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RESEARCH ARTICLE
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PREVALENCE OF DEPRESSION AND ANXIETY AMONG PATIENTS OF BRONCHIAL ASTHMA IN SOUTHERN RAJASTHAN

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Abstract

Background: Bronchial Asthma (BA) is a chronic respiratory condition that affects millions globally, with rising prevalence. Asthma has significant physical and psychological impacts, often leading to anxiety and depression among affected individuals. This study aims to assess the prevalence of depression and anxiety among patients diagnosed with BA and to explore potential correlations between these psychological conditions and asthma exacerbations.

Methods: This cross-sectional, observational study was conducted at the Department of Pulmonology & Psychiatry, GBH Medical College and Hospital, Udaipur. A total of 50 diagnosed asthmatic patients aged between 20 and 60 years were included. Anxiety and depression were assessed using the Hospital Anxiety and Depression Scale (HADS), with scores categorized as mild, moderate, or severe. The study also explored correlations with gender, area of residence, and educational status.

Results: Out of the 50 asthmatic patients, 28% exhibited anxiety, and 24% exhibited depression. The prevalence of mild anxiety (95%) and mild depression (97%) was the highest among the patients. Anxiety was more prevalent among females (40%) than males (14%), while depression was more common in males (12%) than females (8%). Patients from rural areas and those with lower educational status exhibited higher rates of both anxiety and depression. Statistically significant associations were found between anxiety and depression with the area of residence ($P = 0.001$) and educational status ($P = 0.001$).

Conclusion: The study highlights a significant prevalence of anxiety and depression among asthmatic patients. Factors such as gender, area of residence, and educational level were identified as key variables influencing the mental health status of asthma patients. Addressing these psychological comorbidities may improve overall disease management and enhance the quality of life for asthma patients.

INTRODUCTION

Bronchial Asthma (BA) is a chronic inflammatory disorder recognized as a leading cause of both morbidity and mortality globally. Recent data indicate a rising prevalence of BA, now affecting approximately 300 million individuals worldwide. This surge has substantial socio-economic repercussions, contributing to increased healthcare costs and a heightened incidence of associated morbidity and mortality. BA is clinically characterized by episodic, sudden attacks of dyspnea, rendering asthma exacerbations a significant threat to life in affected individuals.

Given the debilitating nature of the disease, it is evident that BA profoundly impacts the psychological well-being of patients, disrupting daily activities, sleep, and social functioning. Asthma exhibits complex interrelationships among social, psychological, and physiological dimensions. Contemporary models suggest that asthma may be a psychosomatic disorder, with exacerbations potentially triggered by underlying psychological conflicts.

Approximately two-thirds of asthma patients experience significant anxiety during acute exacerbations, with the presence of anxiety serving as a potent predictor of respiratory decline in these individuals. Negative emotions, including anger, fear, panic, and depression, are implicated in the pathophysiology of asthma, contributing to bronchoconstriction and subsequent worsening of asthmatic crises. While these emotional states may not reach the threshold for formal psychiatric diagnosis, they are sufficiently impactful to initiate or exacerbate asthma symptoms. Conversely, asthma itself may exacerbate emotional disturbances, with depression being associated with autonomic dysregulation and a cholinergic or vagal bias, further increasing airway instability.

Additionally, chronic stress exposure has been identified as a risk factor for the development of asthma. Given the bidirectional relationship between asthma and psychological factors, the proposed study aims to assess the prevalence of anxiety and depression in asthmatic patients. Early identification and management of these psychological comorbidities may offer an opportunity for improving overall disease control, potentially mitigating the adverse impact of these psychological factors on asthma severity. This investigation could inform more holistic treatment strategies, improving both the physical and mental health outcomes in this patient population.

This study aims to investigate the prevalence of depression and anxiety among patients with Bronchial Asthma, exploring the potential bidirectional relationship between these psychological conditions and asthma exacerbations. By identifying and addressing these comorbidities, early intervention strategies may be developed to improve both the psychological and respiratory health of asthma patients, ultimately enhancing their overall well-being and quality of life.

MATERIAL AND METHODS

This was a cross-sectional, observational study conducted at the Department of Pulmonology & psychiatric ,GBH medical college and hospital , Udaipur . A total of 50 diagnosed cases of bronchial asthma either male or female, having an age range from 20-60 years were included in this study. Patients with a history of diabetes mellitus and hypertension were excluded from the study.

Ethical approval was obtained from the institutional review committee and written informed consent was taken from every patient. Hospital Anxiety and Depression Scale (HADS) was used to assess anxiety and depression. Scores 8-15 were considered as mild anxiety or depression, 16-20 as moderate anxiety or depression and scores higher than 17as severe. Patients with primary education were considered as illiterate and above middle education were considered as literate.

