

ORIGINAL ARTICLE

Correlation between Appetite Disorders, Nutritional Status and Smoking Habits in Elderly

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ABSTRACT

Background: Health is an aspect that needs attention in the elderly. So many factors can affect health of the elderly, one of them is lifestyle. Poor lifestyle such as smoking can increase a person's risk of disease. Smoking has a large impact on the elderly like reducing appetite and further lead to weight loss. This can result in the occurrence of underweight in the elderly. The aims of the study were to analyze the correlation between decreased appetite, nutritional status with smoking habits during elderly.

Methods: This was a cross-sectional study involving 182 elderly. Appetite was assessed by interview using the Simplified Nutritional Appetite Questionnaire (SNAQ). Nutritional status was obtained based on anthropometric measurements of body weight and height calculated by using the formula of Body Mass Index (BMI), and smoking habits obtained from interviews using a Smoking Questionnaire.

Results: The appetite did not have a significant relationship with smoking habits, while the nutritional status had a significant relationship with smoking.

Conclusion: The elderly with good nutritional status tend to significantly have less smoking habits.

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Introduction

Health is an important aspect that needs attention in the elderly (1). Increase in age can cause a decrease in physical condition and cause susceptibility to disease. One of factor that can affect health especially in the elderly as an unhealthy lifestyle like smoking (2). Older people who smoke have a greater potential for malnutrition than non-smoker (3). Weight loss in the elderly has a crucial effect. This will be cause the elderly to experience malnutrition (4, 5). Several studies revealed a relationship between smoking and food consumption and showed that smoking can suppress hunger and reduce one's appetite and

weight (6, 7).

Smoking can disrupt a person's health and cause several non-communicable diseases, such as hypertension, heart disease, COPD, cancer in young and elderly people (8). The biggest impact on elderly who smokes is the occurrence of weight loss caused by a decrease in appetite that can affects nutritional status (9-11). Elderly often experience decreased appetite. This decrease was first described as 'aging anorexia' in 1988 by John Morley (12). Increasing age in the elderly around 15% and 30% are estimated to have aging anorexia which is most commonly experienced by women living in

nursing homes and elderly who are hospitalized (13). Nutritional deficiencies and weight loss in the elderly have serious effects associated with poor health and an increased risk of death (14). This study aimed to determine the relationship between decreased appetite and nutritional status in elderly smokers.

Materials and Methods

This study used a cross sectional research design. The population of study was the elderly >60 years old who lived in the area of health centers in Klaten, Central Java. The sample of study amounted to 182 respondents. Inclusion criteria in this study were the elderly >60 years old, living with family and not being illiterate. While the exclusion criteria in this study were the elderly who lived in a nursing home or care institution, moved to houses outside the study area, getting sick, so that they cannot answer the question properly when the research took place. This study was approved by the Sebelas Maret University Health Research Ethics Commission (No.150/UN27.0 /KEPK/2019).

Appetite data were obtained using a Simple Nutrition Appetite Questionnaire (SNAQ) that was validated by sties and pilgrim (14, 15). Smoking habits data were obtained using a smoking questionnaire, validated by Sponsiello-Wang (16). The data of appetite and smoking habits were collected by interviewing the research subjects. Based on the data in Table 1, scores on the results of interviews using SNAQ were added up and then divided into various categories (scores <12: often, 12-14: sometimes, 14-17: rarely, and 17-20: never).

The scores for smoking habits per day were based on different criteria (non-smokers: if <1 cigarette per day, light smoker: if 1-10 cigarettes per day, moderate smoker: if 11-20 cigarettes per day and heavy smoker: if smoking >20 cigarettes per day). Nutritional Status Data were obtained from anthropometric measurements of height and weight that were calculated using the Body Mass Index

Table 1: Classification of the study variables.

Variables	Criteria	Classification
Appetite disorders	17-20	Never
	14-17	Rarely
	12-14	Sometime
	<12	Often
BMI	>25	High
	18.5-25	Normal
	<18.5	Low
Smoking habits	<0 sticks per day	Not a smoker
	1-10 sticks per day	Light smoker
	11-20 sticks per day	Moderate smoker
	>20 sticks per day	Heavy smoker

BMI: Body Mass Index

(BMI) formula (scores <18.5: low, 18-25: Normal and >25: High). SPSS software (Version 21, Chicago, IL, USA) was used for statistical analysis using the Spearman test ($\alpha=0.05$). A p value less than 0.05 was considered significant.

Results

Based on data in Table 2, it can be seen that the number of elderly women involved in the study was more than men, which was 56.6%. Based on age, the majority of elderly aged 60-65 years, named as much as 51%. For appetite variable, the elderly who did not experience anorexia were more dominant with a percentage of 47.3%. Regarding the nutritional status variable of the elderly with normal nutritional status was more dominant with of 54.9% and the smoking habit variable showed the non-smoking elderly to be higher compared with a percentage of 60.4%. The elderly who did not smoke had a better appetite and nutritional status compared to the elderly with smoking habits.

