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RESEARCH ARTICLE
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PREVALENCE OF DEPRESSION AMONG ASTHMATIC PATIENTS ADMITTED TO MEDICAL WARD DHQ TEACHING HOSPITAL BANNU

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Abstract

Introduction: Asthma is a chronic respiratory disease that significantly affects patients' quality of life. Psychological comorbidities, particularly depression, are increasingly recognized as important factors influencing asthma outcomes.

Objective: To determine the prevalence of depression among asthmatic patients admitted to the medical ward of DHQ Teaching Hospital Bannu.

Materials and Method: The descriptive cross-sectional study selected was carried out from June 2024 and December 2024. The sample was collected with 150 adult asthmatic patients in a consecutive method. Depression was measured in terms of the PHQ-9 scale. Demographics, asthma control, and the rate of exacerbation data were attained through data collection and analyzed using SPSS version 25.

Results: Depression was found in 60.7 percent of 150 patients. High levels of moderate to severe depression were found more commonly in patients who had poorly vice-controlled asthma with frequent exacerbations. Depressive symptoms were increased in female patients than in men.

Conclusion: Depression is highly prevalent among asthmatic patients and is associated with poor asthma control. Routine mental health screening is recommended.

Keywords: Asthma, Depression, Prevalence, Mental Health, PHQ-9, Bannu.

INTRODUCTION

Asthma is a long-lasting inflammatory condition of the breathing airway with changing respiration and restriction of airflow. It has a big impact on the lifespan quality of patients and stains load on healthcare systems. The psychological effects of asthma have gained more attention in the last few years, especially the prevalence of depression among patients with asthma. Depression is a frequent comorbidity linked to chronic diseases and associated with poor asthma outcomes that are not well recognized and treated in asthmatics (1). A local survey done among patients with asthma in the Jizan

region of Saudi Arabia found that the prevalence of depression among adults with asthma was quite high, and more localized evaluation should be done to clarify the extent of this problem in other locations (1). Besides co-occurring with asthma, depression can increase levels of morbidity and even mortality. A cross-sectional study showed that depression management forms an important component of asthma management as a large-scale cohort study showed that depression was significantly associated with mortality in people with asthma (2).

Anxiety and depression have also been identified to be increased among adolescents with asthma, and this means that this comorbidity is cut across all the ages that the patient can be and has to be dealt with in all stages of their life (3). Additionally, fatigue and psychological distress (depression and anxiety) are well-documented reports in patients with chronic respiratory diseases, including asthma, chronic obstructive pulmonary disease (COPD), and the asthma-COPD overlap syndrome; these further complicate the control of the diseases and outcomes of the patients (4). The major factors that were associated with enhanced anxiety and depression in adult patients included uncontrolled asthma, obesity, and allergic sensitization, which implies that the absence of asthma control can have direct effects on the state of mental health (5). The recent COVID-19 pandemic worsened mental manifestations in asthmatic patients because of a fear of infection, lack of access to healthcare, and social isolation, which further demonstrates the effect of environmental and contextual factors on the mental health of this population (6).

Socioeconomic and environmental factors such as housing status, pollution, and accessibility to medical care have also been cited as major predictors of asthma predominance, which may worsen the psychological distress in the affected groups (7). Interestingly, biological therapies have shown that interventions for severe asthmatics have reduced psychological distress, anxiety, and depression, and thus, physical health seems to have positive effects on the mental health of patients (8). Nevertheless, reduced access to medical services due to the COVID-19 lockdown harmed asthma management and worsened mental health concerns, further proving that continuity of care is an essential course of action in ensuring chronic disease management (9). In children, multivariate relations between depression, anxiety, and adverse asthma outcomes have been proven, which underlines the mutual relationship between emotional distress and the progression of the disease (10). However, another important factor is sleep disturbances, as poor sleep quality is a common problem among asthmatic patients who have been strongly linked with a higher level of depression or a lower quality of life (11). Sarcopenia was demonstrated to further contribute to mental disorders by increasing the prevalence of asthma and reducing the functioning of the lungs in older adults (12). Treatment of extrapulmonary comorbidities like depression and anxiety has been established as a promising component of overall asthma care, particularly due to its unimaginable effects on adherence and quality of life (13). Specific measures focusing on both mental health and asthma have demonstrated their effectiveness in alleviating symptoms and raising the overall health of the patients, and this fact indicates that combined treatment is not only possible but convenient (14).