Inclusion criteria:

- The following criteria were considered while including patients in the study:
- Patients attending the Pulmonology and Psychiatry OPD in GBH medical college & hospital , Udaipur and diagnosed with Bronchial Asthma.
- Patients of either gender aged between 20 to 60 years fulfilling the criteria for depression and anxiety.
- Patients willing to give informed consent.

Exclusion criteria:

- Patients with the following conditions were excluded from the study, namely:
- Patients having comorbid psychiatric illness.
- History of major chronic medical and surgical illness.
- History of other respiratory abnormalities.
- History of substance abuse.
- Female patients in pregnancy and lactation

All the collected data was entered into SPSS version 17 and analyzed. Mean and SD was calculated for numerical variables and frequencies and percentages were calculated for categorical variables. Chi-square test was used as a test of association. P value ≤ 0.05 was considered as statistically significant.

RESULTS

A total of 50 asthmatic patients were included in this study, with a mean age of 46.7 ± 8.3 years. Among these, anxiety and depression were observed in 14 (28%) and 12 (24%) patients, respectively (Table 1).

Out of the 14 patients with anxiety, 95% experienced mild anxiety, 5% had moderate anxiety, and no patients had severe anxiety (Figure 1). Similarly, among the 12 patients diagnosed with depression, 97% had mild depression, 3% had moderate depression, and no patients had severe depression (Figure 2).

The analysis of the severity of bronchial asthma in relation to anxiety and depression showed that anxiety was most prevalent in patients with mild severity (18%), followed by moderate severity (8%) and severe severity (6%). Depression followed a similar trend, with 10% of patients in the mild group experiencing depression, 4% in the moderate group, and 2% in the severe group. In total, 16 (32%) patients were diagnosed with anxiety and 8 (16%) with depression.

When stratified by gender, anxiety was more common among females, with 40% of female patients (n = 24) exhibiting anxiety, compared to 14% of male patients (n = 26). Conversely, depression was more prevalent among males, with 12% of male patients exhibiting depression compared to 8% of females. However, the differences in anxiety and depression prevalence between male and female patients were statistically insignificant (P = 0.4159, 0.6292), as shown in Table 2.

The study also revealed a significant association between the area of residence and the prevalence of anxiety and depression. Of the 24 patients from rural areas, 32% reported anxiety, and 16% had depression. In comparison, 36% of patients from urban areas experienced anxiety, and 16% had depression. This difference was statistically significant (P = 0.001 for both anxiety and depression) (Table 3).

The education level of patients was found to significantly affect the prevalence of anxiety and depression. Among the 44 educated patients (88% of the sample), 48% exhibited anxiety, and 40% had depression. In contrast, only 8% of uneducated patients (n = 6) had anxiety, and 4% exhibited depression. The association between educational status and both anxiety and depression was statistically significant (P = 0.001 for both) (Table 4).

- **Gender Stratification:** Of the 26 male patients, 28% experienced anxiety, and 24% had depression. Of the 24 female patients, 40% suffered from anxiety, and 8% experienced depression.
- **Rural vs. Urban Distribution:** Anxiety was reported in 32% of rural patients and 36% of urban patients, with depression being present in 16% of both groups.
- **Educational Status:** Anxiety was found in 48% of educated patients, while depression was present in 40%. In the uneducated group, only 8% had anxiety, and 4% had depression.

Table 1: Frequencies for anxiety and depression in asthmatics (n=98).

Status	Anxiety	Depression
Yes	14(28%)	12 (24%)

