Medical and Health Journal
Volume 4, Issue 2, 2025, pp. 213-223
e-ISSN: 2807-3541
Open Access: https://jos.unsoed.ac.id/index.php/mhj

Smoking Addiction Levels Among Male Patients With Lung Disease : A Study at Prof. Dr. H. Aloei Saboe Hospital, Gorontalo City

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ARTICLE INFO

Article history:
Received January 25, 2025
Revised March 20, 2025
Accepted April 27, 2025
Available online April 27, 2025

Kata Kunci:
Smoking Addiction, Penyakit Paru
Keywords:
Smoking Addiction, Lung Disease

ABSTRAK

Jumlah kasus penyakit paru di RSUD Prof. Dr. H. Aloei Saboe meningkat tahun 2023 sebanyak 1.947 kasus. Hasil observasi awal pada 10 pasien didapatkan seluruhnya adalah perokok aktif. Ketika paru terkena asap rokok setiap hari, tentu akan terjadi perubahan fungsi paru yang menyebabkan keadaan menjadi restriksi dan obstruksi. Studi ini bertujuan untuk menganalisis tingkat kecanduan merokok di kalangan pasien pria yang didiagnosis dengan penyakit paru-paru. Metode penelitian ini menggunakan desain penelitian deskriptif kuantitatif dengan alat ukur FTND. Populasi berjumlah 502 responden dengan besar sampel sebanyak 100 responden menggunakan teknik simple random sampling. Hasil penelitian menunjukan bahwa ketergantungan sangat rendah sebanyak 19 responden (19,0%), ketergantungan rendah sebanyak 23 responden (23,0%), ketergantungan sedang sebanyak 42 responden (42,0%), ketergantungan tinggi sebanyak 14 responden (14,0%) dan ketergantungan sangat tinggi sebanyak 2 responden (2,0%). Diharapkan penelitian ini dapat digunakan sebagai perencanaan program yang bertujuan untuk mengurangi prevalensi penyakit paru.

ABSTRACT

The number of cases of lung disease at Prof. Dr. H. Aloei Saboe Hospital will increase in 2023 by 1,947 cases. The results of initial observation on 10 patients were all active smokers. When the lungs are exposed to cigarette smoke every day, of course there will be changes in lung function that cause the situation to become restrictive and obstructive. The study aimed to analyze the rate of smoking addiction among male patients diagnosed with lung disease. This research method uses a quantitative descriptive research design with FTND measuring tools. The population amounted to 502 respondents with a sample size of 100 respondents using simple random sampling techniques. The results showed that very low dependency was 19 respondents (19.0%), low dependency was 23 respondents (23.0%), moderate dependency was 42 respondents (42.0%), high dependency was 14 respondents (14.0%) and very high dependency was 2 respondents (2.0%). It is hoped that this research can be used as a program planning that aims to reduce the prevalence of lung diseases.

1. INTRODUCTION

World Health Organization (WHO, 2023a) explained that the tobacco epidemic is one of the biggest public health threats the world has ever faced, killing more than 8 million people every year around the world. Smoking is the most common form of tobacco use worldwide.

The Global Adult Tobacco Survey (GATS) report shows that the prevalence of smoking among adults in Indonesia was 33.5% in 2021. According to gender, the highest prevalence of smoking is experienced by men, which is 64.7%. Meanwhile, the prevalence of smoking by women is 2.3%. Meanwhile, according to data from the 2023 Indonesian Health Survey (SKI) conducted by the Ministry of Health of the Republic of Indonesia, the prevalence of active smokers in

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Indonesia continues to increase with the number of active smokers estimated to reach 70 million people. (GATS, 2022) (Ministry of Health of the Republic of Indonesia, 2024).

