

COPD (CHRONIC OBSTRUCTIVE PULMONARY DISEASE): ITS COMORBIDITY AND OTHER RESPIRATORY PROBLEMS IN SELECTED TERTIARY CARE HOSPITALS OF PESHAWAR, KP

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ABSTRACT

Background: COPD (Chronic obstructive pulmonary disease) is a chronic inflammatory disease that causes obstructed airflow from the lungs. Many studies have been done to investigate the association of COPD between smokers and non-smokers. Most studies showed that smokers are more prone to COPD; common comorbidities associated with COPD include hypertension, Diabetes etc.

Objectives: To determine the frequency of COPD among smokers and non-smokers, observe the prevalence of comorbidities in COPD, and evaluate general characteristics of COPD in selected tertiary care hospitals of Peshawar.

Methodology: A cross-sectional study was conducted in selected tertiary care hospitals of Peshawar from January 2018- January 2019. COPD patients from pulmonary wards were included in the study by a random sampling technique. The Data from patients was collected through self-prepared questionnaires and analyzed for descriptive statistics using SPSS version 20.

Results: It was seen that COPD, along with coughing, chest tightness and shortness of breath, is more common in patients having a family history of COPD for 1-5 years, while phlegm with wheezing or whistling is more common in patients with COPD for 6-10 years. Comorbidities include hypertension (14.3% in 50 patients), kidney problems (3.2% in 50 patients).

Conclusion: COPD is prevalent in males of age group (41-50 years) with a percentage of 84%. Its major cause is smoking in most of the individuals. Other associated conditions such as hypertension diabetes, asthma, depression, and cardiovascular disorders also contribute to the development of COPD. It can be prevented by cessation of smoking, distancing oneself from people with chest infections and taking part in physical activity.

Keywords: COPD, comorbidity, Respiratory problems

INTRODUCTION:

COPD stands for chronic obstructive pulmonary disease (COPD), a term used to describe progressive lung disease and includes emphysema and chronic bronchitis.¹ Chronic bronchitis is caused by damage to bronchial tubes and causes a chronic cough with mucus. Emphysema refers to when the alveoli are damaged; the walls between the alveoli are destroyed, turning many tiny air sacs into single larger air sacs. COPD is a progressive disease and characterized mainly by shortness of breath.²

Chronic obstructive pulmonary disease (COPD) frequently coexists with other comorbidities.³ Coronary artery disease, diabetes mellitus, hypertension, osteoporosis, muscle weakness and psychological disorders are some comorbidities that have been observed in COPD patients⁴ and can be expected at any stage of the disease. An observational study conducted on 213 COPD patients showed that 97.7% of patients had one or more comorbid diseases while 54% had at least four comorbid

conditions.⁵

COPD is one of the leading causes of morbidity and mortality globally, responsible for a significant growing economic and social burden.⁶ According to recent literature, COPD was the third leading cause of death in 2020.⁷ In the coming decades, COPD is expected to increase due to exposure to risk factors and its prevalence in the elderly population. Major COPD risk factors include tobacco smoking, outdoor and indoor air pollution and occupational pollution due to biomass fuels or wood burning.⁸

Based on our literature review, very few studies has been done in Pakistan, regarding the prevalence of comorbidities such as cardiovascular, musculoskeletal and also psychological comorbidities that contribute to various symptoms, exacerbations, hospital admissions and mortality.⁹ Moreover, there is no sufficient data available regarding the general characteristics such as family history, coughing up phlegm, wheezing or whistling while breathing, shortness of breath and chest tightness in COPD patients.¹⁰ Thus, investigating the prevalence of COPD in non-smokers in comparison to smokers is

an additional area of research in this domain since tobacco smoking is a significant risk factor of COPD.¹¹ One study found that clinicians and researchers will be able to identify and better understand common comorbidities and general characteristics. Hence, it will help them in the management of multi-diseased COPD patients and also provide information regarding the contribution of tobacco smoking as a risk factor to COPD.¹²

Owing to these knowledge gaps, this study was conducted. The objective of this study was to investigate the prevalence of comorbidities and evaluate the general characteristics of COPD patients. Furthermore, it aimed to investigate the prevalence of COPD in non-smokers as compared to smokers.

