

## To Assess the Prevalence and Incidence of COPD among Smokers and Non-Smokers at a Tertiary Care Teaching Hospital

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### ABSTRACT

**Background:** The third leading cause of death in the world is COPD. It is caused primarily by cigarette smoking. The present study was conducted to assess the prevalence and incidence of COPD among smokers and non-smokers.

**Material and Methods:** The present prospective population-based cohort study was conducted to investigate the prevalence and incidence of chronic obstructive pulmonary disease. The 150 participants of age group 30-50 yrs were selected over a period of 6 months. Participants were initially interviewed at home for information on their health status. Trained research assistants collected information from the participants. The study was approved by the Ethical Committee. All participants gave their written informed consent and permission to retrieve information from treating physicians. Statistical analysis was performed using SPSS statistical software.

**Results:** In our study total participants were 150, in which 90(60%) were male and 60(40%) were females. Out of the 150 participants, 47(31.33%) were smokers, while 103(68.66%) were non-smokers. Out of the Smokers, 24(51.06%) were COPD patients. On the other hand, 14(13.59%) of the non-smokers were COPD patients.

**Conclusion:** Our study concluded that COPD was more prevalent in smokers.

**KEYWORDS:** COPD, Smokers, Non-Smokers.

### INTRODUCTION

Chronic Obstructive Pulmonary Disease (COPD) is the third leading cause of death.<sup>1</sup> COPD is characterized by persistent airflow limitation that is typically progressive and associated with an enhanced chronic inflammatory response in the airways and lung tissue to harmful particles or gases.<sup>2</sup> The chronic airflow limitation in COPD is caused by the combination of parenchymal destruction (emphysema) and small airways disease (obstructive bronchiolitis), of which the relative presence varies from person to person.<sup>2</sup> Globally, chronic obstructive pulmonary disease (COPD) is one of the most important non-communicable diseases (NCDs) with a progressive downhill course.<sup>3,4</sup> It is a major cause of global healthcare burden, including in India.<sup>4-7</sup> COPD is one of the few NCDs whose prevalence continues to rise in spite of the vastly expanded drug formulary. Population prevalence has been variously reported from different regions depending on the local prevalence of various risk factors.<sup>5</sup> In India, an average prevalence of

3.5 per cent was reported in a large population study undertaken at 16 different centres in the country.<sup>8</sup> Smoking cessation is the most effective means of appreciably reducing the rate of disease progression and minimising acute exacerbations,<sup>9</sup> but smokers need to be identified before they can be helped to stop. The Lung Health Study has shown that, with aggressive and prolonged intervention, smokers with mild to moderate COPD can be helped to stop and that this has a beneficial effect on lung function and mortality.<sup>10,11</sup> The present study was conducted to assess the prevalence and incidence of COPD among smokers and non-smokers.

### MATERIALS AND METHODS

The present prospective population-based cohort study was conducted to investigate the prevalence and incidence of chronic obstructive pulmonary disease. The 150 participants of age group 30-50 years were selected

over a period of 6 months. Participants were initially interviewed at home for information on their health status. Trained research assistants collected information from the participants. The study was approved by the Ethical Committee. All participants gave their written

informed consent and permission to retrieve information from treating physicians.

Statistical analysis was performed using SPSS statistical software (SPSS for Windows, version 21; SPSS; Chicago, IL).

**Table 1: Distribution according to gender**

Gender	N(%)
Male	90(60%)
Female	60(40%)
Total	150(100%)

**Table 2: Distribution according to smokers and non-smokers.**

Smoking Habits	N(%)
Smokers	47(31.33%)
Non-Smokers	103(68.66%)
Total	150(100%)

**Table 3: Prevalence of COPD**

	Smokers		Non-Smokers	
COPD Present	Yes(%)	24(51.06%)	Yes(%)	14(13.59%)
	No(%)	23(48.94%)	No(%)	89(84.76%)

## RESULTS

In our study total participants were 150, in which 90(60%) were male and 60(40%) were females. Out of the 150 participants, 47(31.33%) were smokers, while 103(68.66%) were non-smokers. Out of the Smokers, 24(51.06%) were COPD patients. On the other hand, 14(13.59%) of the non-smokers were COPD patients.

## DISCUSSION

COPD has also been described in non-smokers with a variable frequency<sup>12,13</sup>. There has been a lack of focus on the non-smokers, especially because of the recognition of more common and important cause of COPD *i.e.*, tobacco smoking. Chronic cor pulmonale due to chronic lung disease (conceptually COPD) was described in non-smoker women, possibly for the first time in non-smokers, over half of a century ago<sup>14</sup>. In the last few years, the disease is described in non-smokers with an increasing frequency and there are several reports on non-smoker COPD<sup>8,15,16,17,18</sup>. In a Swedish report based on the Obstructive Lung Disease in Northern Sweden cohort, Lindberg et al estimated the incidence rate of COPD at 13.1/1,000 PY according to the Global Initiative for Chronic Obstructive Lung Disease (GOLD) spirometric criteria (FEV1/FVC <0.7).<sup>19</sup> In that study, a random sample of 963 subjects aged 46–77 years were invited for a structured interview and spirometry.<sup>19</sup> The findings of Lindberg et al are similar to ours, which may be because of the similar age

categories and spirometry-based criteria for COPD used in the two studies. In a study by de Marco et al the incidence rate of COPD was found to be 2.8/1,000 PY in an international cohort of 5,002 subjects aged 20–44 years.<sup>20</sup> In our study total participants were 150, in which 90(60%) were male and 60(40%) were females. Out of the 150 participants, 47(31.33%) were smokers, while 103(68.66%) were non-smokers. Out of the Smokers, 24(51.06%) were COPD patients. On the other hand, 14(13.59%) of the non-smokers were COPD patients. Long-standing asthma and the risk for COPD as defined by the presence of non-fully reversible chronic airway obstruction has been well documented in smokers and never-smokers.<sup>21</sup> Individuals with chronic asthma have a greater than normal rate of decline in lung function with age, further magnified by presence of smoking.<sup>22,23</sup> The findings in this study that self-reported concurrent doctor-diagnosis of asthma occurred in 36% of all COPD in never-smokers and 30% of COPD in ever-smokers, are consistent with published proportions of between 15% and 55% of patients with COPD, a combination which could alternatively be labelled as the ‘asthma-COPD overlap syndrome’.<sup>24</sup> In the Copenhagen General Population Study on outcomes of COPD, Thomsen et al<sup>25</sup> reported increased risk of respiratory hospitalisations but not of total mortality for never-smoking individuals with COPD compared with smokers with COPD.

## CONCLUSION

In our study total participants were 150, in which 90(60%) were male and 60(40%) were females. Out of the 150 participants, 47(31.33%) were smokers, while 103(68.66%) were non-smokers. Out of the Smokers, 24(51.06%) were COPD patients. Our study concluded that COPD was more prevalent in smokers.

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