Smoking behavior is an act of smoking cigarettes to achieve pleasure, first done consciously and gradually will become a habit so that eventually it will increase (Safira et al ., 2024) . In tobacco, there are more than 3000 compounds, but the one that causes the most powerful addictive effect is nicotine (Ministry of Health of the Republic of Indonesia, 2023) . Nicotine has a major influence on the brain and nervous system. In addition, nicotine can have a calming effect and is an addictive drug. (Lathifah et al ., 2020)

Cigarette and tobacco consumption is one of the main risk factors for the occurrence of various non-communicable diseases, one of which is chronic lung disease which is currently the main cause of death in the world, including in Indonesia (Nur et al ., 2022) . The lungs are one of the vital organs of humans whose function is as a respiratory apparatus which if not functioning properly will cause death (Buchori et al ., 2022) . The Central Statistics Agency (BPS, 2024) reported that the number of smokers aged 15 years and older in Gorontalo Province increased by 30.38% in 2022 to 30.69% in 2023. When the lungs are exposed to cigarette smoke every day, of course there will be changes in lung function that cause the situation to become restricted and obstructive (Rizqullah & Perdana, 2023) .

There are various types of lung diseases such as asthma, acute respiratory tract infections (COPD), lung cancer, pneumonia, bronchopneumonia, chronic obstructive pulmonary disease (COPD), tuberculosis (TB), and pleural effusion. (Haffandi et al ., 2022) . Global Burden Disease (GBD) 2019 Chronic Respiratory Diseases Collaborators (2023) reports that chronic respiratory disease is the third leading cause of death causing 4.0 million deaths with a prevalence of 454.6 million cases globally. Chronic respiratory diseases have increased by 28.5% and 39.8%. Meanwhile, in Indonesia, of the 10 diseases with the most cases per 100,000 population, 4 of them are respiratory diseases, including COPD 145 cases, lung cancer 18 cases, pneumonia 5,900 cases, and asthma 504 cases (Kemenkes, 2023).

A literature study conducted by (Adristi et al., 2024), shows that people who smoke or have a history of smoking have an effect on the form of lung cancer that will attack. The greater the number of cigarettes consumed, the greater the likelihood that people who smoke will develop lung cancer. In line with research by Pottera (2023), it shows that there is a meaningful relationship between smoking history (p-value 0.000), smoking severity (p-value 0.044) and the incidence of COPD. The research that will be conducted is different from previous research because smoking addiction focuses more on a person's level of addiction to smoking. The level of smoking addiction is deeper than smoking habits because addiction is not only measured by the quantity of cigarettes smoked but how quickly a person lights the first cigarette when they wake up in the morning and includes the habits that are forced to smoke. Meanwhile, lung disease will describe several respiratory diseases caused by cigarettes in broad terms such as Pulmonary Obstructive Pulmonary Disease (COPD), lung cancer, pulmonary tuberculosis, pneumonia, bronchopneumonia, asthma, Acute Respiratory Infection (ARI), and pleural effusion.

Prof. Dr. H. Aloei Saboe Hospital is one of the hospitals in Gorontalo Province. This hospital serves cases of lung diseases, both infectious and non-infectious. The number of patients diagnosed with lung disease at Prof. Dr. H. Aloei Saboe Hospital is increasing, namely 1,853 cases in 2022 and 1,947 cases in 2023. Initial observation results at the hospital. Prof. Dr. H. Aloei Saboe of Gorontalo City in 10 patients treated with lung disease were all active smokers. On average, they had a smoking dependency with a smoking quantity of 6 patients as many as 10-20 cigarettes per day, 2 patients with more than 20 cigarettes per day and 2 of them as many as less than 10 cigarettes per day.

Based on the background, the researcher was interested in conducting a study with the title "Overview of Smoking Addiction in Male Patients with Lung Disease at Prof. Dr. H. Aloei Saboe Gorontalo City".

2. METHOD

This research has been carried out at the hospital. Prof. Dr. H. Aloei Saboe Gorontalo City is precisely in the internal room, isolation room, and pulmonary polyclinic. This study uses a quantitative descriptive design that aims to see the picture smoking addiction in male patients. This study aims to analyze the level of smoking addiction among male patients diagnosed with lung disease at Prof. Dr. H. Aloei Saboe, Gorontalo City. The sampling techniques used are Simple random sampling Where sampling is carried out randomly and comes from the existing population. In determining the size of the sample, the researcher used the slovin formula. So the number of samples of n = 83 respondents was then rounded to 100 respondents. The instrument in this study used a questionnaire Fagerstrom Test for Nicotine Dependence (FTND) which contains 6 items to determine smoking dependence, demographic data consisting of 7 questions and medical records. The FTND validity test conducted by Candradewi & Hidayanti (2012) on 20 respondents with a significance level of 5% showed that it was valid for all items because the correlation test value on each item was > 0.444 with the reliability test showing that the reliability coefficient value > 0.444, which was 0.731 so that the results obtained had a reliable level of reliability. The data analysis used was univariate analysis to see the frequency distribution which included age, occupation, income, start smoking, type of lung disease, and comorbidities and crosstab to identify correlations between variables.