The examinations of quality of life among asthmatic patients are well-documented to reveal that all three types of them are negatively influenced, including emotional, social, and occupational (15). The study of post-COVID symptoms also showed the same prevalence of lingering symptoms in patients with asthma as those without, showing that the mental health consequences of the pandemic are probably not unique to asthmatic patients but remain a major burden to them (16). The presence of childhood asthma comes with more problems since these children tend to experience co-morbid anxiety and depression, which contribute to poor symptom management and high healthcare service utilization, which means children need early screening and psychological intervention (17). Pediatric and adult patients described poorer mental health and increased symptoms of asthma during social isolation times and wearing face masks, demonstrating how individual health outcomes can be worsened by psychosocial stressors (18).

Additionally, comorbidities such as depression especially have significant contributions in difficult to control asthma, and a feedback loop of comorbid diseases and symptom response disease is often a barrier in successfully managing the symptoms, treating plans, and reducing overall patient outcomes (19). Considering this accumulating evidence, it emerges that the prevalence of depression in

asthmatic patients is not merely high but has a significant and far-reaching effect on the management of the disease, quality of life, and health-seeking. This requires an active and interdisciplinary approach in clinical practice, with regular mental health assessment and psychology-based interventions being incorporated into the practice of asthma management. This research carried out in the medical wards of DHQ Teaching Hospital Bannu, seeks to determine what proportion of asthmatic victims encounter depression at this particular facility to add to the international comprehension of this synergistic relationship and fill a gap in the local health condition.

Objective:
To identify the level of depression in asthmatics patients in medical wards of DHQ Teaching Hospital Bannu and also to see whether this may affect their overall illness management.

MATERIALS AND METHODS

Design: Descriptive Cross-sectional study.
Study setting: The study was carried out at the Department of Medicine, DHQ Teaching Hospital, Bannu.
Duration: The study was conducted over a period of six months, from June 2024 to December 2024.
Inclusion Criteria: The selection of patients involved all the patients in the medical wards aged 18 years and above who were diagnosed with bronchial asthma. All patients (male and female) were eligible except those who were not clinically stable or could not answer the questionnaire. Only the subjects who took informed consent were recruited.
Exclusion Criteria: Patients who previously had a psychiatric diagnosis or were already in the process of treatment for depression or other mood disorders were excluded. Also, patients with cognitive or other perennial debilitating diseases were excluded from the research.

Methods

The data of the asthmatic patients attending the medical ward of DHQ Teaching Hospital Bannu were obtained on a structured questionnaire and administered by trained staff during the study period. Depression was measured with the help of the Patient Health Questionnaire-9 (PHQ-9), which is a screening instrument for validated depressive symptoms. The sociodemographic information, clinical history, and level of asthma were also documented. The interview was conducted in a secret environment with each participant, and it was able to facilitate the witnesses to show their true feelings. PHQ-9 scores were collapsed into their severity of depression- minimal, mild, moderate, moderately severe, and severe. The data was analyzed and entered using SPSS 25. Descriptive statistics was used to evaluate the amount of people with and without depression and the percentage of them. Chi-square analysis was performed in assessing the associations between depression and factors like age, gender, severity of asthma, and duration of illness, whereby p-value <0.05 was found to be significant. The hospital research and ethics committee granted ethical approval to collect data before its collection took place.

