improving emotional well-being. These findings indicate that sociodemographic and behavioral factors collectively influence anxiety prevalence and psychological health outcomes [12].

Despite increasing recognition of anxiety disorders as a major public health issue, limited epidemiological data are available regarding anxiety prevalence and associated sociodemographic determinants among rural and urban populations in District Rampur, Uttar Pradesh. The available studies in India have been conducted on the hospital-based population, the student population or a specific group of individuals, and there is a lack of community based studies in both rural and urban environment, involving adult population as a whole.

Hence, the present study was conducted to assess the prevalence of anxiety and its associated sociodemographic factors among adults (rural and urban) in District Rampur using GAD-7 scale. The results of this study can be used to identify vulnerable groups and to design community based intervention programs for mental health awareness, screening programs for early psychological screening, and easy to access mental health care interventions.

2. RELATED WORK

2.1 Global Burden and Epidemiology of Anxiety

Anxiety disorders are one of the most widespread mental health conditions across the globe and have a substantial impact on people's functioning, productivity and overall quality of life. They are found in different ages, communities and socio-economic circles. Anxiety disorders are disorders that cause significant clinical and functional impairments and Remes et al. found some differences in the prevalence of anxiety disorders in adults. These results show that community-based research is needed to identify vulnerable populations and to evaluate the prevalence of anxiety symptoms [13].

2.2 Sociodemographic Factors Associated with Anxiety

According to research, anxiety is related to a number of sociodemographic factors, such as age, gender, education, employment, income and social environment. However, the incidence of anxiety in women is cited as being higher than in men, possibly due to biological, psychological and social factors. Psychological vulnerability can be further exacerbated by socio-economic disadvantage, low social support and limited access to health care. It is therefore important to investigate these characteristics to understand the differences in prevalence of anxiety in the community [14].

2.3 Education, Employment, and Psychological Well-being

Education and employment are important determinants of mental health. The lower the level of education, the less health literacy can be expected, fewer opportunities for work and less access to health services. Being out of work can lead to financial insecurity, lack of routine, social isolation and psychological distress. However, there is longitudinal evidence that unemployment is linked to poorer mental health, while re-employment can lead to better psychological health. The results of these analyses justify a consideration of educational and employment status in studies of anxiety in the adult population [15].

2.4 Rural–Urban Differences and Healthcare Access

There may be disparities in mental health risk exposure and service access between the rural and urban populations. Limited access to health care workers, transportation challenges, stigma, and lack of mental health awareness may be faced by rural residents. Differences between rural and urban anxiety and depression symptoms have been noted in Indian studies. Significant gaps in mental health care were also revealed in India from the National Mental Health Survey. Hence, community based anxiety studies are warranted to include residential setting as an important variable [16].

2.5 GAD-7 and Research Gap

The Generalized Anxiety Disorder-7 (GAD-7) is a short, reliable, and valid instrument to assess anxiety symptoms. It was developed by Spitzer et al. and rates the symptoms as minimal, mild, moderate, and severe. Studies conducted in anxiety have been in different population groups, but there is little research on adults of rural and urban areas of District Rampur in Uttar Pradesh. The present study aims to fill this gap and evaluate anxiety using the GAD-7 and its correlation with age, gender, education, employment and residential setting [16].

3. METHODOLOGY

3.1 Study Design and Setting

A community based cross sectional observational study was conducted in adults of rural and urban area of District Rampur, Uttar Pradesh, India to identify the prevalence of anxiety and sociodemographic factors associated with it. Cross-sectional study designs have been used in the field of epidemiology and mental health research to evaluate the prevalence of disease and associated risk factors in a community population.

3.2 Study Population and Sample Size

The participants were the adults who were selected by convenience sampling technique and total number of adult participants was 426 years and above. The people who were living in the selected rural and urban areas of District Rampur, who were willing to participate and understood the questioners were enrolled in the study. Severe psychiatric illness, cognitive impairment and missing data on questionnaires were excluded from the study.