No	**36 (72%)**	**38 (76%)**

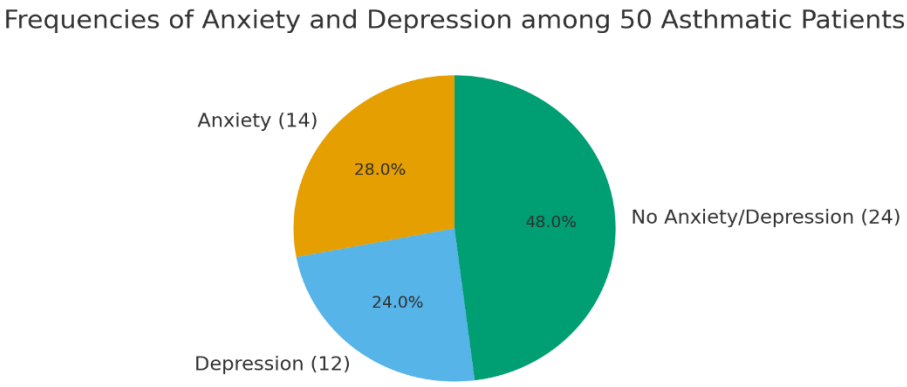
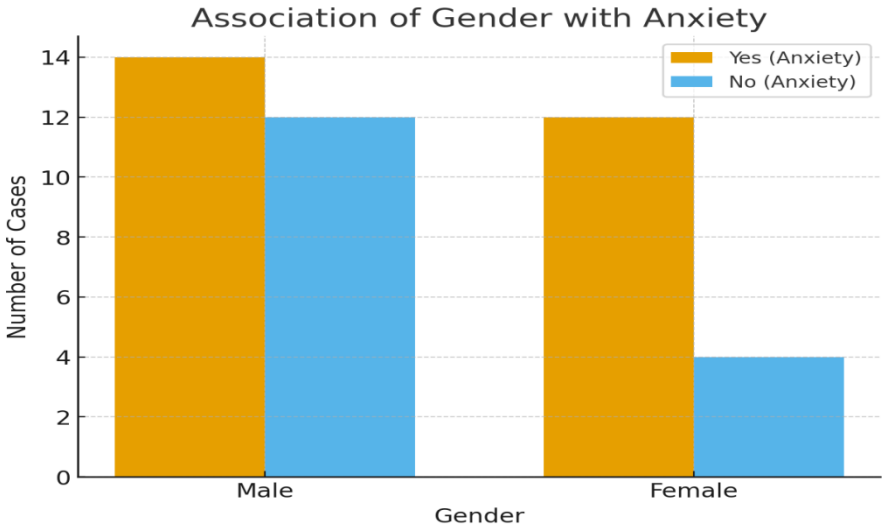


Table 2: Association of gender with depression and anxiety

Gender	Yes	No	Total
Association of gender with anxiety (P. value = 0.4159)			
Male	14(28%)	12(24%)	26(52%)
Female	12(24%)	4(8%)	24(48%)
Total	26(52%)	16(32%)	50
Association of gender with depression (P. value= 0.4159)			
Male	10(20%)	16(32%)	26(52%)
Female	16(32%)	8(16%)	24(48%)
Total	26(52%)	24(48%)	50



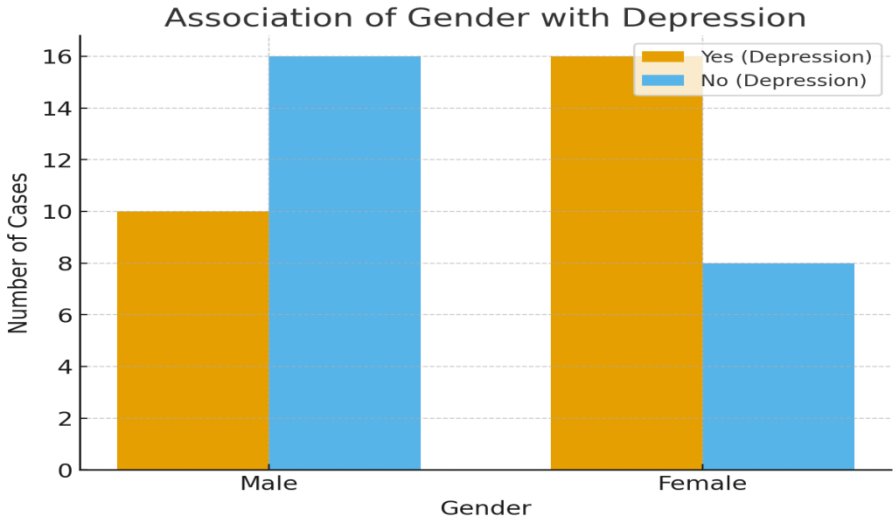
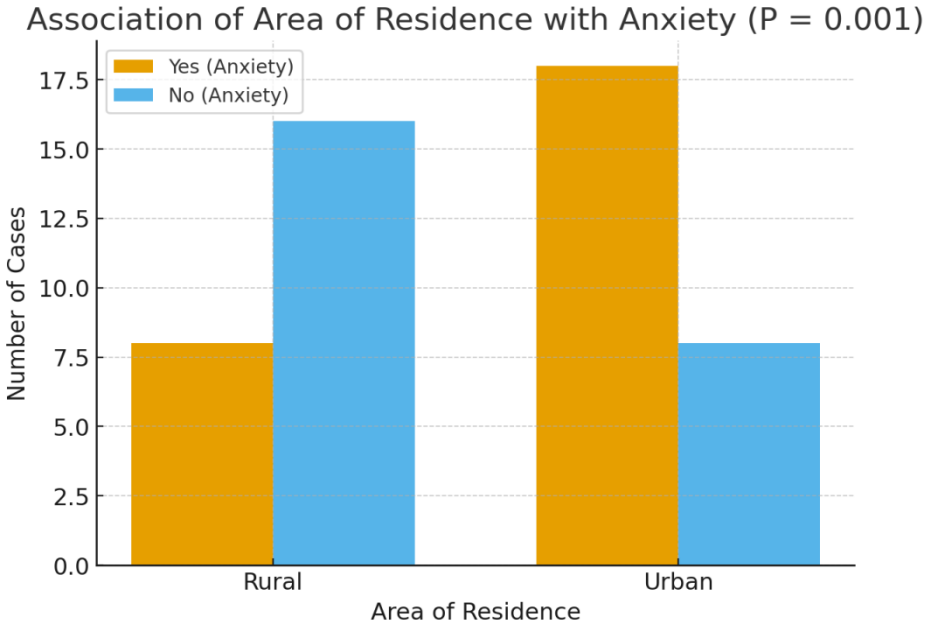


