Prevalence of Anxiety and Depressive Disorders in Patients with Asthma at Mardan Medical Complex

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The authors declare that there is no conflict of interest.

Abstract

Background: Bronchial asthma is a chronic lung disease and can affect psychological state due to their impact on general activities of patients.

Objective: This study is aimed at to evaluate the prevalence of anxiety and depression disorders in asthma patients presenting to Mardan medical complex.

Methodology: This trial was conducted in MMC Teaching Hospital, Mardan, based on data collection technique a cross sectional survey method was used for three months. This was a joint study conducted in outpatient department of Pulmonology and Psychiatry. 100 Male and female participants registered at OPD for treatment were selected. Clinically instruments included Pulmonary Function Test, Asthma Control Test to assess severity of asthma. The two scales including Hamilton anxiety rating Scale to examine level of anxiety in asthmatic patients and Hamilton depression rating Scale was used to assess levels of depression in asthmatic patients.

Results: Out of 100 patients 50% were males and 50% were females. Mean age was 38.60 (± 14.18) years. on the basis of duration about 1/3 (33%) had duration of illness less than one year, about 1/3 (31%) had duration of illness 2 to 3 years and 1/3 (36%) had duration of illness more than three years. A total of 53% were on irregular treatment. Most of them (57%) had no comorbid medical diseases, however, the hypertension was the most common comorbid disease. Majority of them (62%) had the family history of Asthma. Occurrence of Depressive disorder and Anxiety symptoms among patients suffering from Asthma shows that 91% patients had depression, off these majority of them (33%) had extreme depression followed by severe 24% and moderate 19%. Similarly, 86% patients had anxiety, of these majority had severe 45% followed by moderate 33%. The results show that there is no significant mean difference between male and female asthmatic patients in terms of depression and anxiety ($p>0.05$).

Conclusion: Asthmatic patients are prone to develop anxiety and depression and needed to addressed properly along with treatment of asthma.

Key Words: Psychiatric Issue; Depression; Anxiety Asthma

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Introduction

Chronic physiological disorders like bronchial asthma are associated with psychological problems. Asthma is the fourth commonest disease in adults in the United States.[1] Sudden and unexpected episodes of bronchial airflow limitation, such as the asthma attacks, are the main feature of asthma. They are perceived by patients with asthma as breathlessness and are usually associated with chest tightness, cough, and wheezing. Patients frequently feel a perception of stress combined with the risk of choking. This fact makes the asthma attacks a constant fear for the asthmatic patients. This actual or expected threat is usually associated with anxiety. There is increased risk of anxiety and other mood symptoms in asthma, and these influence the control of symptoms of asthma and the health related quality of life.[2] Symptoms of anxiety may mimic those of asthma attack. It has been estimated that 6.5-24% of adults with asthma also have panic disorder.[1] Studies show that depression can influence symptomatology of asthma in 40-80% of patients.[3] Treatment of anxiety and depression can alleviate symptoms of asthma.[4]

Emotional disorders, anxiety, and depression are more prevalent in asthmatic patients than in healthy individuals.[5] therefore, anxiety and depression may be relevant features of asthma. Both emotional disorders may induce poor asthma outcomes: impaired quality of life, frequent emergency department admissions and hospitalizations, severe asthma symptoms, high corticosteroid dosages, non-adherence to therapy, and even lethal attacks.[6-7]

Inaccurate perception of severe asthma symptoms may negatively influence the asthma prognosis. In truth, a precise symptom perception should be an important component of self-management of asthma because the recognition of the asthma severity allows

Table 1. Sociodemographic Characteristics of Participants (n=100)

Variables	Categories	f (M)	(SD)
Age		38.60	14.18
Gender	Male	50	50.0
	Female	50	50.0
Area	Rural	48	48.0
	Urban	52	52.0
Occupation	Unemployed	15	15.0
	Employed	40	40.0
	House wife	40	40.0
	Student	5	5.0
Socioeconomic Status*	Below 10,000/month	69	69.0
	10,000 – 20,000/month	17	17.0
	20,001 – 30,000/month	6	6.0
	30,000 above/month	8	8.0
Family System	Nuclear	35	35.0
	Joint	60	60.0
Education	Extended	5	5.0
	Uneducated	45	45.0
	Primary	12	12.0
	Matric	14	14.0
	FA/FSC	9	9.0
	Bachelor	14	14.0
	Master	6	6.0