3.3 Ethical Consideration

Study protocol has been approved by the Institutional Ethics Committee of RA MXL Hospital, Rampur U.P. All participants gave written informed consent prior to data collection. Ethical guidelines for research was followed with respect to the confidentiality and anonymity of participants' information throughout the study.

3.4 Study Instrument

A structured questionnaire was used to collect data which had two sections:

- **Section I- Sociodemographic Characteristics**

Demographic variables included in this section were age, gender, marital status, educational qualification, occupation and residential area (rural/urban).

- **Section II- Assessment of Anxiety Severity**

The severity of anxiety was evaluated with the Generalized Anxiety Disorder-7 (GAD-7) scale which was developed by [8]. The GAD-7 is a self-report questionnaire and includes 7 questions to assess anxiety symptoms during the last 2 weeks. Questions are rated on a scale of 0-3, with 0 being “not at all,” 1 being “several days,” 2 being “more than half the days” and 3 being “nearly every day.” The total of all seven answers ranges from 0 to a total of 21. Anxiety is classified as minimal (0–4), mild (5–9), moderate (10–14) or high (15–21). Participants were considered to have anxiety symptoms if they had a GAD-7 score ≥ 5. The GAD-7 is widely used in psychiatric and community samples, and is therefore trusted. It is reliable, sensitive and always yields good results for anxiety measurements [17].

3.5 Data Collection Procedure

The study was conducted with the participants in person. In the first place we ensured that all participants were aware of the purpose of the study and were able to give informed consent. We either conducted face-to-face interviews or distributed questionnaires as appropriate based on comfort and literacy of the person. After completing the questionnaires, the completed questionnaires were checked to ensure that there were no blank responses, before data entry and data analysis were completed [18].

3.6 Statistical Analysis

Data were coded and analyzed using IBM SPSS Statistics version 21.0. Descriptive statistics summarized the sociodemographic characteristics and anxiety symptom scores. Categorical variables were presented as frequencies and percentages, while continuous variables were summarized using means and standard deviation [19].

Associations between categorical sociodemographic variables and GAD-7 anxiety-severity categories were assessed using the chi-square test of independence. Independent-samples t-tests were

used to compare mean GAD-7 scores between two groups, including gender and residential area. One-way analysis of variance (ANOVA) was used to compare mean GAD-7 scores across more than two categories, including age, educational attainment, and employment status. Where appropriate, assumptions underlying the statistical tests were assessed before analysis [20], [21].

A two-sided p-value of ≤0.05 was considered statistically significant. The analyses were interpreted as measures of association and were not considered evidence of causal relationships because of the cross-sectional study design [22]. Because the study used convenience sampling, the findings were interpreted primarily in relation to the study population and were not assumed to be representative of all adults in District Rampur [23], [24].

4. RESULTS AND DISCUSSION

4.1 Sociodemographic Characteristics of Participants

426 people took part in this study. Most of them were between 35 and 40 years old, with smaller groups falling into the 20–25 and 40–45 ranges, as shown in Table 1. There were a few more men than women. When it came to education, most participants had either finished intermediate school or had a bachelor's degree. Many were from rural areas, too. All in all, the group was pretty diverse in terms of background.

Table 1. Demographic Details of Participants (N=426)

Age	**Frequency**	**Percentage**
20-25	88	20.65
25-30	38	8.92
30-35	64	15
35-40	122	28.6
40-45	82	19.24
45-50	32	7.51
Gender		
Male	228	53.5
Female	198	46.5
Educational Level		
High School	48	11.26
Intermediate	126	29.57
Bachelors	114	26.76
Masters	94	22.06
No Education	44	10.32
Employment Factor		
Employed	126	29.57
Unemployed	124	29.1
Self-Employed	104	24.41
Homemaker	72	16.9
Resident		
Rural Areas	202	47.4
Urban Areas	224	52.6

4.2 Prevalence and Severity of Anxiety

Anxiety severity was assessed using the Generalized Anxiety Disorder-7 (GAD-7) scale. Among the 426 participants, 334 (78.4%) had GAD-7 scores ≥5 and were classified as having anxiety symptoms, whereas 92 (21.6%) had scores of 0–4. Mild anxiety was the most commonly observed category among participants, as shown in Table 2 and Figure 1.

