

Frequency and Severity of Chronic Obstructive Pulmonary Disease in Cigarette Smokers Attending Psychiatry Out Patients Department

Omer Muhammad Naeem, Talha Mahmud

Department of Pulmonology,
Shaikh Zayed Hospital, Lahore –
Pakistan

Address for correspondence Talha Mahmud

Department of Pulmonology,
Shaikh Zayed Hospital and
Federal Postgraduate Medical
Institute, Lahore - Pakistan
E mail: drmtalha@hotmail.com

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OMN TM conceived idea, TM drafted the study, OMN collected data, TM did statistics analysis and interpretation, Both critical review manuscript and approved final version to be published.

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The authors declare that there is no conflict of interest.

Abstract

Background: Chronic obstructive pulmonary disease (COPD) is one of the leading causes of morbidity and mortality worldwide. People with psychiatric illnesses are more prone to smoke and may develop obscure COPD which may remain undiagnosed because of over shadowing of psychiatric diseases. No local study is available regarding frequency and grades of severity of COPD in cigarette smokers' psychiatric illnesses so current research was undertaken.

Objective: This study was conducted to find out the frequency and severity of COPD in cigarette smokers attending the Psychiatry OPD.

Methodology: One hundred and eighty (180) patients with history of current or former cigarette smoking presenting to department of psychiatry were enrolled in the study. Patients underwent spirometry and COPD was diagnosed and severity was labeled according to Global Initiative for Chronic Obstructive Lung Disease (GOLD) criteria.

Results: A total of 180 patients were included in our study sampled with mean of 55.90 ± 7.80 ranged from 42 to 69. Forty six (46) patients (25.6%) among study population (n=180) had undiagnosed COPD. When sampled population was graded regarding severity of COPD, among 46 COPD patients (25.6%), 27 patients (15%) were in grade I, 9 (5%) were in grade II, 6 (3.3%) were in grade III and remaining 4 patients (2.2%) were in grade IV severity category.

Conclusion: Frequency of chronic obstructive pulmonary disease is high in cigarette smokers presenting to psychiatry OPD and grades of its severity showed correlation with duration of disease.

Key Words: Chronic Obstructive Pulmonary disease; Cigarette Smoker; Psychiatric illness; Spirometry

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Introduction

COPD is currently the third most basic reason for death on the planet earth.¹ COPD is characterized regarding blocking in airflow and operationalized as a low proportion of forced expiratory volume in 1st second (FEV1) to forced vital capacity (FVC). By a wide margin the most grounded hazard factors for air flow obstruction are smoking and introduction to ecological tobacco smoke, however numerous territories of the world with high death rates from 'COPD' still have low utilization of tobacco.² The circulation of COPD in Pakistan isn't equivalent to different nations as the infection most unequivocally connected with unregulated tobacco

utilization, yet it is more firmly connected with low societal position and destitution as demonstrated in an ongoing investigation of USA.³ The heft of studies investigating mortality in patients with COPD have predominantly centered on physiologic prognostic variables. In the previous decade, an expanding number of prognostic investigations have shown that emotional wellness issues additionally contribute essentially to mortality chance in COPD. Sorrow is an especially solid indicator for mortality in COPD (chances proportions extending from 1.9 to 2.7) and its prescient capacity continues well beyond the impacts of other prognostic variables, including physiological components, segment elements, and

sickness seriousness.⁴

In a current publication which was population based with respect to COPD predominance and its determinants in Bangladesh, the pervasiveness of COPD was 13.5% by GOLD criteria. The greater part of the COPD cases were arranged by the two criteria. Milder cases (Stages I and II) were over evaluated by the GOLD fixed criteria, however progressively serious cases (Stages III and IV) were comparatively classified. While in a Saudi report, in general pervasiveness of COPD in Saudi Arabia was 4.2%. Male, expanding age and smoking were the principle chance variables for COPD. An investigation done on 444 current and ex-smokers at the hour of concentrate reasoned that 70 patients had COPD (15.8%).⁵ Psychiatric disorder lead to expanded utilization of smoking in our populace. Presently no investigation is accessible with respect to recurrence and seriousness of COPD in our populace experiencing mental ailment. This recurrence and seriousness of interminable obstructive pneumonic malady in cigarette smokers introducing to psychiatry OPD may prompt early analysis and brief treatment of COPD and henceforth decrease in grimness and mortality.