RESULTS

A sample size of 150 asthmatic patients took part in the study with a perfect response rate of 100%. Eighty-eight participants (58.7 percent) were female, and 62 (41.3 percent) were male. The average age of the patients was 44.6 +/- 13.2 years old, with 42.7 % being in the age category of 41-60 years. Table 1 shows the distribution of sociodemographic variables.

Table 1: Sociodemographic Characteristics of Participants (n = 150)

Variable	Frequency (n)	Percentage (%)
Gender		
Male	62	41.3
Female	88	58.7

Variable	Frequency (n)	Percentage (%)
Age Group (years)		
18–30	22	14.7
31–40	34	22.6
41–60	64	42.7
>60	30	20.0
Education Level		
Illiterate	54	36.0
Primary	38	25.3
Secondary	28	18.7
Graduate and above	30	20.0

Regarding the clinical profile, 66 patients (44.0%) had a disease duration of more than five years. Poor asthma control was reported in 92 patients (61.3%), and 84 patients (56.0%) had frequent exacerbations in the past year. Table 2 summarizes the clinical features.

Table 2: Clinical Profile of Asthmatic Patients (n = 150)

Clinical Feature	Frequency (n)	Percentage (%)
Duration of Asthma		
<1 year	18	12.0
1–5 years	66	44.0
>5 years	66	44.0
Asthma Control		
Well-controlled	24	16.0
Partially controlled	34	22.7
Poorly controlled	92	61.3
Frequency of Exacerbations		
<2/year	66	44.0
≥2/year	84	56.0

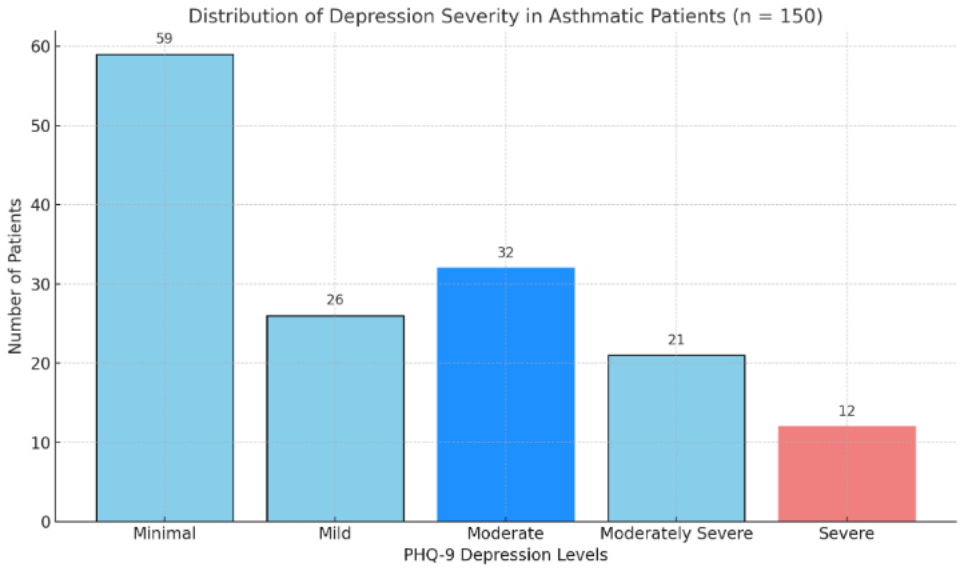
Depression was assessed using the PHQ-9 scale. Out of the total, 91 patients (60.7%) were found to have some degree of depression. Specifically, 26 (17.3%) had mild depression, 32 (21.3%) moderate, 21 (14.0%) moderately severe, and 12 (8.0%) had severe depression. Only 59 patients (39.3%) showed minimal or no depressive symptoms. These results are detailed in Table 3.

Table 3: PHQ-9 Depression Levels among Asthmatic Patients (n = 150)

PHQ-9 Depression Level	Frequency (n)	Percentage (%)
Minimal (0–4)	59	39.3
Mild (5–9)	26	17.3
Moderate (10–14)	32	21.3
Moderately Severe (15–19)	21	14.0
Severe (20–27)	12	8.0

A bar graph was constructed to visually demonstrate the distribution of depression severity among the participants.