Table 2. Assessment of Anxiety Using GAD-7 among Participants (N = 426)

GAD-7 scores Range	Anxiety Level	Frequency (N)	Percentage (%)
0–4	Minimal Anxiety	92	21.6
5–9	Mild Anxiety	186	43.7
10–14	Moderate Anxiety	112	26.3
15–21	Severe Anxiety	36	8.4
Total		426	100

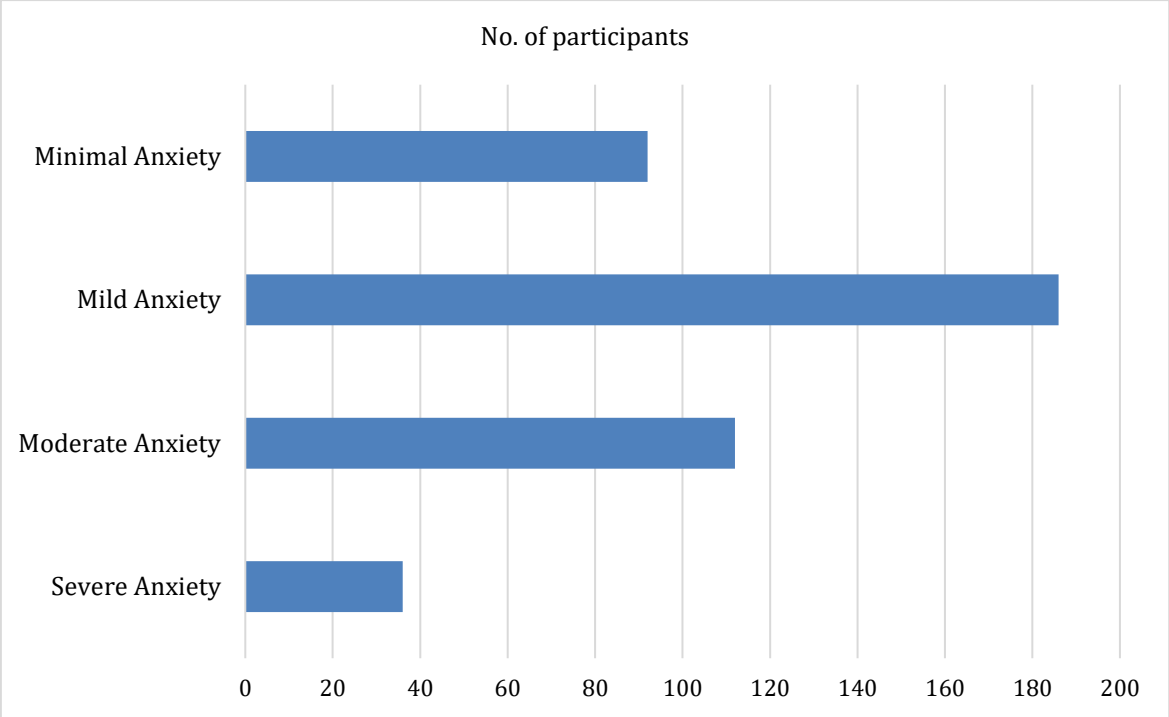


Figure 1. Participants Having Different Classes of Anxiety

4.3 Association between Sociodemographic Variables and Anxiety Level

A statistically significant association was observed between anxiety severity and the selected sociodemographic variables Table 3. Age was significantly associated with anxiety severity ($\chi^2 = 31.46$, $p < 0.001$). The proportion of participants experiencing moderate and severe anxiety increased across the older age groups, with the highest mean GAD-7 score observed among participants aged 45–50 years (8.74 ± 3.92). The mean GAD-7 score increased progressively from 5.92 ± 2.84 among participants aged 20–25 years to 8.74 ± 3.92 among those aged 45–50 years ($F = 7.84$, $p < 0.001$) (Figure 2 (a)).