Methodology

It was a cross sectional study which was carried out in a duration of six months. It was decided to select Department of Psychiatry, Shaikh Zayed Hospital Lahore for collection of the data. Due to availability of patients, non-probability purposive sampling method of sampling was used. The calculated sample size is 180 using expected prevalence of chronic obstructive pulmonary disease 15.8% at 95% confidence level and 5.5% margin of error

Patients were recorded for the basic demographical information. Inclusion criteria was either sex, age 40 to 70 years, current or former cigarette smokers and patient attending psychiatric OPD for psychiatric disease. While it was made sure to follow the exclusion criteria too for selection of most appropri-

ate patient for the study. Exclusion criteria was consisted on patients previously diagnosed as having asthma, bronchiectasis, lung fibrosis, chest deformities or pleural effusion etc., frail patients unable to perform spirometric maneuvers, patients having severe systemic illness like ESRD (GFR < 15ml/kg/m²) Chronic liver disease with childpugh class C, heart failure and altered sensorium due to neurological disease, nonconsenting, uncooperative or with severe psychiatric illness (subjective assessment by researcher)

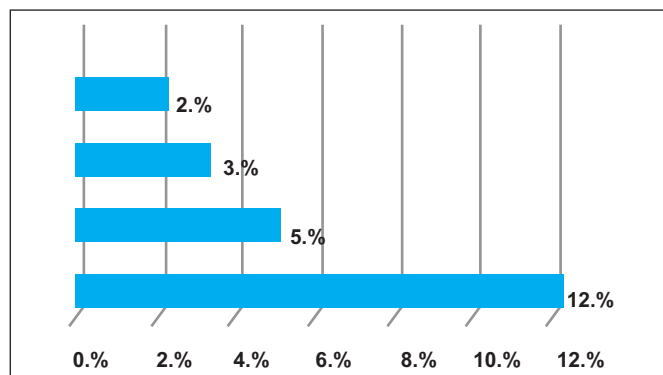
Diagnosis and severity of COPD was labeled according to global initiative for chronic obstructive lung disease (GOLD) criterion 2007 (updated 2019). All patients undergoing spirometry were labeled as having COPD if there is post-bronchodilator ratio of Forced Expiratory Volume in 1st second (FEV1) to Forced Vital Capacity (FVC) FEV1/FVC=70%. Severity of COPD was labeled as following:

- I: Mild COPD: FEV1 ≥ 80% predicted
- II: Moderate COPD: FEV1 ≥ 50% to 79% predicted
- III: Severe COPD: FEV1 ≥ 30% to 49% predicted
- IV: Very severe COPD: FEV1 < 30% predicted

All the data collected was entered and analyzed using SPSS version 20. Qualitative variables like gender of patients, frequency and severity of COPD was presented in form of frequencies and percentages. Quantitative variables like age was presented as mean ± S.D. Frequency and severity of COPD was stratified for age, gender and smoking pack years and psychiatric illness. Post stratification chi square test was applied and a p-value ≤ 0.05 was considered significant.

Results

180 patients were included in our study sampled with mean of 55.90 ± 7.80 ranged from 42 to 69. 156 patients (86.7%) were male and remaining 24 patients (13.3%) were female. Only 46 patients (25.6%) among



Graph 1. Graphical Presentation for the Severity of the COPD in the Study Population

Table 1. Presentation of the Basic Demographical Information of the Study Population

Description		Frequency/Mean	Percentage/Sd
Age		55.90	7.80
Gender	Male	156	86.7
	Female	24	13.3
COPD	Yes	46	25.6
	No	134	74.4
Smoking history	<5	100	55.6%
	5-10 Year	64	35.6%
	>10 Year	16	8.9%

study population (n=180) had COPD. When sampled population was graded regarding severity of COPD, among 46 COPD patients (25.6%), 27 patients (15%) were in grade I, 9 (5%) were in grade II, 6 (3.3%) were in grade III and remaining 4 patients (2.2%) were in grade IV severity category (Graph 1). Smoking history showed 100 patients (55.6%) were smoking for less than 5 years, 64 (35.6%) were smoking up to 10 years and below whereas 16 patients (8.9%) were smoking for more than 10 years. It was observed that psychiatric diseases, 117 patients (65%) had mood disorder, 49 (27.2%) were having sleep disorder and rest of 14 (7.8%) had affective. (Table 1) There was no significant impact of age, smoking and psychiatric disease but gender has impact on the presence of COPD shown in Table 2.