3. RESULT AND DISCUSSION

Result

Table 1. Distribution of Respondent Characteristics Based on Age, Occupation, and Income

Variable	N	(%)
Age		
16-25 Years	11	11.0
26-35 Years	42	42.0
36-45 Years	27	27.0
> 45 years	20	20,0
Total	**100**	**100,0**
Work		
Not Working	10	10,0
Farmer	15	15,0
Self employed	27	27,0
Laborer	23	23,0
Fisherman	10	10,0
Student	6	6,0
Civil servants	9	9,0
Total	100	**100,0**
Income		
< Rp.3.025.100/Month	77	77,0
≥ Rp.3.025.100/Month	23	23,0
Total	100	**100,0**

Source: Primary Data, 2024

Based on table 1, it was obtained that the most respondents were located in the age group of 26-35 years as many as 42 respondents (42.0%). The majority of respondents were those who worked as self-employed as many as 27 respondents (27.0%) and the most respondents were those who had an income < Rp.3,025,100/month as many as 77 respondents (77.0%).

Table 2. Distribution of Respondent Characteristics Based on Smoking Initiation

Start Smoking	N	(%)
< 5 Years	10	10,0
≥ 5 Years	90	90,0
Total	**100**	**100,0**

Source: Primary Data, 2024

Based on table 2, it was obtained that the most respondents were those who started smoking activities ≥ 5 years as many as 90 respondents (90.0%).

Table 3. Distribution of Respondent Characteristics Based on Comorbidities

Comorbidities	N	(%)
None	12	12,0
Diabetes Mellitus	9	9,0
Hypertension	35	35,0
Heart Disease	8	8,0
Stroke	2	2,0
Dyspepsia	19	19,0
Hyperuricemia	7	7,0
Hypercholesterolemia	7	7,0
Hypokalemia	1	1,0
Total	**100**	**100,0**

Source: Primary Data, 2024

Based on table 3, it was obtained that the most respondents were those with hypertension comorbidities as many as 35 respondents (35.0%).

Table 4. Distribution of Respondent Characteristics Based on Type of Lung Disease

Types of Lung Disease	N	(%)
COPD	21	21,0
Pulmonary TB	58	58,0
Bronchopneumonia	11	11,0
Asthma	6	6,0
Pleural effusion	4	4,0
Total	**100**	**100,0**

Source: Primary Data, 2024

Based on table 4, it was obtained that the most respondents were those who had moderate smoking dependence as many as 42 respondents (42.0%).

Table 5. Distribution of Smoking Addiction Pictures in Male Patients with Lung Disease at Prof. Dr. H. Aloei Saboe Gorontalo City By Age

Age	Very Low	Low	Keep	Tall	Very High	Total
16-25 Years	2	4	5	0	0	**11**
26-35 Years	8	10	20	4	0	**42**
36-45 Years	7	4	8	6	2	**27**
> 45 years	2	5	9	4	0	**20**
Total	**19**	**23**	**42**	**14**	**2**	**100**

Source: Primary Data, 2024

Based on table 5, it was obtained that the most respondents were located in the age group of 26-35 years who experienced smoking dependence as many as 42 respondents, 8 respondents were in the very low category, 10 respondents were in the low category, 20 respondents were in the medium category and 4 respondents were in the high category.