Gender was also significantly associated with anxiety severity ($\chi^2 = 8.73$, $p = 0.033$), with female participants demonstrating a greater proportion of moderate and severe anxiety symptoms than male participants.

Educational status showed a significant association with anxiety severity ($\chi^2 = 36.18$, $p < 0.001$). Participants with no formal education and those with high-school education demonstrated higher proportions of moderate and severe anxiety symptoms compared with participants with higher educational attainment (Figure 2 (c)).

Employment status was significantly associated with anxiety severity ($\chi^2 = 14.24$, $p = 0.027$). Unemployed participants demonstrated higher proportions of moderate and severe anxiety symptoms compared with employed and self-employed participants (Figure 2 (b)).

Residence was also significantly associated with anxiety severity ($\chi^2 = 24.62$, $p < 0.001$). Rural participants demonstrated a higher proportion of moderate and severe anxiety symptoms than urban participants, indicating a greater burden of anxiety symptoms among rural residents (Figure 2 (d)).

Table 3. Association between Sociodemographic Variables and Anxiety Level among Participants

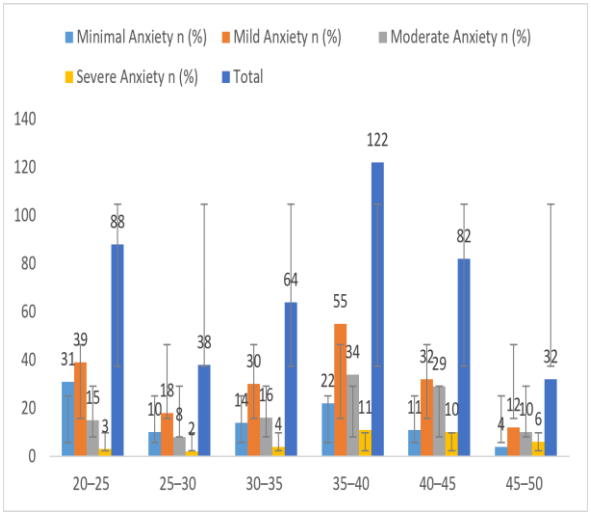
Variable	Category	Minimal N (%)	Mild N (%)	Moderate N (%)	Severe N (%)	Total	X^2 Value	P-Value
Age (years)	20–25	31 (35.2)	39 (44.3)	15 (17.0)	3 (3.5)	88	31.46	<0.001*
	25–30	10 (26.3)	18 (47.4)	8 (21.1)	2 (5.2)	38		
	30–35	14 (21.9)	30 (46.9)	16 (25.0)	4 (6.2)	64		
	35–40	22 (18.0)	55 (45.1)	34 (27.9)	11 (9.0)	122		
	40–45	11 (13.4)	32 (39.0)	29 (35.4)	10 (12.2)	82		
	45–50	4 (12.5)	12 (37.5)	10 (31.2)	6 (18.8)	32		
Gender	Male	54 (23.7)	106 (46.5)	54 (23.7)	14 (6.1)	228	8.73	0.033*
	Female	38 (19.2)	80 (40.4)	58 (29.3)	22 (11.1)	198		
Educational Status	No Education	4 (9.1)	16 (36.4)	18 (40.9)	6 (13.6)	44	36.18	<0.001*
	High School	6 (12.5)	19 (39.6)	18 (37.5)	5 (10.4)	48		
	Intermediate	20 (15.9)	58 (46.0)	39 (31.0)	9 (7.1)	126		
	Bachelor's	34 (29.8)	54 (47.4)	22 (19.3)	4 (3.5)	114		
	Master's	28 (29.8)	39 (41.5)	15 (16.0)	12 (12.7)	94		
Employment Status	Employed	32 (25.4)	60 (47.6)	28 (22.2)	6 (4.8)	126	14.24	0.027*
	Unemployed	16 (12.9)	50 (40.3)	42 (33.9)	16 (12.9)	124		
	Self-employed	26 (25.0)	46 (44.2)	24 (23.1)	8 (7.7)	104		
	Homemaker	18 (25.0)	30 (41.7)	18 (25.0)	6 (8.3)	72		
Residence	Rural	28 (14.1)	74 (37.2)	73 (36.1)	27 (13.4)	202	24.62	<0.001*
	Urban	64 (28.2)	112 (49.3)	39 (17.4)	9 (4)	224		