Table 2: Characteristics of respondents (n=182).

Variables	Value n (%)
Gender	
Male	43.4
Female	56.6
Age (Years)	
60-65	51
66-70	23.5
>70	25.5
Appetite disorders	
Never	47.3
Rarely	14.8
Sometime	25.8
Often	12.1
Nutritional status	
High	26.9
Normal	54.9
Low	18.1
Smoking habits	
Not a smoker	60.4
Light smoker	17
Moderate smoker	17
Heavy smoker	5.5

In Table 3, it can be seen that the elderly had a habit of not smoking. Based on bivariate analysis, it is known that there was no significant relationship between decreased appetite with smoking habits ($P=0.22$). We found that older people who smoked tended to have decreased appetite. Bivariate analysis results on the nutritional status variables with smoking habits showed a significant relationship ($P=0.000$). Findings based on the results of this study indicated that elderly who did not smoke tended to have better nutritional status than those who smoked.

Table 3: Correlation of appetite disorders and nutritional status with smoking habits in elderly.

	Smoking habits				P*	r**
	Not a smoker	Light smoker	Moderate smoker	Heavy smoker		
Appetite disorders					0.22	0.09
Never	53	16	13	4		
Rarely	22	1	3	1		
Sometime	23	10	11	3		
Often	12	4	4	2		
Nutritional status					0.0001	0.49
More	41	3	5	0		
Normal	67	17	14	2		
Less	2	11	12	8		

*P value Spearman, **Correlation coefficient

Discussion

In this study, there was a significant relationship between nutritional status and smoking habits in the elderly, while appetite was not significantly related with smoking habits in the elderly. To the best of the authors' knowledge, the present report is the first comprehensive report investigating the relationship between the appetite and smoking habits in elderly. Appetite is the desire to fulfill the body's needs (17). Someone who enters the elderly often experience a decrease in appetite due to a decrease in biological and physiological functions. This can be a factor in the elderly experiencing malnutrition (18). Aside from age, elderly who have the habit of smoking also have a greater risk of experiencing malnutrition (3).

The occurrence of malnutrition in smokers is associated with nicotine effects that affect cholinergic nicotinic receptors in the autonomic ganglia and brain. Following nicotine and these related receptors will increase the expenditure of various neurotransmitters. This process results in systemic catecholamine release which has a role to increase metabolism as well as epinephrine, dopamine, norepinephrine, and serotonin expenditure which influence to increase satiety system so that a person experiences a decrease in appetite which results in malnutrition (19-21).

In addition, nicotine also has an effect to trigger the effects of adrenaline on the abdominal muscles so that it can suppress hunger (7). Other studies also explained that nicotine has an effect on appetite (22), despite controversies about smokers to have lower body weight when compared to nonsmokers. These findings were similar to the previous studies that show smokers, including long-term smokers, had lower body weight than nonsmokers (23-25). Other findings about smokers showed that someone who smoked had a higher risk of unhealthy behavior, when compared to nonsmokers. This is evidenced by light and heavy smokers significantly limiting a

less healthy diet than nonsmokers (3).

Nutritional status and smoking habits have a significant relationship. The findings in this study demonstrated that the elderly who had smoking habits tended to have a lower nutritional status. These findings are in line with previous researches stated that older people who smoked had difficulty in gaining weight (26). Nutritional status is one of the parameters to determine a person's health status. Nutritional status can be influenced by two factors of internal (genetic) and external ones. External factors are divided into factors that affect directly such as eating habits and patterns, food intake and those that affect indirectly such as health services, food availability, socioeconomic, education and knowledge (21, 27).

Another factor that influences nutritional status is lifestyle. Unhealthy lifestyles such as smoking can cause various health problems especially for the elderly (28, 29). Some studies also showed smoking to have a close relationship with BMI. The higher a person consumes cigarettes will have the risk of reducing the nutritional status value (30, 31). Weight and height are determinants of nutritional status, as weight in the elderly usually tends to decline due to reduced muscle mass (32).

Decreased nutritional status in smokers is associated with the amount of nicotine in cigarettes, the more cigarettes consumed cause the amount of nicotine that enters the body to increase. This can inhibit the rate of metabolism and suppress hunger which affects the body mass index of a person (33). Other studies also prove that in India a person who smoked had a BMI below the normal by 30% compared to nonsmokers and from 99 studies, there were results that men who smoked every day had a lower BMI of 3% more than men who did not smoke (34, 35).

Conclusion

It was shown that the decrease in appetite does not have a significant relationship to smoking habits

and the elderly with low appetite decrease tended to have less smoking habits. The nutritional variables had a significant relationship with smoking habits, and older people with good nutritional status tended to have less smoking habits.

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Conflict of Interest

None declared.

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