Table 6. Distribution of Smoking Addiction Pictures in Male Patients with Lung Disease at Prof. Dr. H. Hospital Aloei Saboe Gorontalo City Based on Jobs

Work	Very Low	Low	Keep	Tall	Very High	Total
Not Working	4	5	1	0	0	10
Farmer	0	3	6	4	2	15
Self employed	5	5	14	3	0	27
Laborer	5	8	8	2	0	23

Fisherman	1	1	6	2	0	10
Student	2	0	4	0	0	6
Civil servants	2	1	3	3	0	9
Total	**19**	**23**	**42**	**14**	**2**	**100**

Source: Primary Data, 2024

Based on table 6, it was found that the most respondents were those who worked as self-employed people experiencing smoking dependence as many as 27 respondents, 5 respondents were in the very low category, 5 respondents were in the low category, 14 respondents were in the medium category, and 3 respondents were in the high category.

Table 7. Distribution of Smoking Addiction Pictures in Male Patients with Lung Disease at Prof. Dr. H. Aloei Saboe Gorontalo City Based on Revenue

Income	Very Low	Low	Keep	Tall	Very High	Total
<3,025,100/month	15	21	32	7	2	77
≥3,025,100/month	4	2	10	7	0	23
Total	**19**	**23**	**42**	**14**	**2**	**100**

Source: Primary Data, 2024

Based on table 7, it was found that the most respondents, namely respondents with an income of < 3,025,100/month, experienced smoking dependence as many as 77 respondents, 15 respondents were in the very low category, 21 respondents were in the low category, 32 respondents were in the medium category, 7 respondents were in the high category, and 2 respondents were in the very high category.

Table 8. Distribution of Smoking Addiction Pictures in Male Patients with Lung Disease at Prof. Dr. H. Hospital Aloei Saboe Gorontalo City Based on Starting Smoking

Start smoking	Very Low	Low	Keep	Tall	Very High	Total
< 5 Years	3	3	4	0	0	10
≥ 5 Years	16	20	38	14	2	90
Total	**19**	**23**	**42**	**14**	**2**	**100**

Source: Primary Data, 2024

Based on table 8, it was obtained that the most respondents, namely respondents who started smoking ≥ 5 years old experienced smoking dependence as many as 90 respondents, 16 respondents were in the very low category, 20 respondents were in the low category, 38 respondents were in the medium category, 14 respondents were in the high category and 2 respondents were in the very high category.

Table 9. Distribution of Smoking Addiction Pictures in Male Patients with Lung Disease at Prof. Dr. H. Hospital Aloei Saboe Gorontalo City Based on Comorbidities

Comorbidities	Very Low	Low	Keep	Tall	Very High	Total
None	4	3	5	0	0	12
Diabetes Mellitus	1	1	5	1	1	9
Hypertension	7	9	13	5	1	35
Heart Disease	2	2	2	2	0	8
Stroke	0	0	0	2	0	2
Dyspepsia	3	5	10	1	0	19
Hyperuricemia	1	2	3	1	0	7
Hypercholesterolemia	1	1	4	1	0	7
Hypokalemia	0	0	0	1	0	1
Total	**19**	**23**	**42**	**14**	**2**	**100**

Source: Primary Data, 2024

Based on table 9, it was found that the most respondents were respondents who had hypertension and experienced smoking dependence as many as 35 respondents, 7 respondents were in the very low category, 9 respondents were in the low category, 13 respondents were in the medium category, 5 respondents were in the high category, and 1 respondent was in the very high category.

Table 10. Distribution of Smoking Addiction Pictures in Male Patients with Lung Disease at Prof. Dr. H. Aloei Saboe Gorontalo City Based on Types of Lung Diseases

Types of Lung Disease	Very Low	Low	Keep	Tall	Very High	Total
COPD	3	4	10	4	0	21
Pulmonary TB	10	11	28	8	1	58
Bronchopneumonia	2	5	3	1	0	11
Asthma	2	1	1	1	1	6
Pleural effusion	2	2	0	0	0	4
Total	**19**	**23**	**42**	**14**	**2**	**100**

Source: Primary Data, 2024

Based on table 10, it was obtained that the most respondents, namely respondents who were diagnosed with pulmonary TB experienced smoking dependence as many as 58 respondents, 10 respondents were in the very low category, 11 respondents were in the low category, 28 respondents were in the medium category, 8 respondents were in the high category, and 1 respondent was in the very high category.

