

# DEPRESSIVE SYMPTOMS AMONG PATIENTS WITH ACUTE EXACERBATIONS OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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## ABSTRACT;

**Background;** chronic obstructive pulmonary disease (COPD) leads to significant morbidity and poor quality of life among patients. This study was conducted to evaluate depression among patients with COPD as there is no such study done in our population. **Objective:** To determine the frequency of depression among the patients with COPD presenting at a tertiary care hospital. **Material and methods;** A total of 196 patients with COPD were enrolled from department of Medicine, Nishtar Hospital, Multan, Pakistan in this cross-sectional study. The purpose of the study was explained to each patient and informed consent was obtained. Patient's basic data and demography was noted. All patients were interviewed for depression using HADS scale. Data were entered and analyzed using SPSS. **Results;** Of these 196 study cases, 124 (63.3 %) were male patients while 72 (36.7%) were female patients. Mean age of our study cases was  $53.89 \pm 10.01$  years (with minimum age of our study cases was 32 years while maximum age was 70 years). Mean age of the male patients was noted to be  $56.82 \pm 9.74$  years while that female patients was  $48.83 \pm 8.37$  years ( $p=0.000$ ). Our study results have indicated that majority of our study cases i.e. 116 (59.2 %) were aged more than 50 years. Of these 196 study cases, 94 (48 %) belonged to rural areas and 102 (52 %) belonged to urban areas. Monthly family income up to 35000 rupees was noted in 123 (62.8%) and 73 (37.2%) had monthly family income more than 35000 rupees. Diabetes was presented in 51 (26.0 %) of our study cases. Hypertension was present in 87 (44.4 %) of our study cases. History of smoking was noted in 66 (33.7%) of our study cases. Mean disease duration was  $19.68 \pm 8.36$  months and 129 (65.8%) had duration of illness more than 1 year. Mean HADS score was  $10.51 \pm 2.41$  and depression was present in 131 (66.8%) of our study cases. **Conclusion;** High frequency of depression was noted in our study among patients having chronic obstructive pulmonary disease (COPD). Depression was significantly associated with gender, hypertension, smoking and prolonged disease duration. All clinicians treating such patients should check such patients for depression. Early diagnosis of depression followed by early treatment can help to improve clinical outcome and decrease disease related morbidity.

**Keywords;** Frequency, depression, Chronic obstructive pulmonary disease.

## INTRODUCTION:

Chronic obstructive pulmonary disease (COPD), which is currently ranked fourth in the list of causes of global mortality, represents a considerable and potentially growing burden on health services worldwide. COPD is expected to become the fourth main cause of death and seventh cause of global disease burden by 2030. Around

2.5 million people die of this disease every year.<sup>1</sup> The most important factor leading to COPD is cigarette smoking. Other important risk factors include exposure to occupational dust, chemicals and hereditary alpha-1 antitrypsin deficiency.<sup>2</sup> COPD usually presents with shortness of breath, chronic cough which may or may not be productive and impaired exercise tolerance which usually gets worse during the disease exacerbations.<sup>3</sup> The management of COPD is symptomatic which involves both pharmacological and non pharmacological measures.<sup>3</sup> One of the important non pharmacological measures is pulmonary rehabilitation which includes patient education, exercise training and psychosocial support that is helpful in improvement of exercise capacity and quality of life.<sup>4</sup> The prevalence of Chronic Obstructive Pulmonary Disease (COPD) is constantly increasing, while its incidence is growing in old age. COPD is also a leading cause of morbidity worldwide, particularly in developing countries.<sup>5</sup> Whereas COPD is an obstructive and progressive airway disease, it is also associated with a significant reduction in physical activity, and psychological problems, all of which contribute to the patient's disability and poor health-related quality of life (HRQoL). Recently, emphasis has been placed on questionnaires designed to assess health status and prognosis in COPD<sup>6,7</sup>.