Graph: Distribution of Depression Severity in Asthmatic Patients (n = 150)



Analysis has also revealed a strong correlation between poor asthma control and the increased PHQ-9 score ($p < 0.05$), which means poorly controlled asthma was connected to increased depression. Likewise, A brief closer examination of the frequency of exacerbations indicated that patients with high levels of exacerbations were inclined toward moderate to severe depressive symptoms. The prevalence of depression was also higher among the females (68.2%) than the males (50.0%), but this was not statistically significant. These results indicate a significant load of depression in asthmatic patients and the necessity of inclusive asthma management that includes the mental health test.

DISCUSSION

The current research works on exploring the frequency of depression among patients with asthma who were admitted to the medical ward of DHQ Teaching Hospital Bannu. The results indicated that a large percentage of reducing patients (60.7) exhibited depression of different levels: mild, moderate, and severe. This prevalence confirms the trends across the world and shows the necessity to include mental health screening as a part of asthma assessment and management on a regular basis. The results can also be explained by the publication of similar findings in a study in Saudi Arabia by Sumaily et al., who observed that adult asthmatics had a high prevalence of depression, which makes it one of the most common comorbidities in this patient group (1). The close association between depression and asthma is not unknown. Depression has the ability to contribute to asthma morbidity in a variety of ways, which include poor asthma medication compliance, symptom perception, and contributing factors to the worsening disease severity. Lin et al. showed how depression greatly doubles death rates among patients with asthma, and it highlights the severity of mental health on physical diseases (2).

Licari et al. also found the prevalence of both anxiety and depression to be high in adolescents, confirming that psychological comorbidities in asthma may start in childhood and progress into upward age brackets (3). The results indicate the persistence of the psychological crop in asthmatic people. The research does not only find consistency with Hometonwska et al. research but also confirms their findings that fatigue, anxiety, and depression are frequently reported by individuals with chronic respiratory diseases (4). Chronic stress of living with chronic illness, fear of abrupt relapses, and functional impairment might lead to depression in such patients. Bedolla-Barajas et al. pointed out that depression in such patients is more likely to occur in patients who have poor asthma control and suffer frequent exacerbation, which is encountered among the subjects, too (5).

The situation has made the mental health state even more complicated due to the COVID-19 pandemic. De Boer et al. indicated that asthma patients experienced heightened depression and anxiety symptoms because of being afraid of getting infected and having low access to healthcare

services as a result of the pandemic (6). The same researchers, Lotfata et al., also pointed to the importance of environmental and socioeconomic determinants in asthma and mental health, possibly placing at-risk patients in under-financed regions like Bannu at a heightened risk because of environmental factors and lack of supporting psychosocial environment (7). Surprisingly, Patella et al. demonstrated that biological therapies could not only result in the enhancement of asthma control but can also lead to confusion with the significant improvements in psychological distress, indicating that this is a mutual relationship between psychological well-being and physical health (8). Similarly, Sheha et al. have noted that reduced asthma control in the context of the COVID-19 lockdown was tightly connected to the mental health condition of the patients with a low level of asthma control linked to prevalent depression (9). This restates the importance of continuing with asthma management and monitoring of mental health even in a scenario of healthcare interruptions.

The results presented by Kulikova et al., Saragondlu Lakshminarasappa et al., and other pediatrics also reflect the reality in adults, as childhood asthma is often accompanied by depressive disorders and anxiety when it has an adverse effect on the further achievement of health outcomes related to poor asthma control (10, 17). It is considered that this raises the question of early intervention and demonstrates possible long-term advantages of addressing the psychological factors in early childhood. The findings were also supported by the role of sleep disturbances in asthmatic patients, as discussed by Alanazi et al. There were numerous exacerbations and poor sleep reported by many patients in the study, which is quite correlated with the rising depression symptoms (11). Hu et al. have classically examined the extra overload of sarcopenia in elderly patients who had asthma, which could potentially lead to more physical impairments as well as psychological disturbance subsequently (12). The management of extrapulmonary comorbidities, including depression, was also stressed by McLoughlin and McDonald as a way of realizing optimal asthma results, and the findings correlate with this claim (13).

