# Smoking Behaviors and Related Factor in Indonesian Patients with Chronic Obstructive Pulmonary Disease in National Reference Hospital for Respiratory Diseases

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FY conceived idea, FY WPA FN drafted the study, FY WPA collected data, FY WPA FN did statistical analysis & interpretation of data, FY WPA FN critical reviewed manuscript, All approved final version to be published.

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**Abstract**

**Background:** The COPD prevalence in Indonesia is 3.7% per mile in subjects ≥ 30 years old, especially in male. Smoking behaviours among people aged ≥15 years is 36.3%, 64.9% male, and the average number of cigarettes smoked was about 12.3. The purpose of this study was to determine the smoking behaviours and it's characteristics among COPD patients in Persahabatan Hospital Jakarta.

**Methodology:** We conducted an administered questionnaire based study with 43 male subjects who visited COPD outpatient clinic, 13.9% age <60 years old and 86.1% age ≥60 years old. All subjects were interviewed using questionnaires with 14 types of questions.

**Results:** From all subjects, 4 (9.3%) had never smoked, 69.2% subjects started smoking at age 10-20 years old, 76.9% subjects started smoking because of their friends. The longest period of smoking is 20-30 years, 51.3% subjects with severe Brinkman Index score. Clove cigarettes is the most type used by the subject (66.6%). There are 1-3 smokers in one family, both as a family member (72.1%) or head of household (90.5%). Most of the subjects were diagnosed COPD at the age >40 years old (97.7%) with group D as the largest (69.7%). 92.8% subjects are ex-smokers, most stop smoking at age ≥40 years old (84.6%). Reasons to quit most was due to illness (87.1%) by the effort to quit smoking 1-3 times. Cancer is the most widely known result of smoking (26.5%). Most subjects said images on cigarette packs did not give effect to smoking cessation (55.8%).

**Conclusions:** Most of our subjects have history of early smoking and quit smoking at a later age, severe Brinkman Index score and most of the subjects were diagnosed COPD at the age >40 years old with group D as the largest. Smoking behaviours and it's characteristics might have strong influence on the severity of disease.

**Key words:** Smoking behaviours; Characteristic; COPD

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## Introduction

World Health Organization (WHO) estimated that there were about 62 million people with moderate to severe COPD in 2002, with total number of COPD cases predicted to increase to about 200 million in 2010. According to the 2010 Global Burden of Disease (GBD) study, COPD was responsible for about 5% of global disability–adjusted life years – DALYs (76.7 million) – and 5% of total deaths (2.9 million). COPD is currently rated the fourth most common specific cause of death globally and predicted to be the third by 2030, in the absence of interventions that address the risks – especially tobacco smoking, exposures to combustion products of biomass fuels and environmental pollution.

The burden of COPD has been reported to be high in

some high–income countries (HIC), particularly due to high prevalence of smoking. From years 2000 and 2010, about 4%–10% of adults were diagnosed with non–reversible and progressive airway obstruction (a basic feature of COPD) in population–based surveys across many European countries, with smoking indicated as a major risk. The WHO has estimated that in many HIC up to 73% of COPD deaths are related to tobacco smoking. Meanwhile, it has been estimated that despite a high prevalence of COPD in some HIC, 90% of COPD deaths still occur in low– and middle–income countries (LMIC) and 40% of these deaths are related to smoking The burden in LMIC has been comparatively high owing to relatively low COPD awareness, challenges with COPD diagnosis and increased exposures to additional risk factors, especially combustion products of biomass fuels.

In Indonesia, based on data released by The Ministry of Health in 2013, the COPD prevalence is 3.7% per mile in subjects with age ≥30 years old, especially in male. Smoking behaviours among people aged ≥15 years is 36.3%, 64.9% male, and the average number of cigarettes smoked was about 12.3. In recent years, a solution has been developed in the form of questionnaires (generic and specific) examining the quality of life (QOL) and health status, and these have been used in patients suffering from respiratory conditions, especially asthma and COPD. The purpose of this study was to determine the smoking behaviors and it's characteristics among COPD patients in Persahabatan Hospital, Jakarta, Indonesia.

## Methodology

We conducted an administered questionnaire based study carried out in Indonesia between May and June 2016 in Persahabatan Hospital, Jakarta, Indonesia, among patients with a previous diagnosis of COPD. All patients were stable. A total of 11 doctors contributed to the recruitment. Diagnosis and severity of the obstruction were established using the GOLD criteria. No spirometry was carried out during the study. To be included, patients had to have a previous diagnosis of spirometry-confirmed COPD. The values of this spirometry were used as reference values for establishing severity according to the GOLD classification.

