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Original research article

FREQUENCY OF GENERALIZED ANXIETY DISORDER IN HOSPITALIZED COVID-19 PATIENT

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Abstract: *The COVID-19 pandemic has had a profound impact on mental health, with anxiety disorders being particularly prevalent among hospitalized patients. Identifying and addressing mental health issues like generalized anxiety disorder (GAD) is crucial for improving patient outcomes and providing holistic care.* ***Objective:*** *To determine the frequency of generalized anxiety disorder (GAD) among hospitalized COVID-19 patients at MTI-Hayatabad Medical Complex, Peshawar, and to explore its association with gender and socioeconomic status.* ***Methods****: A cross-sectional study was conducted in the Department of Psychiatry at MTI-Hayatabad Medical Complex, Peshawar, over six months, from October 16, 2021, to April 16, 2022. A total of 179 hospitalized COVID-19 patients, aged 25 years and above, were included. Patients presenting with symptoms of anxiety were assessed using the Generalized Anxiety Disorder-7 (GAD-7) scale. Unstable patients, who had a history of other mental disorders or were receiving treatment for depression and anxiety were excluded. Data were analyzed using statistical methods to explore associations between GAD and demographic factors such as gender and socioeconomic status.* ***Results:*** *The study included 179 COVID-19 patients, with a mean age of 43.50 ± 10.18 years. Generalized anxiety disorder was identified in 62 patients, representing 34.6% of the total population. GAD prevalence was significantly higher among female patients ($p < 0.001$) and those from lower socioeconomic backgrounds ($p = 0.002$).* ***Conclusion:*** *This study highlights a high prevalence of generalized anxiety disorder among hospitalized COVID-19 patients, particularly among females and those of lower socioeconomic status. The findings underscore the need for routine mental health screening and targeted interventions to address anxiety in this vulnerable population.*

Keywords: COVID-19, Anxiety, Depression, Mental Health, Hospitalization, Generalized Anxiety Disorder.

Introduction

Since the initial verified case of COVID-19 was reported in 2019, the coronavirus disease has grown into a global health crisis (1). This unprecedented epidemic has created numerous global issues for the healthcare system and its personnel (2). As of September 2021, the total number of confirmed global cases exceeds 231 million, and the total number of deaths surpasses 4.7 million, according to the World Health Organization (3).

Unlike prior epidemics and pandemics, such as severe acute respiratory syndrome and Middle East respiratory disease, COVID-19 exhibits greater contagiousness and accelerates transmission (4). The World Health Organization formally declared COVID-19 a pandemic and urged global collaboration to combat this infection (5). Mandatory measures, including containment, quarantine, community restrictions, and the closure of businesses and schools, have been enacted in Pakistan and other nations to prevent further escalation of the pandemic (6).

Pakistan documented their inaugural instance of COVID-19 on 26 February 2020. This was succeeded by a gradual rise in case numbers, prompting the government to implement a lockdown in March 2020, which remained partially in force at the time of writing. As reported by the WHO in September 2021, the cumulative number of confirmed infections in Pakistan exceeds 1.2 million, with total fatalities above 27,000 (7).

To mitigate the dissemination of the coronavirus disease, several communication channels, including television, radio, newspapers, and social media, were employed to promote awareness, resulting in a notable enhancement in public knowledge of COVID-19. The unpredictability of this novel disease, along with protective measures such as self-isolation, and social distancing, including quarantine, has led to psychological issues and increased susceptibility to mental health challenges (8). Anxiety disorders rank among the most prevalent mental conditions, with a prevalence of up to 25%. Generalized Anxiety Disorder (GAD) is a common condition characterized by persistent, excessive, and uncontrollable worry about everyday events, along with symptoms like muscle tension, irritability and sleep disturbances. It affects about 3-6% of the general population each year (9).NineHuang Y et al. revealed that the prevalence of Generalised Anxiety Disorder among COVID-19 patients was 35.1% (10).

