

# Age and Gender Profile of Chronic Obstructive Pulmonary Disease (COPD) Patients in Punjab, Pakistan

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## ABSTRACT

**Objectives:** To determine the frequency and severity of Chronic Obstructive Pulmonary Disease in patients presenting in a tertiary care hospitals of Punjab, Pakistan

**Study Design:** Cross-sectional study.

**Place and Duration of Study:** This study was conducted at the Department of Medicine, Services, Mayo and Shalimar Hospitals from 1<sup>st</sup> January 2015 to 31 December 2016.

**Materials and Methods:** This cross-sectional, population-based study was carried out in different tertiary care Hospitals of Punjab. Sample size of 3516 patients were included in the study. Patients of COPD of age >40 years were selected in the study. The end result of this exercise was formation of four categories of subject populations.

**Results:** Women comprised 45% of subjects while men were 55% in the screened group. There were 57% patients of age 40-49 years, 31% were 50-59 years and 12% were >60 years age. Among men 21.4% smoked cigarettes, out of which 79.1% smoked >10 pack years.

**Conclusion:** The frequency and severity of COPD patients is increasing in Punjab.

**Key Words:** Chronic obstructive pulmonary disease, COPD

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## INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is commonly known as airflow obstruction that is irrevocable.<sup>1,2</sup> In the next decade, COPD will be the 3<sup>rd</sup> killer all over the world.<sup>3</sup> COPD is one of the main cause of mortality all over the world, particularly among smokers.<sup>4</sup> For various factors, the number of disorientated COPD patients has recently increased.<sup>5</sup> COPD patients are at risk for other comorbid diseases, including ischemic heart disease, coronary heart disease, heart failure and neuropsychiatric diseases.<sup>6</sup> Acute or chronic tuberculosis may also be associated with COPD even in developed countries.<sup>7,8</sup> The current paper is part of a larger study and concerns the prevalence of COPD in Punjab.

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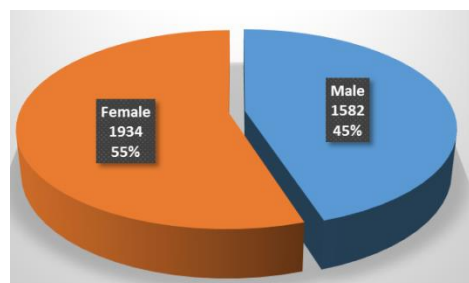
## MATERIALS AND METHODS

The cross-sectional, observational, population-based survey of COPD was carried out from 1<sup>st</sup> January 2015 to 31<sup>st</sup> December 2016. This multicentre study was conducted in different tertiary care hospitals of Punjab. The present study was concerned with the Punjab data only, which is the largest province of Pakistan according to population size. The sample size of was 3516 was included. Subjects who were at least 40 years and whose participation in the study was agreed upon to were enrolled. Excluded were non-resident subjects of Punjab recently shifted or expatriates of less than six months, or who were mentally ill were excluded. The end result of this exercise was formation of four categories of subject populations. The first category (COPD) population fulfilled the smoking criterion and either the symptom criterion or the diagnosis criterion. The second category "possible COPD" fulfilled either the smoking criterion or the symptoms criterion or the diagnosis criterion. The third category (Non-COPD) did not fulfil any of these criteria. The fourth category (potential COPD) fulfilled at least one of these criteria that is "COPD" population and "possible COPD" population. "COPD" population was subjected to a more detailed telephone questionnaire regarding cost of disease and also severity of COPD questionnaire. Spirometry was offered to a randomly selected subgroup of subjects in the "potential COPD".

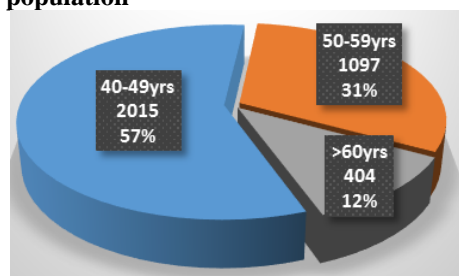
Furthermore health status using the COPD Assessment Test (CAT) was done. Data are presented as mean with standard deviations (SD). SPSS Version 17 was used for all statistical analysis. Prevalence rates were calculated by dividing the total number of positively screened subjects by the total number of screened subjects.