Discussion

Smoking Addiction in Male Patients with Lung Disease

The results of the study from 100 respondents with lung disease were obtained by 19 respondents (19.0%) with very low smoking dependence. If you look at the time a person smokes, the majority of them light their first cigarette after 60 minutes after waking up. This means that smoking is not a priority that must be done when waking up in the morning. This is in line with Nurhidayati & Syafnita (2019)'s research dominated by respondents with very mild dependence status (36.4%) because nicotine dependence cannot occur in a short time and requires a process of many years. The longer a person smokes, the more addictive it is. The results of the study showed that smoking dependence was at least in the age group of 16-25 years as many as 11 respondents. In line with the research of Kristiani & Ricky (2023) that adolescent smokers have fewer cigarettes consumed per day, and the habit of smoking in a short time is the lower the level of dependence. Adolescent smokers with low levels of dependence usually consume less than 10 cigarettes per day

The results showed that 23 respondents (23.0%) had low smoking dependence. Respondents with low smoking dependence smoked more in the first two hours after waking up compared to other times as many as 60 respondents (60.0%) with an intensity of smoking 10 cigarettes or less. Usually, respondents with low dependence have a stronger urge to smoke so that the smoking behavior is more frequent. Wahyudi's research (2020) also explained that light smokers are smokers who consume rarely cigarettes, which is around 10 cigarettes per day with an interval after 60 minutes from waking up in the morning.

The results showed that 42 respondents (42.0%) experienced moderate smoking dependence. Respondents with moderate dependence were influenced by several factors such as age and the beginning of smoking. The majority of the respondents' age group was in the age group of 26-35 years who had smoking dependence as many as 42 respondents with moderate dependence as many as 20 respondents. In line with the research of Alam *et al*. (2022), it shows that the age of the respondents is in the age range of 25-34 years by 53.6%. This is because this

age is a productive age in the life phase. Smokers in old age have a lower smoking prevalence than young people, because age can affect a person to quit smoking, the older a person is, the desire to quit smoking for health reasons will also increase. In line with the Maharani & Harsanti (2021) research that the age variable has the greatest tendency in influencing smoking intensity, but there is an age difference where the focus of the study only uses respondents aged 15-24 years while in this study it uses respondents who are 16 years old to > 45 years old. In addition, the beginning of smoking also affects the level of smoking dependence. The majority of respondents started smoking activities ≥ 5 years, as many as 90 respondents experienced moderate dependence as many as 38 respondents with the number of cigarettes smoked as many as 11-20 cigarettes per day as many as 52 respondents (52.0%). In line with Tanzila (2022) research obtained from 99 respondents, individuals who have smoked for > 5 years are 51 respondents (51.6%) with a consumption of more than 20 cigarettes per day compared to individuals who only have 1-5 years of smoking. When the lungs are exposed to cigarette smoke every day, the chemicals contained in cigarettes will cause inflammation and damage to the lungs.

The results of the study showed that 14 respondents (14.0%) had high dependence. Usually, people with high smoking dependence will find it difficult not to smoke in public places, which was done by 96 respondents. This shows that when a person already has a high smoking dependence, it will be difficult not to smoke anywhere. The number of cigarettes consumed every day by heavy smokers is 21-30 cigarettes as many as 27 patients In line with the study that the level of heavy dependence is 9 people (16.1%) from 56 respondents. The results of the study also showed that respondents who had a very high dependence were 2 respondents (2.0%). Very high dependence is those who consume cigarettes very often, namely > 31 cigarettes per day with an interval of five minutes after waking up in the morning Zulkarnaini *et al*. (2023) (Salae *et al*., 2021) .

According to cigarettes, it is one of the risk factors that plays the most role in increasing the number of illnesses due to respiratory diseases. The results showed that 53 respondents (53.0%) continued to smoke even when they were sick. Salsabila & Yuniarti (2022) All respondents in this study were patients with lung disease. The respondents who were diagnosed with Chronic Obstructive Pulmonary Disease (COPD) were 21 respondents (21.0%), respondents who were diagnosed with pulmonary TB were 58 respondents (58.0%), respondents who were diagnosed with bronchopneumonia were 11 respondents (11.0%), respondents who were diagnosed with asthma were 6 respondents (6.0%), and respondents who were diagnosed with pleural effusion were 4 respondents (4.0%).