In a nation such as Pakistan, characterized by constrained resources and an inadequate mental health infrastructure, it is imperative to identify and address psychological morbidities proactively to prevent the escalation of a mental health crisis. The adverse long-term effects of GAD, such as suicidal inclinations, chronic mental disease, decreased productivity, substance dependence, and physical ailments, necessitate the prompt addressing of psychological disorders. This study aims to determine the frequency of general anxiety disorder among COVID-19 hospitalized patients at Hayatabad Medical Complex in Peshawar. The figures derived from this study would be highly beneficial and disseminated throughout many institutions and

hospitals. To inform them of this issue, recommendations will be provided for future modifications and investigation.

Methodology

This study having a descriptive cross-sectional design, was conducted at the Department of Psychiatry, MU Hayatabad Medical Complex, Peshawar, from October 16, 2021, to April 16, 2022. A sample of 179 patients was determined taking 35.1% frequency of Generalized Anxiety Disorder (GAD) among COVID-19 patients (10), using a 95% confidence level and 7% absolute precision, calculated through WHO software. Non-probability consecutive sampling was used to recruit participants. Ethical approval was taken from the hospital.

The study included both male and female patients aged 25 years and above who were hospitalized due to COVID-19 and exhibited symptoms of anxiety. Patients who were COVID-19 positive but unstable, those with any other mental disorder, and individuals already undergoing treatment with antidepressants or anti-anxiety medications were not included.

Patients were briefed about the study. The data was collected through structured interviews, and demographic information was recorded using a pre-designed proforma. The GAD-7 questionnaire was used to assess anxiety symptoms, featuring seven self-reported items that measure anxiety severity over the past two weeks. Each item was scored on a four-point Likert scale, from 0 (not at all) to 3 (nearly every day). The total scores were classified as normal (0-4), mild (5-9), moderate (10-14), and severe (15-21), with higher scores reflecting greater levels of anxiety. Exclusion criteria were rigorously applied to minimize confounding factors and bias in the study results.

The data were analyzed using SPSS version 23. Mean and standard deviation (SD) were calculated for continuous variables like age and GAD-7 scores, while frequencies and percentages were used for categorical variables such as gender, residence, socioeconomic status, and GAD. GAD was stratified by age, residence, and socioeconomic status to assess their effects. The Chi-Square test was used for post-stratification, taking a P value < 0.05 as significant.

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Results

The mean age was 43.50 ± 10.18 years, and the average GAD-7 score was 5.38 ± 5.85, indicating variability in the severity of anxiety symptoms among the population.

The distribution of patients across different age groups showed that 49 patients (27.4%) were aged between 25 to 35 years, 78 patients (43.6%) were between 35 to 50 years, and 52 patients (29.1%) were between 51 to 60 years. In terms of gender, one hundred and sixteen patients (64.8%) were male, and 63 patients (35.2%) were female. When analyzing the patient's place of residence, seventy-two patients (40.2%) were from urban areas, while 107 patients (59.8%) resided in rural areas. Socioeconomic status was categorized based on monthly income, with 63 patients (35.2%) classified as poor (monthly income ≤ 25,000 Rs), eighty-four patients (46.9%) categorized as middle class (monthly income between 25,000 and 75,000 Rs), and 32 patients (17.9%) considered rich (monthly income > 75,000 Rs). (Table 1)

When looking at the prevalence of generalized anxiety disorder, fifty-eight patients (32.4%) were diagnosed with GAD, while one hundred and twenty-one patients (67.6%) did not meet the criteria for GAD. (Figure 1)

When stratified by gender, it was observed that 23 males (39.7%) were diagnosed with GAD, compared to 93 males (76.9%) who were not, whereas 35 females (60.3%) had GAD, compared to 28 females (23.1%) without the disorder. This indicates that females had a higher frequency of GAD than males. Stratification by socioeconomic status showed that 31 patients classified as poor (53.4%) had GAD, compared to 32 (26.4%) who did not. In the middle-class group, nineteen patients (32.8%) had GAD, while 65 (53.7%) did not. Among the rich patients, eight (13.8%) had GAD, compared to 24 (19.8%) without the disorder. These results suggest that patients from lower socioeconomic backgrounds were more likely to have GAD. (Table 2) Statistical analysis using Pearson's Chi-square test indicated that gender ($P < 0.001$) and socioeconomic status ($P = 0.002$) were notably associated with GAD. However, age ($P = 0.275$) and residence ($P = 0.586$) were not significantly associated with GAD in this study.