Table 3: Association of anxiety and depression with area of residence

Area	Yes	No	Total
Association of area of residence with anxiety(P. value = 0.001)			
Rural	8(16%)	16(32%)	24(48%)
Urban	18(36%)	8(16%)	26(52%)
Total	26(52%)	16(32%)	50



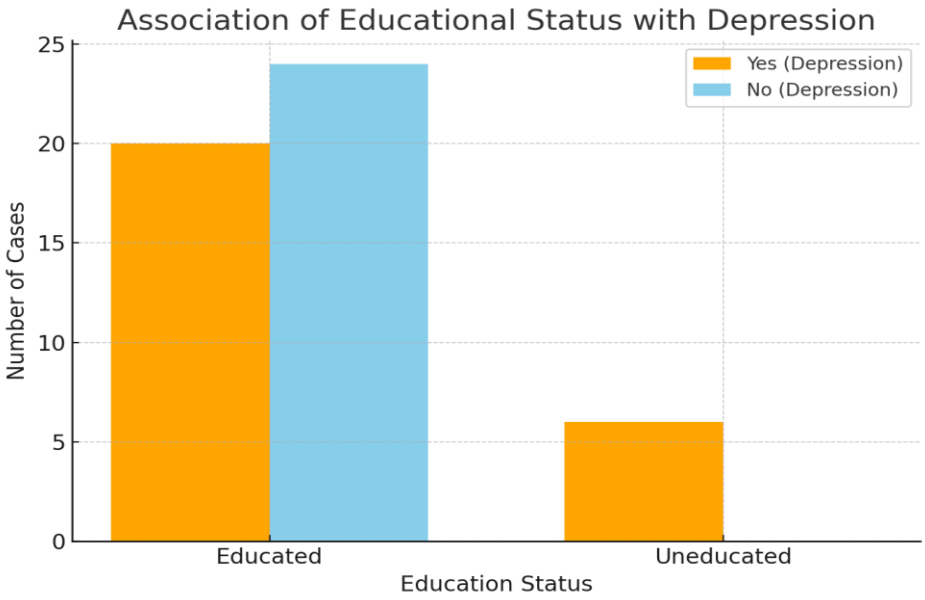
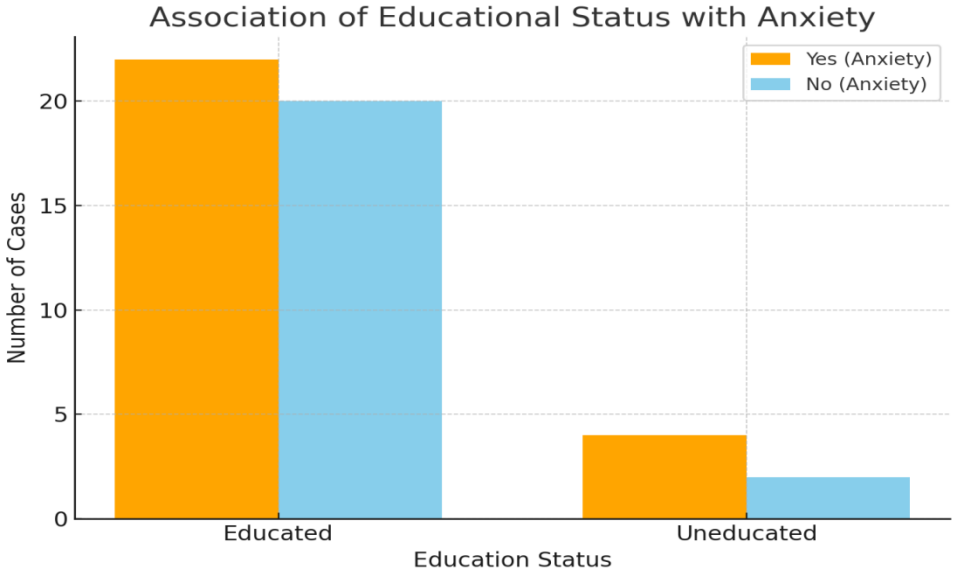