4.4 Mean GAD-7 score Among Participants

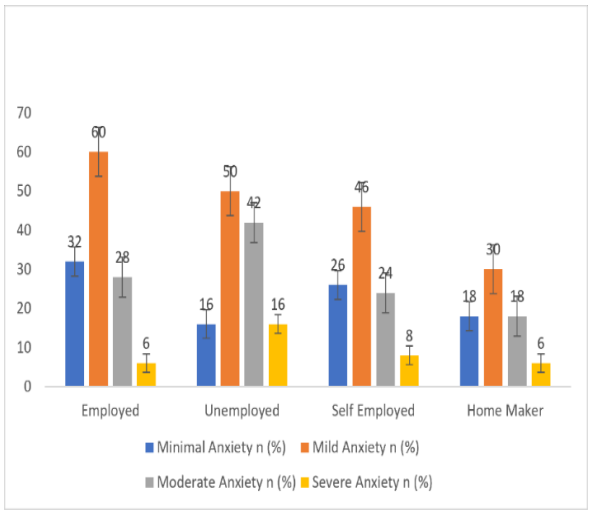
The overall mean GAD-7 score indicated a moderate anxiety burden among study participants. Female participants had significantly higher mean GAD-7 scores than males (7.62 ± 3.58 vs. 6.84 ± 3.21; $p = 0.031$). Rural residents also exhibited significantly higher mean anxiety scores compared with urban residents (8.14 ± 3.74 vs. 6.21 ± 3.05; $p < 0.001$).

Mean GAD-7 scores increased significantly across age groups ($p < 0.001$), with the highest scores observed among participants aged 45–50 years. The participants who were less educated had significantly higher anxiety scores compared to the participants with bachelor and master's degree ($p < 0.001$). In

addition, there were significant differences in the mean anxiety scores between the unemployed and the employed participants (p = 0.002) Table 4.



(a)



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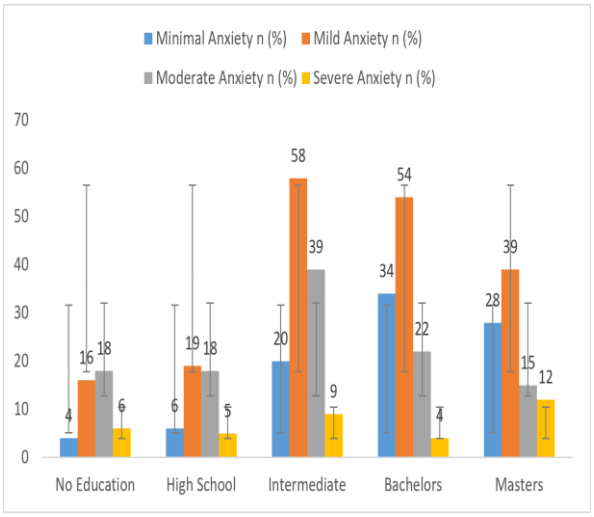

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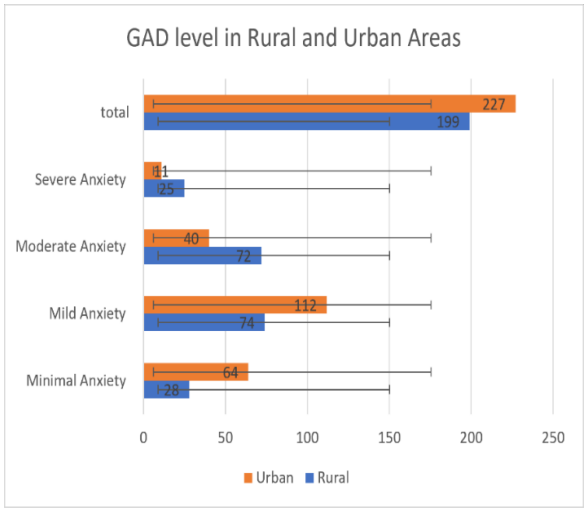