Note: * = PKR

the patient to make appropriate changes in the medical regimen in a timely fashion.[8] The control of asthma is actually considered the cornerstone goal in the management strategy because the control level serves to direct the therapeutic options., the asthma control may be assessed also by the Asthma Control Test (ACT), which correlates well with asthma control.[9]

On the basis of these concepts, a close association between asthma and anxiety and/or depression is conceivable. However, it seems to be an under recognition of this issue in the common practice.[10] For this reason, the present study aimed to investigate the effect of anxiety and depression on asthma in a real-life setting.

But it is a common practice that there is very little attention towards psychiatric comorbidity among patients of chronic respiratory disorders.[11] This study is totally concerned with Pakistani participants. There are 15 million children, and 7.5 million adults suffer from asthma in Pakistan.[12]

In Pakistan, quantity of pollution both air and water are increasing day by day. Drug addiction and cigarette smoking is also widespread, which enhance the disease occurrence in result we get psychological disorders as depression and anxiety which are more favorable for patients who are suffering from COPD and asthma.

Our study is conducted to show the occurrence of Anxiety and Depressive disorders among chronic asthmatic individuals.

This study will be helpful for those professionals who are involved with individuals suffering from Asthma.

Table 2. Clinical Characteristics of the Study population (n = 100)

Variables	Categories	f (M)	% (SD)
Duration of Illness	Less than 1 year	33	33.0
	1 to 2 years	15	15.0
	2 to 3 years	16	16.0
	Above 3 years	36	36.0
Treatment History	Regular	47	47.0
	Irregular	53	53.0
Medical comorbidity	Not present	57	57.0
	Hypertension	26	26.0
	Diabetes	8	8.0
	Hypertension & Diabetes	9	9.0
Family History of Asthma	Yes	62	62.0
	No	38	38.0

The patients who are affected from bronchial asthma can take help from this study to understand the disorders recognize the ways to cope with their health-related issues. The paper may provide some important information to the caregivers of the individuals with Asthma.

Hypotheses:

1: The Anxiety and Depressive disorder will be positively correlated to asthma.

2: Females with asthma will be more probable to have higher level of depressive symptoms than male patients.

Methodology

Research Design: Based on data collection technique a cross sectional survey method was used. In this design we can select participants of diverse ages to study at the same time. The important benefit of the cross-sectional study design is that a broad range of ages can be considered in a short period.

The following two scales were used including Hamilton anxiety rating Scale to examine level of anxiety in asthmatic patients and Hamilton depression rating Scale was used to assess levels of depression in asthmatic patients.

Sample Size: 100 Male and female participants registered at OPD for treatment were selected as sample.

Inclusion criteria:

Participants both male and female age ranges from 18 to 60 years were selected in the study. Those who

Table 3. Psychometric Properties of Study Major Scales

	Range							
Scales	K	A	Min	Max	M	SD	Skew.	Kurt.
ACT	5	.63	6	25	14.28	4.10	.42	-.21
HAMD	21	.75	2	34	18.85	7.28	-.35	-.30
HAMA	14	.79	1	46	23.74	9.53	-.21	-.23

Note. ACT = Asthma Control Test; HAM-D = Hamilton Depression Rating Scale; HAM-A = Hamilton Anxiety Rating Scale

have education level of secondary school and higher were selected.

Exclusion criteria:

All those patients were excluded from the study who have other medical conditions including hypertension, diabetes, lung diseases other than asthma, neurological diseases, physical disabilities, and those who underwent surgeries and accidents in the near past (2 months). Smokers and nonsmokers were included while Patients having other psychiatric diseases were excluded from the study.

Instruments

Pulmonary Function Test.[13] Spirometry test was used to assess presence of asthma levels.