Table 1 Demographics

Demographics		**Frequency**	**Percentage**
Age distribution	25 to 35 years	49	27.4%
	35 to 50 years	78	43.6%
	51 to 60 years	52	29.1%
Gender	Male	116	64.8%
	Female	63	35.2%
Residence	Urban	72	40.2%
	Rural	107	59.8%
Socioeconomic status	Poor (Monthly income <=25000 Rs)	63	35.2%
	Middle (Monthly income 25000 to 75000 Rs)	84	46.9%
	Rich (Monthly income > 75000 Rs)	32	17.9%

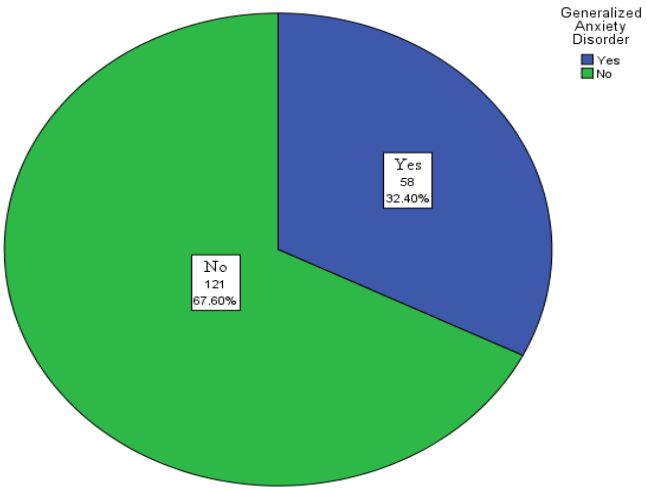

Figure 1 Generalized anxiety disorder

Table 2 Stratification of generalized anxiety disorder with demographics

Demographics		**Generalized Anxiety Disorder**				**P value**
		Yes		**No**		
		Frequency	**Percentage**	**Frequency**	**Percentage**	
Age distribution	25 to 35 years	16	27.6%	33	27.3%	0.27
	35 to 50 years	21	36.2%	57	47.1%	
	51 to 60 years	21	36.2%	31	25.6%	
Gender	Male	23	39.7%	93	76.9%	0.0001
	Female	35	60.3%	28	23.1%	
Residence	Urban	25	43.1%	47	38.8%	0.58
	Rural	33	56.9%	74	61.2%	
Socioeconomic status	Poor (Monthly income <=25000 Rs)	31	53.4%	32	26.4%	0.002
	Middle (Monthly income 25000 to 75000 Rs)	19	32.8%	65	53.7%	
	Rich (Monthly income > 75000 Rs)	8	13.8%	24	19.8%	

Discussion

We found that 32.4% of patients exhibited symptoms of GAD, with 35.2% of females and 39.7% of males affected. The mean age was 43.50 ± 10.18 years, and the GAD-7 score averaged 5.38 ± 5.85. In a study conducted by Kong X et al., 34.72% of patients exhibited anxiety symptoms, which is very close to our result of 32.4%. Similarly, depression was identified in 28.47% of patients in their study, slightly lower than the anxiety prevalence. Their study also highlighted that factors such as gender and age were significantly associated with anxiety and depression, with older age and lower oxygen saturation being particularly influential. This is consistent with our finding that GAD was slightly more prevalent in older age groups, though not statistically significant in our study. (11)

