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**Research Article**

**A CROSS SECTIONAL STUDY TO DETERMINE THE INCIDENCE OF  
ANXIETY AND DEPRESSION AMONG THE PATIENTS SUFFERING  
FROM BRONCHIAL ASTHMA**

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**Abstract:**

**Objective:** The objective of this study was to determine the incidence of anxiety and depression among the patients suffering from bronchial asthma.

**Study Design:** Observational / cross sectional study.

**Place and Duration of Study:** This study was conducted at the Department of Medicine of Allied Hospital, Faisalabad from November, 2018 to October, 2019.

**Materials and Methods:** Total 250 patients with Mean age of  $45.5 \pm 7.5$  years were included. The Hospital Anxiety and Depression Scale (HADS) were used to assess anxiety and depression.

**Results:** Total 190(76%) patients had anxiety and 160(64%) had depression. 140 (74%) male patients and 50(81%) female patients had anxiety and 122 (65%) male patients and 38(59%) female patients had depression. Note that anxiety and depression were not significantly associated with sex ( $P = 0.3925$  and  $0.464$ ).

Total 150(60%) people belonged to rural areas, 100(40%) patients belonged to urban areas. The anxiety was observed in 134 (89%) and 56 (56%) patients belonged to rural and urban patients, respectively. The prevalence of depression in urban patients was 71 (71%), and the prevalence of depression in rural patients 89(89%) was observed in our study, the difference was not statistically significant ( $P = 0.0617$ ).

In this study, 113(45%) patients were educated and 137(55%) were uneducated. The anxiety and depression were noted in 69(61%) and 51 (45%) among educated patients, respectively. Among the uneducated patients, the anxiety rate was 121(89%) and the depression rate was 109(79%).  $P$  value was highly significant ( $P = 0.001, 0.001$ ) was observed in the association between anxiety and depression.

**Conclusion:** The results of this study show that the incidence of anxiety and depression in asthma patients is high. Male or female asthma patients equally suffer from anxiety and depression. Rural residents and uneducated people have higher rate of anxiety and depression as compared with urban and educated people.

**Keywords:** Mental disorders; Asthma; Anxiety; Depression; Severe; Chronic.

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**INTRODUCTION:**

Bronchial asthma is the main cause of morbidity and mortality, and affects 300 million people worldwide.[1] Bronchial asthma is defined as unexpected and sudden shortness of breath, these asthma attacks are real threat to life in these cases [2]. Bronchial asthma significantly affects the patient's mental health is justified, because of its serious effects on the social life, daily activities and sleep of these patients.[3]

Bronchial asthma deeply linked between psychological, physiological and social factors.[4] The latest hypothesis about the association between bronchial asthma and psychological factors will describe bronchial asthma as a classic psychosomatic disorder caused by specific psychological conflicts [5]. About two-thirds of asthma patients are anxious during acute episodes. Anxiety symptoms in asthmatic patients have been revealed as very strong predictors of respiratory disease.[6]

Some negative emotions (anger, panic, fear and depression) are involved in fluctuations of the process of airway bronchial contraction, leading to a more severe asthma crisis. Although these emotions are not enough to be classified as mental disorders, it may lead to asthma attacks or worsening them.[7] On the contrary, these emotions may also deteriorate due to asthma itself. Anxiety and depression are also associated with spontaneous disorders, leading to cholinergic or vagal bias (i.e., vagus nerve sympathetic responses), which increases asthma airway instability. Exposure to stress increases the risk of asthma.[8]

The study was planned to screen asthmatic patients for anxiety and depression. The results of this study may help us to reduce the complications of asthma patients through early management.

**MATERIALS AND METHODS:**

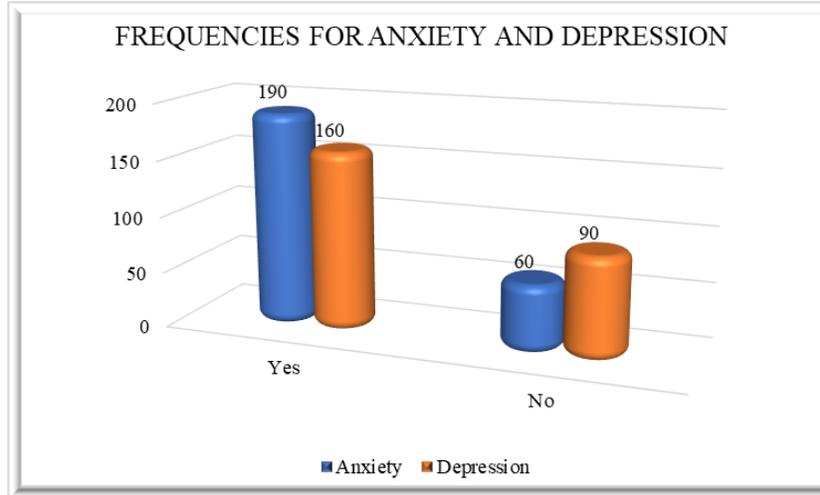
This Cross-sectional observational study was carried out at Department of Medicine of Allied Hospital, Faisalabad from November, 2018 to October, 2019. Total 250 patients suffering from bronchial asthma, male or female aged between 20-60 years old were included in our study. Patients with a history of diabetes and hypertension were excluded from the study. The Hospital Anxiety and Depression Scale (HADS) were used to assess anxiety and depression. Score  $\geq 8$  is anxious and depression Primary education was uneducated, and education of middle or higher was educated. All the collected data was entered into SPSS 20 and analyzed. Calculated the mean and standard deviation for numeric variables, calculated the frequency and percentage of anxiety, depression, sex (male or female), educational status (educated or uneducated) and place of residence (rural or urban). Stratified chi-square tests were used to observe the association of anxiety and depression with gender, Patient living area and educational status, P value  $\leq 0.05$  was considered statistically significant.

