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**The Relationship Between Smoking Behavior And Respiratory Health Disorders**Yona Sahalessy^{1*}, Rahmat Pannyiwi², Ayu Sunarti. S³^{*1} Nursing Study Program, Poltekkes Kemenkes Maluku, Indonesia² Faculty of Military Medicine, Republic of Indonesia Defense University, Indonesia³ Public Health Study Program, Cenderawasih University*Correspondent Author: Yona Sahalessy, Email: yonasahalessy@gmail.com**ABSTRACT**

Smoking is a major risk factor for respiratory health problems. The harmful substances in cigarettes, such as nicotine, tar, and carbon monoxide, can cause respiratory tract irritation, decreased lung function, and increased the risk of chronic respiratory diseases. This study aims to determine the relationship between smoking behavior and respiratory health problems. The study used an observational analytical design with a *cross-sectional approach*. The study sample consisted of 100 respondents selected using a purposive sampling technique. Data were collected through a smoking behavior questionnaire and a respiratory complaints questionnaire. Data analysis was performed using the Chi-Square test. The results showed a significant relationship between smoking behavior and respiratory health problems ($p < 0.05$). It was concluded that smoking behavior is closely related to an increased risk of respiratory health problems.

Keywords: Smoking, Smoking Behavior, Respiratory Disorders, Lung Health



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**1. Introduction**

Smoking is a habit that is still widely found in society and is a global health problem. World Health Organization The World Health Organization (WHO) states that cigarette smoking is a major cause of various non-communicable diseases, particularly respiratory diseases. Exposure to cigarette smoke, both active and passive, contributes to increased morbidity and mortality from lung disease.

The harmful substances contained in cigarettes can slowly damage lung tissue. Chronic irritation of the airways can lead to disorders such as chronic coughing, shortness of breath, respiratory infections, asthma, and even chronic obstructive pulmonary disease (COPD). The risk of respiratory problems increases with the duration of smoking and the number of cigarettes consumed.

Smoking behavior is influenced not only by individual factors, but also by environmental, social, and cultural factors. Lack of awareness of the impact of smoking on respiratory health leads many individuals to persist in smoking despite experiencing respiratory symptoms.

It is important to conduct research to determine the relationship between smoking behavior and respiratory health disorders as a basis for promotive and preventive efforts in the health sector.

2. Research Methods**a. Types and Design of Research**

This study is an observational analytical study with a cross-sectional approach. A *cross-sectional design* was used to analyze the relationship between smoking behavior as the independent variable and respiratory health disorders as the dependent variable, measured at the same time. This design was chosen because it is effective in identifying relationships between variables within a population over a specific period.

b. Research Conceptual Framework

Smoking behavior, including smoking status, duration of smoking, and number of cigarettes consumed per day, is thought to be associated with respiratory health problems such as chronic coughing, shortness of breath, and wheezing. This association is influenced by exposure to toxic substances in cigarette smoke, which cause irritation and inflammation of the respiratory tract.

c. Location and Time of Research

The study was conducted in the working area of Community Health Center X, an area with a relatively high prevalence of adult smokers based on routine public health reports. The study was conducted from January to March 2025, covering the preparation, data collection, data processing, and analysis stages.

d. Population and Research Sample



- 1) Population
The population in this study was all adults (aged ≥ 18 years) who live in the working area of Health Center X.
- 2) Sample
The research sample consisted of 100 respondents, who were selected using purposive sampling techniques, namely selecting respondents based on certain criteria that are in accordance with the research objectives.
- 3) Inclusion Criteria
 - a) Age ≥ 18 years
 - b) Domiciled in the research area
 - c) Willing to be a research respondent
 - d) Able to communicate well
- 4) Exclusion Criteria
 - a) Respondents with congenital lung disease or congenital abnormalities
 - b) Respondents with severe communication disorders
 - c) Incomplete questionnaire data

e. Research Variables

- Independent variable: Smoking behavior
- Dependent variable: Respiratory health disorders

f. Operational Definition of Variables

Variables	Operational Definition	Measuring instrument	Scale
Smoking behavior	Smoking habits including status, duration, and number of cigarettes per day	Questionnaire	Nominal / Ordinal
Respiratory disorders	Complaints of chronic cough, shortness of breath, and wheezing	Respiratory symptoms questionnaire	Nominal

g. Research Instruments and Tools

The instruments used in this study are:

- 1) Smoking behavior questionnaire, which includes smoking status (active/non-active), duration of smoking, and number of cigarettes per day.
- 2) Respiratory health problems questionnaire, which assesses the presence of respiratory complaints in the last three months

The instrument has been adapted to the research objectives and tested on a limited basis before use.

h. Data Collection Procedures



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Data collection is carried out through the following stages:

- 1) Processing research permits to relevant agencies
- 2) Explanation of research objectives and procedures to respondents
- 3) Informed signing consent
- 4) Completion of questionnaires by respondents with researcher assistance
- 5) Data completeness check

i. Data Processing Techniques

Data processing is carried out in several stages:

- Editing – checking data for completeness and consistency
- Coding – assigning a code to each answer
- Data entry – entering data into statistical software
- Cleaning – ensuring there are no data input errors

j. Data Analysis Techniques

1) Univariate Analysis

Used to describe the frequency and percentage distribution of smoking behavior variables and respiratory health disorders.