The inclusion criteria was patients diagnosed as COPD in stages I–IV according to the GOLD guidelines, clinically stable by the time questionnaire is completed, and have given their informed consent to participate in the study. The exclusion criteria was terminal illness (life expectancy of < 6 months), have a psychiatric condition or any other condition that modifies perceived health status or that prevents informed consent from being given and inability to understand spoken or written Indonesian language.

## Results

A single observation was made in which demographical data, data related to the study disease and socioeconomic data were collected. Information was taken from the clinical history. The questionnaire is composed of 14 type of questions and takes interviewer no longer than 5 min to complete. A total of 43 male subjects were interviewed with 13.9% age <60 years old and 86.1% age ≥60 years old. From all subjects, 4 (9.3%) had never smoked, 69.2% subjects started smoking at age 10-20 years old, 76.9% subjects started smoking because of their friends. The longest period of smoking is 20-30 years, 51.3% subjects with severe Brinkman Index score. Clove cigarettes is the most type used by the subject (66.6%). There are 1-3 smokers in one family, both as a family member (72.1%) or head of household (90.5%). Most of the subjects were diagnosed COPD at the age >40 years old (97.7%) with group D as the largest (69.7%). 92.8% subjects are ex-smokers, most stop smoking at age ≥40 years old (84.6%). Reasons to quit most was due to illness (87.1%) by the effort to quit smoking 1-3 times. Cancer is the most widely known result of smoking (26.5%). Most subjects said images on cigarette packs does not give effect to smoking cessation (55.8%).

**Table 1: Characteristics of the study population**

| Variables | Total | Men |
|---|---|---|
| Number of subjects | 43 | 43 |
| Age | | |
| <60 | 6(13.95%) | 6(13.95%) |
| ?60 | 37(86.04%) | 37(86.04%) |
| **Age of early smoking** | | |
| <10 | 4(10.25%) | 4(10.25%) |
| 10-20 | 27(69.23%) | 27(69.23%) |
| >20 | 8(20.51%) | 8(20.51%) |
| **Reason to start smoking** | | |
| Friend | 30(76.92%) | 30(76.92%) |
| Advertising | 0(0%) | 0(0%) |

| | | |
|---|---|---|
| Parents | 2(5.12%) | 2(5.12%) |
| Others | 7(17.94%) | 7(17.94%) |
| **Duration of smoking** | | |
| <20 years | 6(15.38%) | 6(15.38%) |
| 20-30 years | 7(17.94%) | 7(17.94%) |
| >30 years | 26(66.66%) | 26(66.66%) |
| **Brinkmann index** | | |
| Light | 7(17.94%) | 7(17.94%) |
| Moderate | 12(30.76%) | 12(30.76%) |
| Severe | 20(51.28%) | 20(51.28%) |
| **Type of cigarette** | | |
| Kretek cigarette(clove) | 26(66.66%) | 26(66.66%) |
| Cigarette(without clove) | 3(7.69%) | 3(7.69%) |
| Mix | 10(25.64%) | 10(25.64%) |
| **Smokers in family (subject as family member)** | | |
| 1 | 6(13.95%) | 6(13.95%) |
| 1-3 | 31(72.09%) | 31(72.09%) |
| >3 | 6(13.95%) | 6(13.95%) |
| **Smokers in family (subject as head of family)** | | |
| **1** | | |
| 1-3 | 1(2.38%) | 1(2.38%) |
| >3 | 38(90.47%) | 38(90.47%) |
| Age when diagnosed COPD | 3(7.14%) | 3(7.14%) |
| <40 | | |
| >40 | 1(2.32%) | 1(2.32%) |
| GOLD classification | 42(97.67%) | 42(97.67%) |
| **A** | | |
| B | 0(0%) | 0(0%) |
| C | 1(2.32%) | 1(2.32%) |
| D | 12(27.90%) | 12(27.90%) |
| Smoking status | 30(69.76%) | 30(69.76%) |
| **Never** | | |
| Smoking | 3(7.14%) | 3(7.14%) |
| Ex-smoker | 0(0%) | 0(0%) |
| Age at quitting smoking | 39(92.85%) | 39(92.85%) |
| **<40** | | |
| >40 | 6(15.38%) | 6(15.38%) |
| Reason to quit smoking | 33(84.61%) | 33(84.61%) |
| **Disease** | | |
| Self-awareness | 34(87.17%) | 34(87.17%) |
| Smoking cessation efforts | 5(12.82%) | 5(12.82%) |
| **Never** | | |
| 1-3 | 2(5.12%) | 2(5.12%) |
| 4-5 | 29(74.35%) | 29(74.35%) |
| >5 | 4(10.25%) | 4(10.25%) |
| Knowledge of the dangers of smoking | 4(10.25%) | 4(10.25%) |
| **Do not know** | | |
| **Cancer** | | |
| COPD | 3(2.47%) | 3(2.47%) |
| Erectile dysfunction | 32(26.44%) | 32(26.44%) |
| Impaired fetal growth | 33(27.27%) | 33(27.27%) |
| Other | 27(22.31%) | 27(22.31%) |
| Images effect on cigarette packs for smoking cessation efforts | 21(17.35%) | 21(17.35%) |
| **Do not know** | 5(4.13%) | 5(4.13%) |
| **Effected** | | |
| **Do not effected** | | |
| | 4(9.30%) | 4(9.30%) |
| | 15(34.88%) | 15(34.88%) |
| | 24(55.81%) | 24(55.81%) |