The results showed that 21 respondents were diagnosed with COPD who experienced smoking dependence, 3 respondents were in the very low category, 4 respondents were in the low category, 10 respondents were in the medium category, and 4 respondents were in the high category. This is because the main risk factor for COPD is smoking. Smokers have a higher risk of experiencing symptoms of respiratory disorders and lung dysfunction, as well as greater mortality rates from COPD than non-smokers (Najihah *et al* ., 2023) . Cigarette smoke is the most common cause found. Continuous and prolonged exposure to cigarette smoke can cause disorders and changes in the airway mucosa that are at risk of developing COPD (Salawati, 2016).

The results showed that 58 respondents who were diagnosed with pulmonary TB experienced smoking dependence, 10 respondents were in the very low category, 11 respondents were in the low category, 28 respondents were in the medium category, 8 respondents were in the high category, and 1 respondent was in the very high category. Research proves that smoking habits are related to the incidence of pulmonary TB. Active smokers have a 1.9 times greater risk of developing pulmonary TB compared to non-smokers. Sutriyawan *et al* . (2022) In line with

the research of Nita *et al*., (2023) that smoking stigma in respondents with Tuberculosis (60.7%) with dense mobility and lifestyle patterns is assumed to facilitate the entry of the Mycobacterium tuberculosis virus into the lung cavity through smoked cigarettes and cigarettes. The condition of the body that has been infected with the virus will be worse with the negative impact of the chemicals contained in cigarettes.

The results showed that 11 respondents who were diagnosed with bronchopneumonia experienced smoking dependence, 2 respondents were in the very low category, 5 respondents were in the low category, 3 respondents were in the moderate category, and 1 respondent was in the high category. Cigarettes are one of the risk factors for bronchopneumonia because cigarettes interfere with the defense function of the lungs, through impaired ciliary function and the work of alveolar macrophage cells. Both mechanisms cause microorganisms that enter the airway to easily enter the lungs and then damage lung tissue. (Khodijah *et al* ., 2020)

The results showed that 6 respondents who were diagnosed with asthma experienced smoking dependence, 2 respondents were in the very low category, 1 respondent was in the low category, 1 respondent was in the medium category, 1 respondent was in the high category, and 1 respondent was in the very high category. Cigarettes can worsen asthma symptoms so that asthma is not well controlled, Cigarette smoke that is attached to house dust or inhaled directly through breathing can enter the alveoli and then into the blood circulation. Adults exposed to second-hand smoke are twice as likely to develop asthma as people who are not exposed to second-hand smoke (We are the *et al* ., 2023) . Smoking is a triggering factor that can aggravate the symptoms of asthma attacks because it contains pollutants that asthma sufferers must avoid (Asta & Artana, 2022) .

The results showed that 4 respondents who were diagnosed with pleural effusion experienced smoking dependence, 2 respondents were in the very low category, and 2 respondents were in the low category. Pleural effusion is seen in about 5% of TB patients, smoking is closely related to the occurrence of tuberculosis pleural effusion. The more cigarettes consumed and the length of smoking increase the risk of developing pleural effusion tuberculosis. (Tewatia *et al* ., 2020)

4. RESEARCH LIMITATIONS

a. The condition of the respondents is not possible to fill out the questionnaire independently.
b. A small portion of the questionnaire is based solely on answers from the patient's family.
c. The number of samples is still limited and does not cover all types of lung diseases.
d. The design of the research is only descriptive so that it can only describe variables.
e. References are still limited.

5. CONCLUSION

Based on the results of the discussion, it can be concluded that male patients with lung disease who have very low smoking dependence are 19 respondents (19.0%), respondents who have low smoking dependence are 23 respondents (23.0%), respondents who have moderate smoking dependence are 42 respondents (42.0%), respondents who have high smoking dependence are 14 respondents (14.0%) and respondents who have very high smoking dependence as many as 2 respondents (2.0%).

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