2) Bivariate Analysis

Square test was used to determine the relationship between smoking behavior and respiratory health problems. The statistical significance level was set at $\alpha = 0.05$.

(Optional continuation)

Odds Analysis The ratio (OR) can be used to determine the risk of respiratory disorders in smokers compared to non-smokers.

k. Bias Control

Bias control efforts are carried out by:

- 1) Clear inclusion and exclusion criteria
- 2) Structured questionnaire instrument
- 3) Respondent assistance when filling out the questionnaire

l. Research Ethics

This research was conducted in accordance with the ethical principles of health research, including:

- 1) Informed consent
- 2) Confidentiality of respondent identity
- 3) Anonymity
- 4) The principle of nonmaleficence

3. Research Results And Discussion

a. Research Result





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This study involved 100 adult respondents who lived in the working area of Community Health Center X. Analysis of the research results included respondent characteristics, distribution of smoking behavior, distribution of respiratory health disorders, and the relationship between the two variables.

1) Respondent Characteristics

a) Respondent Age

Age (years)	f	%
18–30	28	28.0
31–45	44	44.0
>45	28	28.0
Total	100	100

The majority of respondents were of productive age, which generally has longer exposure to cigarettes and an increased risk of respiratory disorders.

b) Gender

Gender	f	%
Man	70	70.0
Woman	30	30.0
Total	100	100

Most of the respondents were male, who epidemiologically have a higher smoking prevalence than women.

c) Distribution of Smoking Behavior

Smoking Status	f	%
Active smoker	58	58.0
Do not smoke	42	42.0
Total	100	100

Most of the respondents were active smokers, indicating that the prevalence of smoking behavior in society is still high.

d) Characteristics of Smoking Behavior

Characteristics	f	%
Smoking duration ≥ 10 years	35	60.3
Number of cigarettes ≥ 10 cigarettes/day	32	55.2





The majority of active smokers have a high duration and intensity of smoking, which increases the risk of respiratory system damage.

e) Distribution of Respiratory Health Disorders

Respiratory Complaints	f	%
Chronic cough	38	38.0
Hard to breathe	29	29.0
Wheezing	21	21.0
No complaints	12	12.0

Most respondents experienced one or more respiratory complaints, indicating a real impact of cigarette exposure on the respiratory system.

f) The Relationship Between Smoking Behavior and Respiratory Disorders

Smoking Status There is a disturbance There isn't any Total

Smoker	40	18	58
Do not smoke	15	27	42

The Chi- Square test showed a p value = 0.003 (< 0.05), which means there is a significant relationship between smoking behavior and respiratory health problems.

Risk Analysis (OR):

Smokers have about 4 times greater risk of experiencing respiratory problems than non-smokers.

g) Summary of Key Findings

- 1) The prevalence of active smokers is still high
- 2) The majority of smokers have high smoking duration and intensity.
- 3) Respiratory complaints are more common in smokers
- 4) There is a significant relationship between smoking behavior and respiratory disorders.

b. Discussion

1) Smoking Behavior as a Risk Factor for Respiratory Disorders

The results of this study indicate that smoking behavior is closely related to the occurrence of respiratory health problems. Exposure to cigarette smoke containing nicotine, tar, and carbon monoxide causes chronic irritation of the airways, increased mucus production, and decreased function of the respiratory epithelial cilia.





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In the long term, this condition can cause chronic inflammation and damage to lung tissue, which is characterized by symptoms such as chronic cough and shortness of breath.

2) Duration and Intensity of Smoking on the Level of Respiratory Disorders

The study results showed that respondents who had smoked for ≥ 10 years and consumed ≥ 10 cigarettes per day had a higher risk of respiratory disorders. This indicates a dose-response relationship between cigarette exposure and the severity of respiratory disorders.

The longer and more cigarettes are consumed, the greater the damage to the respiratory system.

3) Differences in Respiratory Disorders in Smokers and Non-Smokers

Non-smokers in this study tended to have lower respiratory complaints, suggesting that direct exposure to cigarette smoke had a greater impact than environmental exposure in this study.

Non-smokers who live with active smokers are also at risk of experiencing respiratory problems due to exposure to passive cigarette smoke.

4) Public Health Implications

The results of this study have important public health implications. The high prevalence of smoking and the strong association between smoking and respiratory disorders demonstrate the need for ongoing promotive and preventive interventions.

Education programs on the dangers of smoking, smoke-free areas, and smoking cessation services need to be strengthened to reduce the burden of respiratory diseases.

5) The Role of Health Workers

Health workers, especially nurses and community health center staff, have a strategic role in providing education, smoking cessation counseling, and early detection of respiratory disorders.

Behavioral approaches and ongoing support can help individuals reduce or stop smoking.

6) Research Limitations

The limitations of this study include:

- a) *Cross-sectional* design so cannot determine cause-effect relationships
- b) Use of subjective questionnaires
- c) No objective pulmonary function tests were performed.

Further research is recommended using a longitudinal design and spirometry examination.

4. Conclusion And Suggestions





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a. Conclusion

There is a significant link between smoking and respiratory health problems. Individuals who smoke have a higher risk of developing respiratory problems than nonsmokers.

b. Suggestion

- 1) People are expected to reduce and stop the habit of smoking.
- 2) Community health centers need to increase educational programs on the dangers of smoking to lung health.
- 3) Further research is recommended to use a longitudinal design to see the long-term impact of smoking behavior.

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