Chronic obstructive pulmonary disease has a significant impact on the quality of life of those with this condition and it impacts on patient's lives through restriction of activities, interference with sleep, and limitation of social life<sup>8,9</sup>. It is not surprising that COPD significantly affects the sufferer's mental health. During the past two decades, there has been increasing recognition that patients with chronic obstructive pulmonary disease (COPD) with three or more comorbidities are more likely to be frequently hospitalised and may die prematurely compared with COPD patients without comorbidities. Of such comorbidities, anxiety and depression contribute to a substantial burden of COPD-related morbidity, notably by impairing quality of life and reducing adherence to treatment<sup>10,11</sup>. A Chinese study has reported 35.7 % depression in patients with COPD<sup>12</sup>. A study from Karachi reported 15 % depression in COPD<sup>13</sup> while another study from Sukkur reported 72 % depression in COPD patients.<sup>14</sup>

## MATERIAL AND METHODS

One hundred and ninety six patients were selected from department of Medicine, Nishtar Hospital, Multan. Patients of COPD (FEV1/FVC <70% and  $\beta_2$ -agonist reversibility of predicted FEV1 of <15% and 200 ml) aged 30 – 70 years of either sex having disease duration for more than 6 months were enrolled in our study. Patients with brain tumors, known cases of epilepsy, patients with confusion secondary to exacerbation of COPD, patients with inability to comprehend and complete the questionnaire were excluded from our study. The purpose of the study was explained to each patient and informed consent was obtained. Patient's basic data and demography was noted. All patients were interviewed for depression using HADS scale. Hospital Anxiety And Depression Scale (HADS) is a fourteen item self report scale, seven items to detect depression and seven items to detect anxiety. Items are rated on a 4-point Likert-type scale ranging from 0 to 3. So the possible scores ranged from 0 to 21 for anxiety and 0 to 21 for depression. Responses from the patient are summed to provide separate scores for anxiety and depression. Cut off score for depression was equal or greater than 8/ 21 taken as depression positive. Data analysis was computer based by using SPSS version 20. Mean standard deviation was calculated for age of patients, HADS score and disease duration. Frequencies and percentages were computed for gender, age groups, monthly family income, residential status, depression, history of smoking, diabetes and hypertension.

## RESULTS;

Our study comprised of a total of 196 patients meeting inclusion criteria of our study. Of these 196 study cases, 124 (63.3 %) were male patients while 72 (36.7%) were female patients. Mean age of our study cases was  $53.89 \pm 10.01$  years (with minimum age of our study cases was 32 years while maximum age was 70 years). Mean age of the male patients was noted to be  $56.82 \pm 9.74$  years while that female patients was  $48.83 \pm 8.37$  years ( $p=0.000$ ). Our study results have indicated that majority of our study cases i.e. 116 (59.2 %) were aged more than 50 years. Of these 196 study cases, 94 (48 %) belonged to rural areas and 102 (52 %) belonged to urban areas. Monthly family income up to 35000 rupees was noted in 123 (62.8%) and 73 (37.2%) had monthly family income more than 35000 rupees. Diabetes was presented in 51 (26.0 %) of our study cases. Hypertension was present in 87 (44.4 %) of our study cases. History of smoking was noted in 66 (33.7%) of our study cases. Mean

disease duration was  $19.68 \pm 8.36$  months and 129 (65.8%) had duration of illness more than 1 year. Mean HADS score was  $10.51 \pm 2.41$  and depression was present in 131 (66.8%) of our study cases.

**Table No. 1**

**Stratification of depression with regards to gender.**

(n = 196)

Gender	Depression		P – value
	Yes (n=131)	No (n=65)	
Male (n=124)	75	49	<b>0.018</b>
Female (n=72)	56	16	
<b>Total</b>	<b>196</b>		

**Table No. 2**

**Stratification of Depression with regards to hypertension.**

(n = 196)

Hypertension	Depression		P – value
	Yes (n=131)	No (n=65)	
Yes (n=87)	19	68	<b>0.004</b>
No (n=109)	46	63	
<b>Total</b>	<b>196</b>		