Discussion

Psychiatric diseases lead to increased consumption of smoking in our population. Currently no study is available regarding frequency and severity of COPD in our population suffering from psychiatric illness. This

frequency and severity of chronic obstructive pulmonary disease in cigarette smokers presenting to psychiatry OPD may lead to early diagnosis and prompt treatment of COPD and hence reduction in morbidity and mortality.

In our study, only 46 patients (25.6%) among study population (n=180) had COPD. Routine screening spirometry is generally not indicated for adults who have none of the features suggestive of COPD (e.g. no dyspnea, cough, sputum production or progressive decline in activity), as asymptomatic mild airflow obstruction does not require treatment.

Asymptomatic and nonsmoking subjects with mild airflow obstruction, but no history of asthma, do not have the same progressive decline in lung function that is observed among individuals who have a similar degree of airflow obstruction and are symptomatic or continue to smoke. But results of current study imply that screening program for smokers with comorbid conditions should be screened for chronic obstructive lung diseases.⁶

Table 2. Impact of the Contributing factor on the Onset of the COPD and its grades of severity

Factor	Group	COPD	P-Value	Grades of the Severity of COPD				P-Value
				I	II	III	IV	
Age	<55Year	27 (29%)	0.26	18 (67%)	5 (18%)	2 (0.07%)	2 (0.07%)	0.48
	>55 Year	19 (21%)		9 (47%)	4 (21%)	4 (21%)	2 (10%)	
Gender	Male	45 (40%)	0.01	26(58%)	9 (20%)	6 (13%)	4 (8%)	0.86
	Female	1 (0.01%)		1 (1%)	0 (0%)	0 (0%)	0 (0%)	
Smoking	<5 year	31 (31%)	0.14	18 (58%)	5 (16%)	6 (19%)	2 (6%)	0.49
	5-10 year	11 (17%)		6 (54%)	3 (27%)	0 (0%)	2 (18%)	
	>10 year	4 (25%)		3 (75%)	1 (25%)	0 (0%)	0 (0%)	
Psychiatric Disease	Mood Disorder	28 (23%)	0.79	16 (57%)	6 (21%)	4 (14%)	2 (7%)	0.58
	Sleep Disorder	14 (28%)		9 (64%)	1 (7%)	2 (14%)	2 (14%)	
	Affective	4 (28%)		2 (5%)	2 (5%)	0 (0%)	0 (0%)	

Results of current study imply an increased frequency of chronic obstructive pulmonary disease in patients with psychiatric morbidities when compared with results of previous studies. A study by Diaz JJ et al done on 444 current and ex-smokers at the time of study concluded that 70 patients had COPD (15.8%).⁷ In a recently published population-based data on COPD prevalence and its determinants in Bangladesh, the prevalence of COPD was 13.5% by GOLD criteria. More than half of the COPD cases were stage II COPD by both criteria. Milder cases (Stages I and II) were over estimated by the GOLD fixed criteria, but more severe cases (Stages III and IV) were similarly classified.⁸ While in a Saudi study, overall prevalence of COPD in Saudi Arabia was 4.2%. Male, increasing age and smoking were the main risk factors for COPD.⁹

There was no change in distribution of disease in different age groups. Same stands true for severity. There was statistically non-significant difference among different age groups regarding frequency and severity of chronic obstructive pulmonary disease.

Conclusion

It is concluded that frequency of chronic obstructive pulmonary disease is high in cigarette smokers presenting to psychiatry OPD and grades of its severity depends on duration of disease. Health education and screening may play a part in reducing the burden.

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