Table 4: Association of anxiety and depression with educational status

Education Status	Yes	No	Total
Association of education status with anxiety(P. value = 0.001)			
Educated	22(44%)	20(40%)	44(88%)
Un-educated	4(8%)	2(4%)	6(12%)
Total	26(52%)	22(44%)	50
Association of education status with depression (P. value = 0.001)			
Educated	20(40%)	24(48%)	44(88%)
Un-educated	6(12%)	0(0%)	6(12%)
Total	26(52%)	24(48%)	50



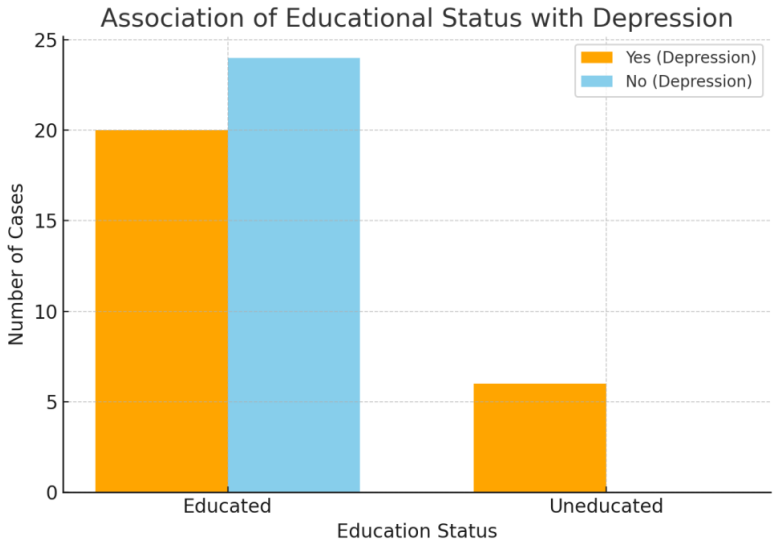


Table 5: Association of anxiety and depression with severity status

Severity	Anxiety	Depression
Mild	9(18%)	5(10%)
Moderate	4(8%)	2(4%)
Severe	3(6%)	1(2%)
Total	16(32%)	8(16%)

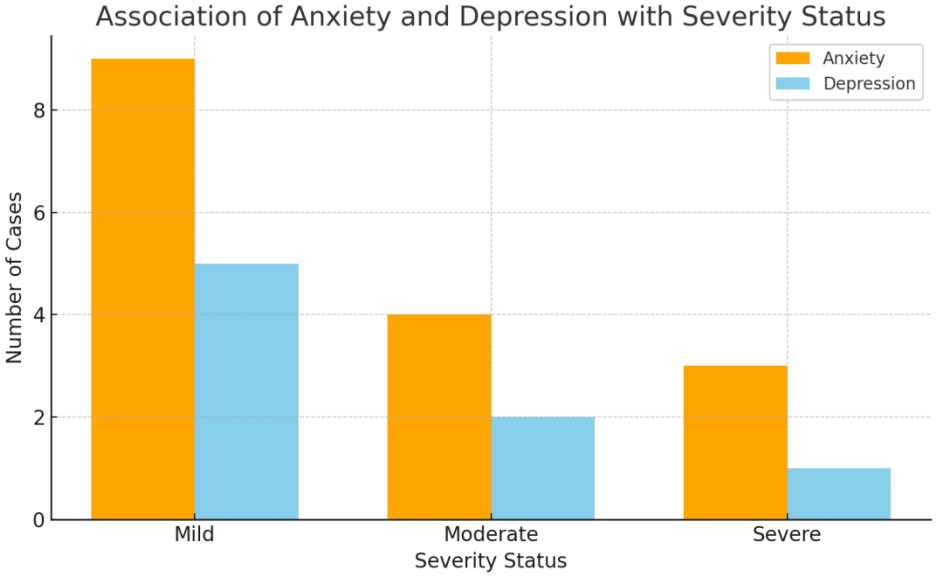


Table 6: Association of anxiety and depression with psychiatric illness

Gender	Anxiety	Depression
Male	7(14%)	6(12%)
Female	9(18%)	2(4%)
Total	16(32%)	8(16%)