**RESULTS:**

Total 250 patients with Mean age of  $45.5 \pm 7.5$  years were included. Total 190(76%) patients had anxiety and 160(64%) had depression. (Table 1) 140(74%) male patients and 50(81%) female patients had anxiety and 122 (65%) male patients and 38(59%) female patients had depression. Note that anxiety and depression were not significantly associated with sex (P = 0.3925 and 0.464) (Table 2).

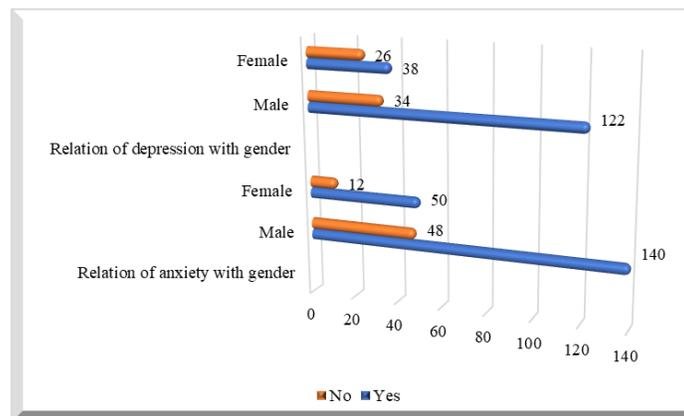
**Table No 01: Frequencies for anxiety and depression**

Status	Anxiety	Depression
Yes	190(76%)	160(64%)
No	60(24%)	90(36%)



**Table No.2: Relation of anxiety and depression with gender**

Gender	Yes	No	Total
<b>Relation of anxiety with gender</b>			
Male	140(74%)	48(26%)	188(75%)
Female	50(81%)	12(19%)	62(25%)
<b>Total</b>	<b>190</b>	<b>60</b>	<b>250</b>
<b>P-value</b>	0.3925		
<b>Relation of depression with gender</b>			
Male	122(65%)	34(35%)	188(75%)
Female	38(59%)	26(41%)	62(25%)
<b>Total</b>	<b>160</b>	<b>90</b>	<b>250</b>
<b>P-value</b>	0.464		



Total 150(60%) people belonged to rural areas, 100(40%) patients belonged to urban areas. The anxiety was observed in 134 (89%) and 56 (56%) patients belonged to rural and urban patients,

respectively. The prevalence of depression in urban patients was 71 (71%), and the prevalence of depression in rural patients 89(89%) was observed in

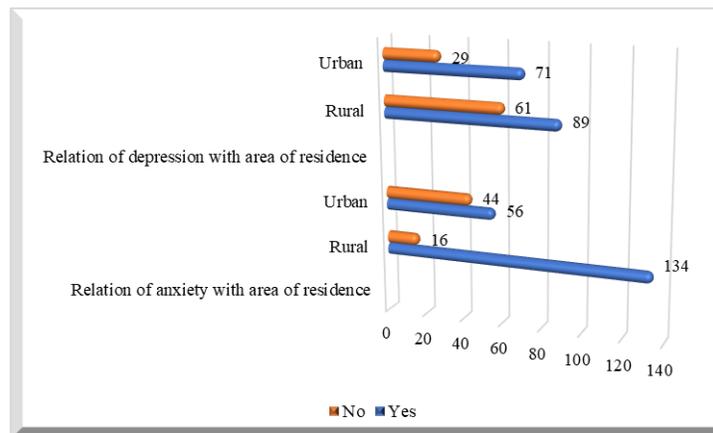
our study, the difference was not statistically significant ( $P = 0.0617$ ). (Table 3)

In this study, 113(45%) patients were educated and 137(55%) were uneducated. The anxiety and depression were noted in 69(61%) and 51 (45%)

among educated patients, respectively. Among the uneducated patients, the anxiety rate was 121(89%) and the depression rate was 109(79%). P value was highly significant ( $P = 0.001, 0.001$ ) was observed in the association between anxiety and depression (Table 4).