**Table No. 3**

**Stratification of Depression with regards to disease duration.**

(n = 196)

Disease duration	Depression		P – value
	Yes (n=131)	No (n=65)	
Up to 1 Year (n=67)	51	16	<b>0.055</b>
More than 1 Year (n=129)	80	49	
<b>Total</b>	<b>196</b>		

**Table No. 4**

**Stratification of Depression with regards to smoking.**

(n = 196)

Smoking	Depression		P – value
	Yes (n=131)	No (n=65)	
Yes (n=66)	36	30	<b>0.011</b>
No (n=130)	95	35	
<b>Total</b>	<b>196</b>		

## DISCUSSION;

The global strategy for the diagnosis, management, and prevention of chronic obstructive pulmonary disease (COPD) defines COPD as a common preventable and treatable disease and its association with mental illnesses has been well established. Our study comprised of a total of 196 patients meeting inclusion criteria of our study. Of these 196 study cases, 124 (63.3 %) were male patients while 72 (36.7%) were female patients. Different studies in literature, have reported high male gender predominance. A study conducted by Waqas et al <sup>15</sup> from Islamabad also reported male gender predominance with 70 % male patients with COPD which is close to our study results. A study conducted in Karachi by Khan et al <sup>16</sup> also reported high male gender predominance with 80 % male patients. A study conducted by Ahmad et al <sup>17</sup> from Peshawar has reported female gender preponderance which is different from our findings. Maula et al <sup>18</sup> also reported 65.4 % male patients with COPD showing male gender predominance which is in compliance with our study results. Mean age of our study cases was  $53.89 \pm 10.01$  years (with minimum age of our study cases was 32 years while maximum age was 70 years). Mean age of the male patients was noted to be  $56.82 \pm 9.74$  years while that female patients was  $48.83 \pm 8.37$  years ( $p=0.000$ ). Our study results have indicated that majority of our study cases i.e. 116 (59.2 %) were aged more than 50 years. A study conducted by Ahmad et al <sup>17</sup> from Peshawar has reported  $62 \pm 13$  years mean age of the patients having COPD which is slightly higher than our findings. A study conducted by Iftikhar et al <sup>19</sup> from Peshawar has also reported similar results. A study conducted by Maula et al <sup>18</sup> from Bannu has also reported  $60.18 \pm 11.67$  years mean age which is close to our study results

Of these 196 study cases, 94 (48 %) belonged to rural areas and 102 (52 %) belonged to urban areas. Monthly family income up to 35000 rupees was noted in 123 (62.8%) and 73 (37.2%) had monthly family income more than 35000 rupees. Diabetes was presented in 51 (26.0 %) of our study cases. Hypertension was present in 87 (44.4 %) of our study cases. A study conducted by Mahishale et al <sup>20</sup> also reported 21.24 % diabetes in patients with COPD which is close to our study results.

History of smoking was noted in 66 (33.7%) of our study cases. A study conducted by Ahmad et al <sup>17</sup> from Peshawar has reported history of smoking was present in 37.5% which is in compliance with our study results. A study conducted by Iftikhar et al <sup>19</sup> from Peshawar has also reported 38 % smoking which is close to our findings.

Mean disease duration was  $19.68 \pm 8.36$  months and 129 (65.8%) had duration of illness more than 1 year. Mean HADS score was  $10.51 \pm 2.41$  and depression was present in 131 (66.8%) of our study cases. A Chinese study has reported 35.7 % depression in patients with COPD <sup>12</sup>. A study from Karachi reported 15 % depression in COPD <sup>13</sup> which is quite less than that of our study results. Another study from Sukkur reported 72 % depression in COPD patients <sup>14</sup> which is close to our study results.

## CONCLUSION;

High frequency of depression was noted in our study among patients having chronic obstructive pulmonary disease (COPD). Depression was significantly associated with gender, hypertension, smoking and prolonged disease duration. All clinicians treating such patients should check such patients for depression. Early diagnosis of depression followed by early treatment can help to improve clinical outcome and decrease disease related morbidity.

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