Asthma Control Test.[14] ACT was used to assess symptoms severity of Asthma. The scale consists of 5 items. The questions on the scale identify for the symptom's severity of asthma in the last 2 weeks.

Hamilton Anxiety Rating Scale.[15] This scale was used to assess symptoms of anxiety disorder. HAM-A is clinician diagnostic anxiety rating scale applied to evaluate severity level of anxiety symptoms. HAM-A contains 14 items and is used to measures both psychological symptoms and somatic symptoms. This scale can be used with children, adolescents and adults. every item is scored on a scale of 0-4, 0 indicating not present and 4 indicating severe. The total score ranges from 0-56. Scores less than 17 indicates mild severity of symptoms, 18-24 indicates mild to moderate severity and 25-30 indicated moderate to severe. The test is administered in approximately 10- 15 minutes. The scale Cronbach's alpha (14 items scale) is.86.

Hamilton Depression Rating Scale 16. This scale was used to evaluate the level of severity of depressive disorder. HAM-D is clinician diagnostic rating scale generally used to evaluate severity of depression symptoms in the population including adults and children, male and females. The scale contains 21 items and measures severity of depression. This scale can be used with children, adolescents and adults. Each item is scored on a scale of 0-4, 0 indicating not present and 4 indicating severe. The higher the total scores on this scale, the more severe the depression. The test is administered in approximately 15-20 minutes. The scale Cronbach's alpha reliability (21 items scale) is.91.

Data Analysis

The results of this study were evaluated and analyzed by using SPSS Version 22.[17] Correlation was measured by Pearson correlation coefficient to find correlation between numerical variables and

Table 4. Prevalence of Depression and Anxiety among study Population (n = 100)

Variables	Categories	*f*	%
Depression	**Normal**	9	9.00
	Mild	14	14.00
	Moderate	19	19.00
	Severe	24	24.00
	Extreme	33	33.00
Anxiety	**Normal**	14	14.00
	Mild	6	6.00
	Moderate	33	33.00
	Severe	45	45.00

Spearman coefficient to find correlation between categorical variables. For numerical data analyses t-test was used to correlate the mean variation between the groups.

Ethical Considerations

Prior consent was taken from chief executive of the hospital. All the subjects were informed regarding main purpose of this research study. Inform consent form, demographic data sheets and questionnaires were distributed among the target population to collect data. All the participants were informed about data confidentiality; they were also assured that the data will not be shared but only for research purpose.

Procedure

Ethics standard committee of the hospital checked and approved all the procedures of the research and materials/ instrument used in this study. All participants of the current study were approached personally after prior permission of the high authorities of the hospital. Purpose of this research study was clarified in front of the research participants. Questions of the participants regarding the study were cleared. Informed consent from the participants was taken in written form. Then they were requested to fill demographic information sheet, and other scales were distributed by the researcher to fill out. All the participants were allowed to ask any queries for all complexities concerning about scales or any item or instructions of the measures. After data collection of the study all the participants and high authorities of the hospital were appreciated with thanks.

Table 5: Bivariate Correlations between the Asthma, Anxiety and Depression

Variables	1	2	3
1. Asthma	1		
2. Depression	-.45**	1	
3. Anxiety	-.37**	.69**	1

Table 6: Mean Difference between male and female asthmatic patients in terms of Anxiety and Depression (n = 100)

Variables	M	SD	M	SD	t (98)	p	LL	UL	Cohen's d
Anxiety	23.12	9.47	24.34	9.64	-63	.531	-5.04	2.61	0.13
Depression	18.39	7.05	19.30	7.53	-.62	.536	-3.82	1.99	0.12

Results

Table 1 shows the sociodemographic characteristics of the participants. A total of 100 patients suffering from asthma had mean age 38.60 and equal by gender and almost equal by area (rural 48%; urban 52%) were recruited for this study. Most of them were employed (40%) and housewife (40%). Similarly, most of them (69%) had family monthly income less than 10,000 Pakistani rupees. Further, most of them (60%) were living in joint family system. About half (45%) of the patients suffering from asthma were uneducated followed metric (14%) and primary (12%) level of education.