The intervention-based studies allow the conclusion that proper treatment with a specific focus on managing depression in asthma patients may improve the quality of life and enable asthma control (14). This justifies the assumption that psychological comorbidity management is not just healthy mentally but is also crucial in the outcome of asthma. Kharaba et al. accentuated the multidimensional effect of asthma on the life of patients, emotional, physical, occupational, and social, all of them being a possible factor contributing to depression (15). The work by Fernandez-De-Las-Peasas et al. reveals the same post-COVID symptom rates in both asthmatic and non-asthmatic patients, indicating that the long-term psychological load might not be a characteristic of asthma but remain a significant factor in this population since they have their predisposed chronic conditions (16). The social isolation, which Maison et al. commented on, was also manifested in the environment, where insufficient family and community support can only worsen the patient's situation and cause more exposure to depression (18). Finally, Gaffin et al. mentioned that comorbid depression is the key element of hard-to-control asthma, and this fact once again supports the idea of taking care of mental health during the regular management of asthma (19).

CONCLUSION

This study threw light on a high incidence of depression in the sample of asthmatic patients who have been admitted to the medical ward of DHQ Teaching Hospital Bannu, with more than 60 percent of the survey population demonstrating depressive symptoms that are mild, moderate, or severe. The results identify the complex correlation between the level and control of asthma, exacerbations, and psychological distress. Depression among asthmatic patients adversely affects both emotional status and the course of the illness by negatively affecting treatment compliance and the use of health resources. The findings are consistent with local and international research, pointing to the necessity of a more comprehensive strategy in the management of asthma, which would entail the implementation of regular mental health screening. Timely intervention and combined physical and psychological health care may enhance the overall management of diseases and the quality of life of the patients. Healthcare providers are advised to emphasize the assessment of mental health as a

constitutive part of regular asthma care to capture its complex and efficient management to guarantee effective prevention of this chronic disease.

References

1- Sumaily MA, Tayel S, Noureldin EM. The prevalence of depression among adult asthmatic patients in Jizan region, Saudi Arabia. Egyptian Journal of Hospital Medicine. 2022 Mar 30;86(1):156-64.

2- Lin P, Li X, Liang Z, Wang T. Association between depression and mortality in persons with asthma: a population-based cohort study. Allergy, Asthma & Clinical Immunology. 2022 Apr 1;18(1):29.

3- Licari A, Castagnoli R, Ciprandi R, Brambilla I, Guasti E, Marseglia GL, Ciprandi G. Anxiety and depression in adolescents with asthma: a study in clinical practice. Acta Bio Medica: Atenei Parmensis. 2022 Mar 14;93(1):e2022021.

4- Homętowska H, Klekowski J, Świątoniowska-Lonc N, Jankowska-Polańska B, Chabowski M. Fatigue, depression, and anxiety in patients with COPD, asthma and asthma-COPD overlap. Journal of Clinical Medicine. 2022 Dec 16;11(24):7466.

5- Bedolla-Barajas M, Morales-Romero J, Fonseca-López JC, Pulido-Guillén NA, Larenas-Linnemann D, Hernández-Colín DD. Anxiety and depression in adult patients with asthma: the role of asthma control, obesity and allergic sensitization. Journal of Asthma. 2021 Aug 3;58(8):1058-66.

6- de Boer GM, Houweling L, Hendriks RW, Vercoulen JH, Tramper-Stranders GA, Braunstahl GJ. Asthma patients experience increased symptoms of anxiety, depression and fear during the COVID-19 pandemic. Chronic Respiratory Disease. 2021 Jun 30;18:14799731211029658.