In another study by Lakshmi KP et al., the prevalence of GAD in COVID-19 patients was reported to be 34.8%, similar to our finding of 32.4%. Their study utilized the GAD-7 scale, which is consistent with our approach. They also found that GAD was more common in patients with lower educational status and those with physical comorbidities, though these associations were not statistically significant in their study. In comparison, our study did not find significant associations with education or comorbidities. (12)

Additionally, a study conducted by Ngasa SN et al. (2021) found a much higher prevalence of anxiety, reported at 60.35%, and depression at 81.40%. This stark contrast could be due to differences in population demographics, healthcare access, or the severity of illness among the patients. In their study, factors such as male gender, hypoxemia, and comorbidities were independently associated with higher anxiety levels, which parallels some of our findings. However, the much higher anxiety prevalence in the aforementioned study suggests that regional variations and possibly differences in the severity of the COVID-19 pandemic could play significant roles in the psychological impact on patients. (13)

Another study from India by George Cet al. reported the prevalence of anxiety as 20.1%, which is lower than the 32.4% observed in our study. They also found that factors such as older age, oxygen therapy, and the use of hydroxychloroquine were significantly associated with anxiety. Their lower prevalence could be due to differences in the sample population or the criteria used for defining anxiety. In contrast, our study did not observe any

significant associations between treatment modalities and anxiety prevalence. (14)

In a prospective cohort study conducted by Parker C et al., anxiety was present in 36% of hospitalized COVID-19 patients, a figure slightly higher than ours. They found that while anxiety symptoms decreased over time, depression remained persistent. This contrasts with our study, where anxiety was the primary focus, and the persistence of these symptoms over time was not specifically evaluated. (15)

In our study, females showed a higher occurrence of GAD compared to males, with 60.3% of the patients diagnosed with GAD being female. This gender disparity in anxiety prevalence is well-documented in the literature. Parker C et al. found that anxiety symptoms were more common among female patients hospitalized with COVID-19.15 This suggests that females may be more vulnerable to the psychological stressors associated with the pandemic, a finding that is consistent across multiple studies.

We observed that patients aged 35 to 50 years had the highest prevalence of GAD at 36.2%, while the younger age group of 25 to 35 years had a slightly lower prevalence at 27.6%. This aligns with the findings of George et al., who reported that older age was associated with higher anxiety scores among COVID-19 patients in a tertiary hospital in Kerala, India.14 In a similar vein, Kong X et al. also identified age as a notable factor, with older patients (age > 50) exhibiting higher anxiety and depression scores compared to their younger counterparts.11 These findings suggest that older patients may experience heightened anxiety due to concerns about severe illness outcomes, comorbidities, and mortality.

Our study also highlighted the impact of socioeconomic factors on the prevalence of GAD. We found that 53.4% of patients from lower socioeconomic backgrounds (those earning ≤ 25,000 Rs per month) had GAD, which was significantly higher than in middle- and higher-income groups. This mirrors the findings of studies like that of Ngasa SN et al., which demonstrated that lower socioeconomic status was associated with a higher prevalence of anxiety and depression among COVID-19 patients.13 Similarly, Parker C et al. noted that patients from disadvantaged socioeconomic backgrounds were at greater risk for anxiety during hospitalization.15 These observations suggest that financial stress and limited access to resources during the pandemic may exacerbate the psychological burden among lower-income populations.

Conclusion

In conclusion, our study revealed that 32.4% of COVID-19 patients experienced generalized anxiety disorder, with a higher prevalence observed among females and individuals from lower socioeconomic backgrounds. Timely identification and intervention for anxiety in COVID-19 patients are essential to improve their overall mental health outcomes.

Declarations

Data Availability statement

All data generated or analyzed during the study are included in the manuscript.

Ethics approval and consent to participate.

Approved by the department concerned. (IRBEC_CARD_93/22)

Consent for publication

Approved

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Conflict of interest

The authors declared an absence of conflict of interest.

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