(d)

Figure 2. Association of GAD Level with (a) Age, (b) Occupation, (c) Education, and (d)Residence

Table 4. Association of Mean GAD Scores with Demographic Variables among Participants

Demographic Variable	Category	Mean GAD Score ± SD	Test Statistic	p-Value
Gender	Male	6.84 ± 3.21	t = 2.16	0.031*
	Female	7.62 ± 3.58		
Residence	Rural	8.14 ± 3.74	t = 4.52	<0.001*
	Urban	6.21 ± 3.05		
Age Group	20–25 years	5.92 ± 2.84	F = 7.84	<0.001*
	25–30 years	6.38 ± 3.01		
	30–35 years	7.02 ± 3.24		
	35–40 years	7.68 ± 3.45		
	40–45 years	8.11 ± 3.66		
	45–50 years	8.74 ± 3.92		
Educational Level	No Education	8.96 ± 3.88	F = 9.42	<0.001*
	High School	8.15 ± 3.61		
	Intermediate	7.24 ± 3.26		

	Bachelors	6.42 ± 2.98		
	Masters	5.94 ± 2.76		
Employment Status	Employed	6.18 ± 2.95	F = 6.27	0.002*
	Unemployed	8.04 ± 3.67		
	Self-employed	6.88 ± 3.14		
	Homemaker	7.52± 4.42		

4.5 Discussion

The present study aimed to explore the prevalence and severity of anxiety symptoms along with the association between them with some selected sociodemographic variables in adults of Rural and Urban areas of Rampur District, Uttar Pradesh. The results show that there is a high prevalence of anxiety symptoms, around 80% of the participants experienced anxiety symptoms to a greater or less extent.

Table 1 and Figure 1 showed that the most common type of anxiety (43.7%) was mild anxiety, followed by moderate anxiety (26.3%) and severe anxiety (8.4%). Although these findings should not be interpreted as a clinical diagnosis of an anxiety disorder, they indicate a considerable level of anxiety symptoms within the study population. Anxiety disorders are recognized as a major contributor to global disability, with substantial variation according to age, sex, socioeconomic conditions, and geographical setting Table 2 [12], [13].

Age was significantly associated with anxiety severity in the present study. The mean GAD-7 score increased progressively across the age groups, from 5.92 ± 2.84 among participants aged 20–25 years to 8.74 ± 3.92 among those aged 45–50 years ($F = 7.84$, $p < 0.001$). In addition, the proportion of participants with moderate and severe anxiety symptoms was greater in the older age groups, particularly among those aged 40–50 years Table 3. This pattern may reflect the accumulation of social, occupational, financial, and family-related responsibilities during adulthood. However, these findings should be interpreted cautiously because the cross-sectional design does not allow temporal or causal relationships to be established. Differences in anxiety across age groups may also be influenced by other unmeasured socioeconomic, occupational, and psychosocial factors.

The females had higher levels of anxiety than the males, and a higher percentage had moderate and severe anxiety. This finding is in line with the previous epidemiological studies reporting a higher rate of anxiety disorders in females compared to males [15], [16]. This can be attributed to biological factors, hormonal influences, gender-related psychosocial stressors, caregiving responsibilities as well as exposure to adverse life experiences. However, as the mechanisms behind sex and gender differences are complex, the present cross-sectional study is not able to determine the relative contribution of individual factors.