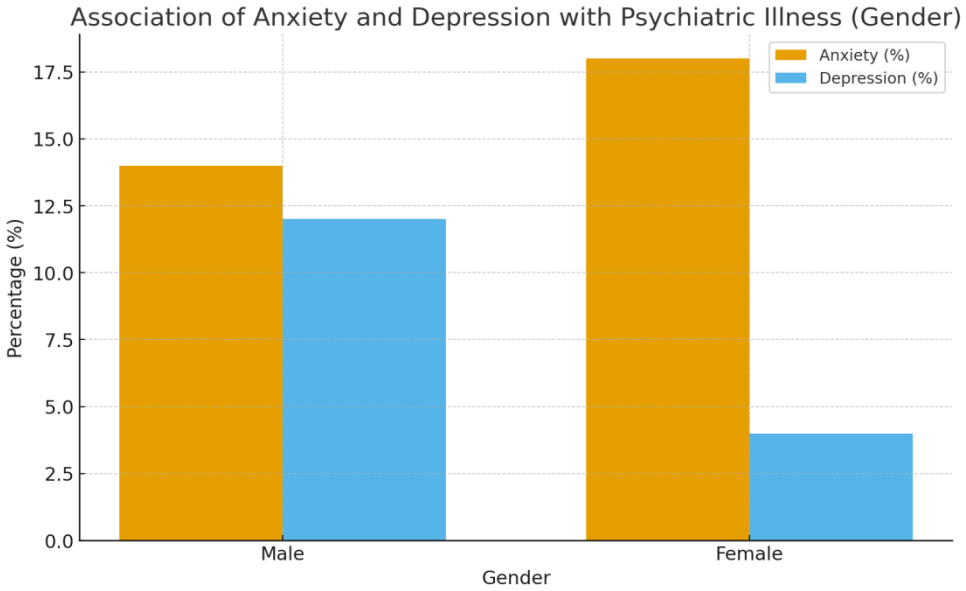


Table 7: Association of anxiety and depression with rural & urban

Area	Anxiety	Depression
Rural	7(14%)	4(8%)
Urban	9(18%)	4(8%)
Total	16(32%)	8(16%)

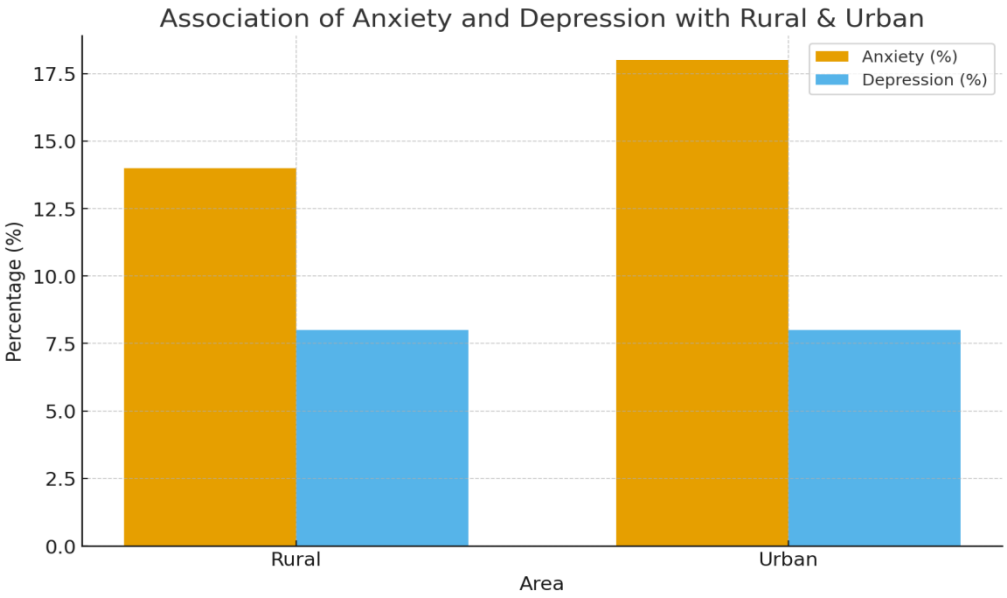
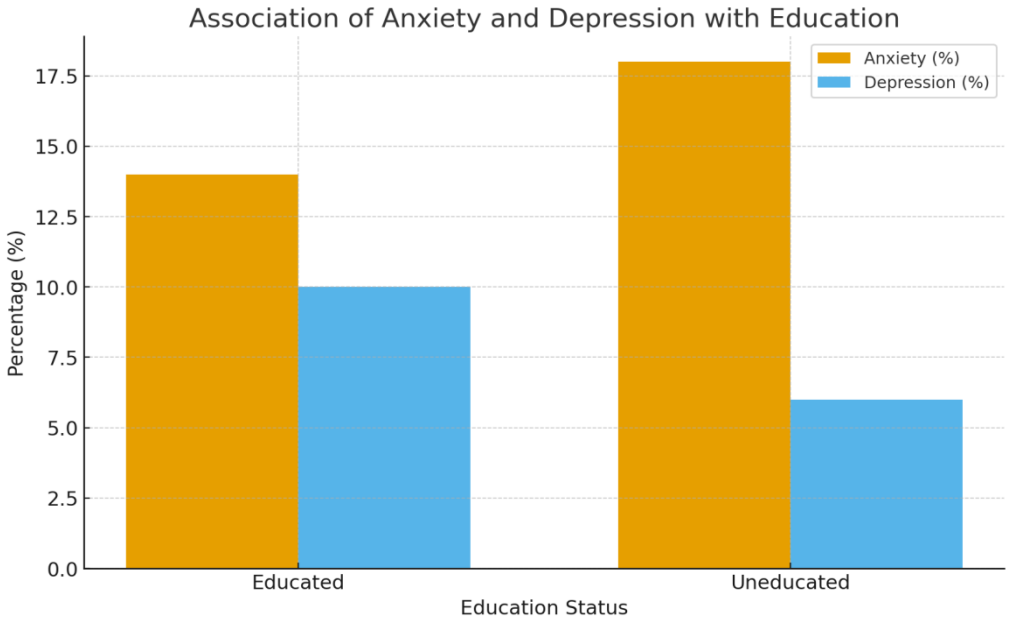