## RESULTS

Total 3516 people were screened and recruited in the study. Women comprised 45% of whole sample while men were 55%. There were 57% aged 40-49 years, 31% were 50-59 years and 12% were >60 years group. A total of 8.5% patients reported COPD related symptoms, out of which 1.8% had productive cough, 6.4% had breathlessness while 1.6% had both breathlessness and cough. Among women 9.2% patients had COPD related symptoms, 1.1% patients had productive cough, 8.4% patients had breathlessness alone while 2.3% had both breathlessness and productive cough. Among men 21.4% smoked cigarettes, out of which 79.1% smoked >10 pack years. In men 7.7% patients had COPD related symptoms, out of which 4.8% patients had productive cough, 5.1% patients had breathlessness while 1.3% patients had both breathlessness and productive cough. In the study sample, 62.1% patients had comorbid conditions, 6.7% patients had poor health, 54.6% had fair health, 19.1% patients were in good health while 19.6% had excellent health. About 45% patients had lung function tests done one year before while 55% patients had done lung function tests done in the last year. About 40.2% patients experienced acute exacerbations.



**Figure No.1: Gender distribution of study population**



**Figure No. 2: Age distribution of the study population**

## DISCUSSION

The increase in incidence of COPD is primarily associated with widespread of tobacco revelation and increase in air pollution in Asian countries. In Asian, the burden of COPD related comorbidities and mortality, is currently more as compared to developed countries in other regions of the world.<sup>9</sup> In our study there were more male patients as compared to females, which is in contrast to already published literature which showed that females are at more risk of developing COPD as compared to men.<sup>10</sup> The incidence of COPD was higher in men (3.54; 95%CI 3.33–3.77) than in women (2.34; 95%CI 2.17–2.52), and the overall baseline prevalence of COPD was 3.02% (95%CI 2.94–3.10).<sup>11</sup> This is probably due to cultural and social factors where smoking is seen as a predominantly male habit. The presentation in women with COPD may be entirely different.<sup>13</sup> The current study shows that gender-related differences do exist in COPD patients. Understanding these differences in etiological agent and clinical picture will help early diagnosis of COPD in females.<sup>12</sup>

One of the major factor for COPD is tobacco smoking which is highest in developed countries. In females of the developing countries, where natural fuels are used for cooking and heating at homes, different researches have showed an association between exposure to smoke of these fuels with COPD.<sup>13</sup> Major difference was observed in methodology of previous researches to find the prevalence of COPD estimates, accounting for a large amount of controversies in available evidence. From a global viewpoint, one meta-analysis of population-based studies reported a pooled prevalence for COPD, from 1990 to 2004 reported, as 9.8% males and 5.6% females.<sup>14</sup> A very well methodologic research conducted in America spirometry showed that the age-adjusted prevalence was higher in males as compared to females in every city sampled, ranging from 11.4%-23% males and 7.5%-11.6% in females in USA.<sup>15</sup> The prevalence of COPD in the general population is estimated to be ~1% across all ages rising steeply to >10% amongst those aged ≥40 yrs. The prevalence climbs appreciably higher with age.<sup>16</sup>

In the present study almost 57% patients were in the 40-49 age group. Again other workers have documented only 56.4% in Russia<sup>17</sup> and 3.5% in Japan.<sup>18</sup> More studies are needed to explain this but dietary and genetic factors may be implicated. Our smoking rate (21.4%) was less then reported by other workers in Europe (15.3%).<sup>19</sup> The prevalence of COPD have increased to 384million in last decade, with a worldwide prevalence of 11.7% (95% CI; 8.4–15.0%). This increase is due to global demographic variabilities. The highest prevalence was seen in Americans (from 13.3-15.2% during 1990-2010), and the lowest in South East Asia (form 7.9-9.7% during 1990-2010). This

percentage increase was the highest in Eastern Mediterranean region (118.7%), afterward African region (102.1%) while in European region, it was lowest (22.5%). In 1990, about 120.9million COPD patient (13.2%) were estimated in urban area and 106.3million (8.8%) in rural areas. In 2010, there were >230million COPD cases in urban areas (13.6%) and 153.7million in rural area (9.7%). The overall prevalence in males aged  $\geq 30$  years was 14.3% (95% CI; 13.3–15.3%) compared to 7.6% (95% CI; 7–8.2%) in females.<sup>20</sup>

## CONCLUSION

The frequency and severity of COPD among Punjab patients is increasing on the consistent steep rise with significant health consequences. Smoking and pollution are the two main causes of COPD among adult population.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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