Anxiety severity also was linked to educational level. No differences were found between participants by educational attainment, except that those with lower education levels had more severe anxiety than those with higher education levels. There are several interrelated pathways by which education can affect psychological wellbeing, such as having knowledge about health, job opportunities, socioeconomic status, coping resources, and healthcare. Socioeconomic and demographic factors have been shown to be key factors in determining prevalence of anxiety in various populations in previous studies [14]. This means that educational disadvantage could also be a proxy for social disadvantage as a whole and not just social disadvantage as it relates to anxiety.

A similar association was noted with respect to employment status. The level of anxiety was higher in participants who were not working or had unstable work status as opposed to those who were employed. Joblessness can lead to more economic and psychological stressors while employment can contribute to greater economic security, social interaction, routine, and a sense of purpose. Longitudinal data has recently shown that symptoms of mental health are greater in adults who are unemployed, and that positive changes occur when they become re-employed, underscoring the significance of occupational status for mental health [16].

One of the most significant findings was that the mean anxiety score for the rural population was significantly higher than the urban population and there was a higher percentage of moderate and severe anxiety scores in the rural population. Few mental health workers, lack of psychological counseling services, poor mental health literacy, transportation problems, socioeconomic difficulties, and stigma can

be some of the factors causing disparities in mental health services. However, due to the cross-sectional design, it is difficult to discuss residence in the countryside as a direct cause of anxiety [2], [3].

The study has a number of strengths, such as the rural and urban samples and the use of a standardized screening instrument, the GAD-7. However, the cross-sectional nature of the design does not allow causal inferences to be made, and the convenience sampling does not allow for generalizability. Self-reported symptoms may also be subject to reporting or social desirability bias. Large, probability-based samples, longitudinal designs and multivariable analyses should be used in future studies to determine independent predictors of anxiety.

The overall results show significant prevalence of anxiety symptoms in adults in Rampur District with greater prevalence among females, lower educational level, unemployed people and rural people. Mental health awareness, early screening, psychological intervention, and enhanced access to mental health care in the community should thus be emphasized, especially when targeting the underserved.

5. CONCLUSION

The present study revealed a significant number of anxiety symptoms in adults of both rural and urban population of Rampur District, UP. Key sociodemographic factors were associated with anxiety severity such as age, gender, education, employment status and place of residence. Those who reported higher levels of anxiety tended to be females, unemployed, those with less education and rural residents. The higher burden among rural participants compared to their urban counterparts could suggest differences in recognition of the importance of mental health, access to psychological support, and access to mental health care services.

The results and conclusions presented are significant and warranted the need for a community level intervention of the social and contextual factors related to anxiety. Better awareness of mental health in the community, routine and early screening for anxiety, providing psychological first aid and enhancing access to low-cost mental health care services can be effective solutions to fill the gap in mental health care for vulnerable groups. Special focus should be placed on underserved rural communities by incorporating mental health services into current health programs in the primary health care and community settings. More longitudinal and population-specific studies are needed to better elucidate time patterning of sociodemographic factors and anxiety and to determine effective strategies for early interventions and prevention.

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Author Contributions Statement

Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
Saman Moin	✓	✓	✓	✓	✓	✓		✓	✓	✓			✓	
Neelachal Trivedi		✓				✓		✓	✓	✓	✓	✓		

C : **C**onceptualization
M : **M**ethodology
So : **So**ftware
Va : **Va**lidation
I : **I**nvestigation
R : **R**esources
D : **D**ata Curation
O : Writing - **O**riginal Draft
Vi : **Vi**sualization
Su : **Su**pervision
P : **P**roject administration
Fu : **Fu**nding acquisition

Fo : **Fo**rmal analysis E : Writing - Review & **E**diting

Conflict of Interest Statement

Authors state no conflict of interest.

Informed Consent

We have obtained informed consent from all individuals included in this study.

Ethical Approval

The research related to human use has complied with all the relevant national regulations and institutional policies. The study received ethical approval from RA MXL Hospital in Rampur, Uttar Pradesh, India

Data Availability

The data that support the findings of this study are available on request from the corresponding author, [SM]. The data, which contain information that could compromise the privacy of research participants, are not publicly available due to certain restrictions.

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