Table 8: Association of anxiety and depression with education

Education	Anxiety	Depression
Educated	7(14%)	5(10%)
Un educated	9(18%)	3(6%)
Total	16(32%)	8(16%)



DISCUSSION

Psychological factors may influence the symptoms and management of asthma and numerous pathways may contribute to the links between asthma and psychiatric disorders such as anxiety and depression [1].

The association of anxiety and depression with asthma has been confirmed in numerous studies [2]. Psychiatric disorders were significantly more frequent in asthmatics than in non-asthmatic population and the ratio of various psychiatric disorders, particularly anxiety and depression, varies ranging from 9% to 65%[3].

In our study the mean age of the asthmatic patients was 46.7±8.3 years. A similar mean age (43.8±16.6 years) of asthmatic patients was reported by Tafti et al in their study[4]. In another study Taftiet al[5] reported the mean age of asthmatic as 48±17 years which is also comparable with mean age of our study. Anxiety and depression symptoms are relatively common among asthma patients and emotions such as anxiety, anger, happiness, excitement, satisfaction and neutral emotions can influence respiratory parameters[6,7].

In our study anxiety and depression was present in 28% and 24% asthmatics. Tafti et al reported depression in 65.4% patients which is in agreement with our study[13]. Instead of HADSthey usedGHQ-28(28-item general health questionnaire) to measure the depressive symptoms. Similar (66.7%) prevalence of depression in asthmatics was reported by Asnaashari et al[8].

Labor et al reported frequency of anxiety and depression as44.5%, 24.5% which is lower than that of our findings[2]. Another study by Aspinosa Leal FBet al[9] concluded in contrast with our findings where HAD scale results showed that 30% of asthmatics presented with anxiety and 8% presented with depression.

There are some controversies regarding the prevalence of anxiety and depression in BA. Wang et al[10]reported that 70% of asthmatics have some degrees of anxiety and depression.Some other studies reported anxiety and depression, six times more prevalent in asthmatic patients as compared to general population.[11]In a Canadian survey with psychiatric interview, anxiety was more prevalent in asthmatic patients than depression[12]. High rates of anxiety and depression in our study may be due to lack of routine psychological counseling in pulmonary wards of hospitals. Gender of asthmatics is another potential risk factoraffecting patients' prognosis but different studies reported inconsistent results.

In our study, anxiety and depression were equally prevalent in male and female asthmatics (P = 0.4159, 0.6292). Similarly in study byWilson et al, asthmatic males and asthmatic females had similar prevalence of anxiety and depression[13].Conversely, in a study by Tafti et al[4] significantly (P = 0.005) more female asthmatics had depressive symptoms as compare to male asthmatic (70.2% versus

54.9%) and Nowobilski et al reported that asthmatic females experience higher degrees of somatic symptoms and anxiety than asthmatic males[14].