## Discussion

All of the subjects in this study are men with age ≥60 years old as the highest group. This study has similar results with study reported that the age-adjusted prevalence was higher for men than women in every city sampled, ranging from 11.4% of men to 7.5% of women in Mexico City, to 23% of men and 11.6% of women in Montevideo. But other study also mention about the tendency of COPD prevalence related to gender, as most studies also have either had small sample sizes or not enough women to allow for accurate comparisons. For example, the number of women in key COPD clinical trials has ranged from 0 to 35% like this study. Recent work has suggested that while the overall prevalence and incidence of COPD are higher in men, the incidence of COPD in younger age groups (i.e., age 55–59) is now much higher in women. Women may be more susceptible to developing COPD, are more likely to express the airway-predominant subtype, and report more severe symptoms and activity intolerance.

In this study most of subjects started smoking at age 10-20 years old (69,23%), it is transition or adolescence age when they started to associate widely, this result may be related to the reason to start smoking most is because of their friends (76,92%) who had smoke before. COPD often manifests itself after someone has been smoking more than 20 cigarettes a day over 20 years (20 pack years). A smoker who is sensitive to cigarette smoke may therefore have spirometric changes between the ages of 40 to 45 years if they started smoking as a teenager. It has been estimated that 15–20% of smokers develop COPD. Those who start smoking at an early age might have tendency to have longer duration of smoking if they do not start smoking cessation. It is showed from this study the duration of smoking most is more than 30 years (66,66%) with 51,28% subjects included in severe group of Brinkmann index. Kretek cigarettes, sometimes referred to as clove cigarettes originating from Indonesia and typically contain a mixture of tobacco, cloves, and other additives. This type of cigarette is the most prefered by smokers in this study (66,66%).

One study conducted by Hersh et all. found that parental history of smoking (85.5% case patients, 82.9% control subjects) was more common than parental history of COPD (43.0% case patients, 30.8% control subjects). Family history of COPD is a strong risk factor for COPD, independent of family history of smoking, personal lifetime smoking, or childhood ETS exposure. In our study, we found whether subject as family member or head of family, there are 72,09% and 90,47% respectively or 1 to 3 smokers in one family.

Most subjects diagnosed with COPD at the age more than 40 years old (97,67%) with group D GOLD classification as the largest (69,76%) while other study conducted by Sun Mi Choi et all. in Korea stated median age of patients in their study was 64 years old with group A GOLD classification as the most. This difference might be due to differences in type and length of exposure to cigarrete or biomass in both country.

In our study the largest group of smoking status was the ex-smoker group (92,85%), most subjects stop smoking at the age more than 40 years old (84,61%). Most of the reason they quit smoking is because of their disease (87,17%) with smoking cessation efforts for 1 to 3 times (74,35%). This result is similar with prospective study conducted by Richard Doll mentioned subjects who stopped smoking in later middle age did so because they were already ill. Our subjects knowledge of the danger of smoking most is cancer, while their opinion regarding image effect on cigarrete packs for smoking cessation efforts, most of subjects said it effected people to stop smoking. This is similar with result in one study observed an association between pictorial graphic health warnings and intent to quit smoking among women with warnings having a greater impact among women with less education and who had attempted to quit smoking.

## Conclusion

Most of our subjects have history of early smoking and quit smoking at a later age, severe Brinkman Index score and most of the subjects were diagnosed COPD at the age >40 years old with group D as the largest. Smoking behaviours and it's characteristics might have strong influence on the severity of disease.

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