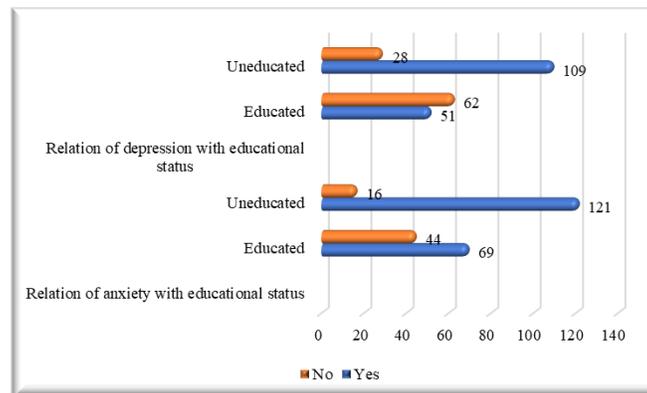
**Table No 03: Relation of Anxiety and Depression with Area of Residence**

Area of Residence	Yes	No	Total
<b>Relation of anxiety with area of residence</b>			
<b>Rural</b>	134(89%)	16(11%)	150(60%)
<b>Urban</b>	56(56%)	44(44%)	100(40%)
<b>Total</b>	190	60	250
<b>P-value</b>	0.0001		
<b>Relation of depression with area of residence</b>			
<b>Rural</b>	89(59%)	61(41%)	150(60%)
<b>Urban</b>	71(71%)	29(29%)	100(40%)
<b>Total</b>	160	90	250
<b>P-value</b>	0.0617		



**Table No 04: Relation of anxiety and depression with educational status**

<i>Educational Status</i>	<i>Yes</i>	<i>No</i>	<i>Total</i>
<i>Relation of anxiety with educational status</i>			
<i>Educated</i>	69(61%)	44(39%)	113(45%)
<i>Uneducated</i>	121(89%)	16(11%)	137(55%)
<i>Total</i>	190	60	250
<i>P-value</i>	0.0001		
<i>Relation of depression with educational status</i>			
<i>Educated</i>	51(45%)	62(55%)	113(45%)
<i>Uneducated</i>	109(79%)	28(20%)	137(55%)
<i>Total</i>	160	90	250
<i>P-value</i>	0.0001		

**DISCUSSION:**

Anxiety and depression are more common in asthmatic patients, such as anxiety, anger, happiness, excitement, satisfaction and neutral emotions can affect the respiratory system parameters.[9] In the literature, many studies have confirmed the relationship between anxiety and asthma depression.[10] Compared with non-asthmatic patients, these diseases are more common in asthma patients, from 9% to 65%.[11]

The mean age of asthma patients in this study was  $45.5 \pm 7.5$  years. Tafti et al. Reported similar asthma ( $43.8 \pm 16.6$  years) in their studies.[12] In another study, Tafti et al. [13] reported that the mean age of asthma was  $48 \pm 17$  years. The rates of anxiety and depression were 77.5% and 63%, respectively. The high percentage of anxiety and depression is due to the lack of conventional psychological counseling among patients. Tafti et al reported depression in 65.4% of asthma patients, comparable to our study (64%).

Asnaashari et al [14] and Labor et al [15] reported that the prevalence of anxiety and depression in asthmatic patients' rate was 44.5%, and 24.5% which was lower than we found in our study. Another study by Aspinosa Leal et al [16] showed that 30% of patients with asthma had anxiety and 8% had depressive symptoms.

The prevalence of anxiety and depression in asthmatic patients is controversial. Wang et al [17] reported that 70% of asthmatic patients had anxiety and depression in their study. Some other studies reported that anxiety and depression in asthmatic patients are six times greater than in normal patients compared with non-asthmatic patients.[18]

The gender of asthmatic patients is another risk factor for anxiety and depression. In the literature, different studies have reported anxiety and depression in asthmatic patients to varying degrees. Our study showed that anxiety and depression were not significantly associated with sex ( $P = 0.3925$  and

0.464). Similarly, in Wilson et al. Studies, asthmatic men and asthmatic women suffer from similar prevalence of anxiety and depression.[19] In contrast, Tafti et al reported a significant increase in depressive symptoms in women with asthma compared with asthmatic men ( $P = 0.005$ ), while Nowobilski et al [20] reported that asthmatic women had higher somatic symptoms and anxiety than non-asthmatic men.

In this study, the proportion of anxiety and depression in uneducated asthma patients was significantly higher ( $P = 0.001$ ) than in educated asthma patients ( $P = 0.001$ ), compared with Tafti et al the incidence of depression in asthmatic patients was significantly higher than in the control group ( $P = 0.009$ ) compared with uneducated patients.

### CONCLUSION:

The results of this study show that the incidence of anxiety and depression in asthma patients is high. Male or female asthma patients equally suffer from anxiety and depression. Rural residents and uneducated people have higher rate of anxiety and depression as compared with urban and educated people.

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