- **Gender Stratification:** Of the 26 male patients, 28% experienced anxiety, and 24% had depression. Of the 24 female patients, 40% suffered from anxiety, and 8% experienced depression.
- **Rural vs. Urban Distribution:** Anxiety was reported in 32% of rural patients and 36% of urban patients, with depression being present in 16% of both groups.
- **Educational Status:** Anxiety was found in 48% of educated patients, while depression was present in 40%. In the uneducated group, only 8% had anxiety, and 4% had depression.

In this study un-educated asthmatics had significantly (P= 0.001) higher proportion of anxiety and depression as compared to educated (59.09% vs 88.89%, 45.45% vs 77.78%), which is in line with Tafti et al who found significantly (P= 0.009) higher rate of depression among illiterate asthmatics as compared to literate asthmatics (77.4% versus 59.3%)[4].

CONCLUSION

Higher rates of anxiety and depression among asthmatics were found in this study. The results of this study also revealed that male or female asthmatics can equally be a victim of anxiety and depression. Rural residents and un-educated asthmatics had higher rate of anxiety and depression as compare to urban residents and educated asthmatics.

Reference

1. Van Lieshout RJ, MacQueen G. Psychological Factors in Asthma. Allergy Asthma ClinImmunol. 2008 Mar 15;4(1):12–28.
2. Labor S, Labor M, Jurić I, Vuksić Z. The prevalence and pulmonary consequences of anxiety and depressive disorders in patients with asthma. CollAntropol. 2012 Jun;36(2):473–81.
3. Mrazek DA. Psychiatric symptoms in patients with asthma causality, co-morbidity, or shared genetic etiology. Child AdolescPsychiatrClin N Am. 2003 Jul;12(3):459–71.
4. Tafti SF, Cheraghvandi A, Safa M, Eragh DF, Mokri B, Talischi F. Study of depressed mood and quality of life in asthma patients in Tehran using the 28-item general health questionnaire. East Mediterr Health J. 2011 Nov;17(11):838–42.
5. Tafti SF, Safa M, Talischi F, Boroujerdi FG. Evaluation of anxiety and depression in patients with asthma at Masih Daneshvari Hospital, Tehran. SL J Psychiatry 2013; 4 (1): 7-9
6. Zielinski TA, Brown ES, Nejtek VA, Khan DA, Moore JJ, Rush AJ. Depression in Asthma: Prevalence and Clinical Implications. Prim Care Companion J Clin Psychiatry. 2000 Oct;2(5):153–8.
7. Ritz T, Steptoe A. Emotion and pulmonary function in asthma: reactivity in the field and relationship with laboratory induction of emotion. Psychosom Med. 2000 Dec;62(6):808–15.
8. Asnaashari AMH, Talaei A, Haghigh B. Evaluation of psychological status in patients with asthma and COPD. Iran J Allergy Asthma Immunol. 2012 Mar;11(1):65–71.
9. Espinosa Leal FD, Parra Román M, Méndez NHS, Toledo Nicolás DA, MenezDíaz D, Sosa Eroza E, et al. [Anxiety and depression in asthmatic adults in comparison to healthy individuals]. Rev Alerg Mex. 2006 Dec;53(6):201–6.
10. Wang G, Wang L, Szczepaniak WS, Xiong Z-Y, Wang L, Zhou T, et al. Psychological status in uncontrolled asthma is not related to airway hyper-responsiveness. J Asthma. 2010 Feb;47(1):93–9.
11. Goodwin RD, Jacobi F, Thefeld W. Mental disorders and asthma in the community. Arch Gen Psychiatry 2003; 60:1125-30. 21. Lavoie KL, Bacon SL, Barone S, Cartier A, Ditto B, Labrecque M. What is worse for asthma control and quality of life: depressive disorders, anxiety disorders, or both? Chest 2006; 130(4):1039-47.
12. Wilson DH, Appleton SL, Taylor AW, Tucker G, Ruffin RE, Wittert G, Hugo G, Goldney RD, Findlay C, Adams RJ. Depression and obesity in adults with asthma: multiple comorbidities and management issues. Med J Aust. 2010 Apr 5;192(7):381-3.

13. Nowobilski R, Furgał M, Polczyk R, de Barbaro B, Szczeklik A. Gender gap in psychogenic factors may affect perception of asthma symptoms. J InvestigAllergolClinImmunol. 2011;21(3):193-8.