METHODOLOGY

A cross-sectional study was conducted in the tertiary care hospitals of Peshawar (KTH, NORTHWEST, and RMI) for COPD from January 2018- to January 2019. 50 COPD patients from pulmonology wards were included in the study. The tool used for data collection was self-prepared questionnaires. After getting consent from the participants, the questionnaire was given, and study explained to them. The questionnaire consisted of information regarding smoking status, general characteristics, severity level, symptoms, family history, phlegm production, color, and comorbidities of COPD. All COPD patients, admitted to the wards were included in the study whereas critically ill and those not willing to participate were excluded from this study.

RESULTS

Table 1 - Demographic data of COPD patients

Demographics	Frequency	percentages
Age Category		
30-40 years	6	12%
41-50 years	22	44%
51-60 years	10	20%
61-70 years	6	12%
71-80 years	4	8%
81-90 years	2	4%
Gender		
Male	42	84%
female	8	16%
Smoking status		
Yes	34	68%
no	16	32%
Education		
Yes	22	44%
no	28	58%

COPD is most prevalent in age group 41-50 years (44%). 42 patients representing 84% of the participants were male. 34 representing 68% of the patients had a history of tobacco smoking. (Table 1)

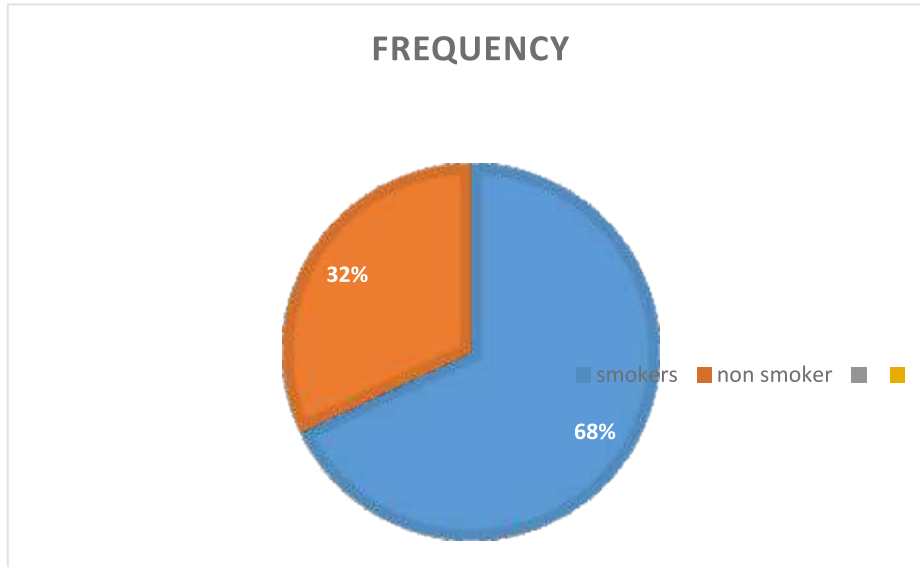


Fig 1 – Percentage of smokers and non-smokers among COPD patients

In the given pie chart, 68% of patients having COPD were smokers, and 32% of patients were non-smokers

Table 2 - General characteristic of COPD

Time since diseased				
Features	1-5 years	6-10 years	11-15 years	16-20 years
Family history				
Yes	7	11	1	1
no	16	9	4	1
Cough up phlegm				
Yes				
no	14	10	3	1
	9	10	2	1
phlegm color				
green	6	6	2	1
white	11	5	1	1
yellow	6	8	1	0
Wheezing or whistling when breathing				
Yes				
no	4	4	0	0
	19	16	5	2
Chest tightness				
Yes				
no	14	13	2	1
	9	7	3	1
Shortness of breath				
Yes				
no	13	8	3	2
	10	12	2	0