Table 2 shows the clinical characteristics of this research study participants. On the basis of duration about 1/3 (33%) had duration of illness less than one year, about 1/3 (31%) had duration of illness 2 to 3 years and 1/3 (36%) had duration of illness more than three years. A total of 53% were on irregular treatment. Most of them (57%) had no comorbid medical diseases, however, the hypertension was the most common comorbid disease. Morality of them (62%) had the family history of Asthma.

Table 3 shows the psychometric properties of the study major scales. The values of Alpha reliability were ranges .63 to .79 indicated that reliability is satisfactory. The values of skewness and kurtosis were less than ± 2, which shows that the data of all three scales were normally distributed. Therefore, the data was good for further parametric tests. Table 3 shows details.

Table 3 shows the occurrence of Depressive disorder and Anxiety symptoms among patients suffering from Asthma. The findings indicated that 91% patients had depression, off these majority of them (33%) had extreme depression followed by severe 24% and moderate 19%. Similarly, 86% patients had anxiety, off these majority had severe 45% followed by moderate 33%. (Table 3 shows details).

The results show that there is no significant mean difference between male and female asthmatic patients in terms of depression and anxiety (p>.05).

Discussion

Prevalence of anxiety especially the generalized anxiety disorders and panic attacks are more prevailing in patients with asthma and COPD. Brenes[18], found that 34 % patients with asthma met diagnostic criteria for anxiety disorders mostly generalized anxiety disorder and panic disorders. It is due to the negative life effects of the disease. Results of the present research reported that 33% of patient with asthma were found extremely depressed, 24% were found severely depressed, 19 % were found with moderate depression, 14% were found with mild depression, only 9% of patient with asthma and chronic obstructive pulmonary diseases were found with no depressive symptoms.

Moussas, et al,[19] accounted that individuals having asthma have a higher threat to develop severe anxiety and depression comorbidity. This study reported 49.2% of the sample had moderate or severe depressive episodes and 26.5% had anxiety related symptoms. Women with asthma were found with higher rate of anxiety symptoms and depression as contrast to men. Depression coexists among patient with asthma and its severity depends upon the condition of the disorder. The more chronic and severe the physical disorders the more severe will be the anxiety and depression. Chronic respiratory diseases develop chronic psychogenic pain, subjective stress and other difficulties including oxygen dependency and frequent visit to doctors and hospital administration. Anxiety and depressive disorder are also found among individuals who have moderate COPD symptoms. Psychological comorbidity also creates burden on patients to visit hospital frequently.[20]

Lavoie et al[21], also reported the parallel results. According to their results, anxiety and depressive disorders are independently and closely associated to asthma and other respiratory disorders. Another study by Marco, et, al[22], also supports results nearer to the current study. The mentioned study reported a significant association among a poor asthma control level and both depressive episodes and anxiety symptoms. According to them anxiety disorder and major depression are the most common disorders found in patients with asthmatic issues. Ciprandi et al[23] supports results of the current study. According to their results anxiety and depression represent the common comorbidity among patient having asthma and respiratory disorders. They reported that one third of asthmatic patients were suffering from anxiety while 10 % of the patients were also diagnosed with depression. Level of anxiety and depressive disorder was reported from mild to moderate in cases of controlled asthma but this level increases in cases of uncontrolled asthmatic situation.

Goodwin, Fergusson and Horwood[24] reported results of 21-year longitudinal research study. According to them there is a significant correlation between asthma and high level of nervousness and depression. Results of our present research study reported 45 % of the asthmatic patients were found with sever anxiety, 33% of patients were found with moderate anxiety while 6% were found mildly suffering from anxiety. Only 14% of asthmatic patients admitted to Mardan Medical Complex were found normal. Female were more affected as compare to male.

The more severe the asthma is the greater levels of anxiety are present among these patients.[22] There are two-fold chances of developing anxiety and depression among children and adults diagnosed as having asthma.[25]

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