7- Lotfata A, Moosazadeh M, Helbich M, Hoseini B. Socioeconomic and environmental determinants of asthma prevalence: a cross-sectional study at the US County level using geographically weighted random forests. International Journal of Health Geographics. 2023 Aug 10;22(1):18.

8- Patella V, Pelaia C, Zunno R, Pelaia G. Biologicals decrease psychological distress, anxiety and depression in severe asthma, despite Covid-19 pandemic. Respiratory Medicine. 2022 Aug 1;200:106916.

9- Sheha DS, Abdel-Rehim AS, Abdel-Latif OM, Abdelkader MA, Raafat RH, Sallam SA, Mostafa NS. Level of asthma control and mental health of asthma patients during lockdown for COVID-19: a cross-sectional survey. The Egyptian Journal of Bronchology. 2021 Dec;15:1-0.

10- Kulikova A, Lopez J, Antony A, Khan DA, Persaud D, Tiro J, Ivleva EI, Nakamura A, Patel Z, Tipton S, Lloyd T. Multivariate association of child depression and anxiety with asthma outcomes. The Journal of Allergy and Clinical Immunology: In Practice. 2021 Jun 1;9(6):2399-405.

11- Alanazi TM, Alghamdi HS, Alberreet MS, Alkewaibeen AM, Alkhalefah AM, Omair A, Al-Jahdali H, Al-Harbi A. The prevalence of sleep disturbance among asthmatic patients in a tertiary care center. Scientific Reports. 2021 Jan 28;11(1):2457.

12- Hu Z, Tian Y, Song X, Zeng F, Yang A. Associations between sarcopenia with asthmatic prevalence, lung function and comorbidity. BMC geriatrics. 2022 Aug 24;22(1):703.

13- McLoughlin RF, McDonald VM. The management of extrapulmonary comorbidities and treatable traits; obesity, physical inactivity, anxiety, and depression, in adults with asthma. Frontiers in Allergy. 2021 Sep 22;2:735030.

14- Cooley C, Park Y, Ajilore O, Leow A, Nyenhuis SM. Impact of interventions targeting anxiety and depression in adults with asthma. Journal of asthma. 2022 Feb 1;59(2):273-87.

15- Kharaba Z, Feghali E, El Husseini F, Sacre H, Abou Selwan C, Saadeh S, Hallit S, Jirjees F, AlObaidi H, Salameh P, Malaeb D. An assessment of quality of life in patients with asthma through physical, emotional, social, and occupational aspects. A cross-sectional study. Frontiers in public health. 2022 Sep 1;10:883784.

16- Fernández-De-Las-Peñas C, Torres-Macho J, Velasco-Arribas M, Arias-Navalón JA, Guijarro C, Hernández-Barrera V, Canto-Diez M. Similar prevalence of long-term post-COVID symptoms in patients with asthma: A case-control study. The Journal of Infection. 2021 May 3;83(2):237.
17- Saragondlu Lakshminarasappa D, Chandrasekaran V, Kandasamy P. Co-morbid anxiety and depression in childhood asthma and its effect on symptom control: A cross sectional study. Pediatric pulmonology. 2021 Feb;56(2):378-83.
18- Maison N, Herbrüggen H, Schaub B, Schauberger C, Foth S, Grychtol R, Abdo M, Watz H, Nikolaizik W, Rabe KF, Kopp MV. Impact of imposed social isolation and use of face masks on asthma course and mental health in pediatric and adult patients with recurrent wheeze and asthma. Allergy, Asthma & Clinical Immunology. 2021 Sep 16;17(1):93.
19- Gaffin JM, Castro M, Bacharier LB, Fuhlbrigge AL. The role of comorbidities in difficult-to-control asthma in adults and children. The Journal of Allergy and Clinical Immunology: In Practice. 2022 Feb 1;10(2):397-408.