It was seen that a family history of COPD is most common in patients who had COPD for the last 1-5 years. The study shows that the coughing up phlegm is more common in patients who had COPD for the last 1-5 years. The phlegm which was coughed up had different colors and it was seen that the white paint was more common. Study shows that wheezing or whistling when breathing is expected in two groups who had COPD for the last 1-5 years and 6-10 years, whereas chest tightness and shortness of breath are found among those patients who had COPD for the last 1-5 years. (Table 2)

Table 3 - Frequency of comorbidities among COPD patients

Comorbidities	Frequency	percentage
Hypertension	27	14.3%
Diabetes	25	13.2%
Asthma	25	13.2%
Depression	18	9.5%
Gastroesophageal reflux	18	9.5%
infection	15	7.9%
Heart problems	10	5.3%
Sleeping problem	12	6.3%
Kidney problem	6	3.2%

This study shows that the most common comorbidities with COPD were hypertension with 27 patients among n=50 (14.3%), and the least common was kidney problems with six patients among n=50 (3.2%). (Table 3)

DISCUSSION

A structural and comprehensive literature review was done to identify published data on COPD's prevalence, incidence, and comorbidities. Our Study comprises 50 patients, among which the most prevalent age group was 41-50years, showing a considerable burden of COPD ageing population. According to a Japanese study conducted in Tokyo, Japan, the meta-analysis using epidemiologic data from 28 countries indicates that COPD prevalence based on spirometry is 9 to 10% in those over 40 years of age.¹³ The study conducted in the United States indicates that Cigarette smoking is the leading cause of chronic obstructive pulmonary disease (COPD) in the United States; however, an estimated one-fourth of adults with COPD have never smoked.¹⁴ Based on the literature review, it was noted that COPD is not an individual disease but an associated risk factors of diseases like hypertension, diabetes, and kidney diseases, etc. The current study shows that the most common comorbidities with COPD were hypertension, with 27 patients among n=50(14.3%). And the least common was kidney problems with six patients among n=50. The Study proves that the most common characteristics of COPD were dyspnea and chest tightness.

Comorbidities such as cardiac disease, diabetes mellitus,

hypertension, osteoporosis, and psychological disorders are commonly reported in patients with chronic obstructive pulmonary disease (COPD) but with significant variability in reported prevalence.¹⁵ According to research conducted in 2013; the most common symptom in COPD patients is dyspnea. The review provided a wealth of data about COPD prevalence in the USA, UK, Germany, and Spain. Our study shows that 68% of patients with COPD were smokers, and 32% of patients were non-smokers, proving that COPD is more prevalent in smokers.¹⁶

Almost 50% of the world's total population use biomass fuel as the primary energy source for domestic cooking, heating, and lighting. Women use 17 Inferior quality stoves and poorly ventilated indoors in rural areas for cooking purposes. Such an extent of exposure to biomass fuel combustion products makes women and household members vulnerable to COPD. Social beliefs and alternative medicines (such as homoeopathic, Ayurvedic) could be the other possible reasons.¹⁷ Further studies are required on non-smokers who developed COPD, as very less is known about it.

Conclusion and limitations: This study concluded that COPD is common in males (84%), with the most prevalent group being between 41-50 years. Smoking is the primary cause in the

majority of individuals. The most common comorbidity associated with COPD was hypertension (14.3%), and others such as diabetes, asthma, depression, gastroesophageal reflux, and heart problems were less common. Smoking cessation, management of environmental exposure, avoiding close contact with people having a chest infection, and physical activities can help prevent COPD.

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This research was not without its limitations. The sample size was small as the study was limited to only three hospitals. Shortage of time, availability of COPD Patients and scant literature regarding comorbidities of COPD were other problems faced during the research.

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