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Correlation of Smoking Behavior with Body Mass Index (BMI) in Palm Oil Mill Workers

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ABSTRACT

The Smokers tend to weigh less than never smokers, while successful quitting leads to an increase in body weight. Because smokers and non-smokers may differ in genetic and environmental family background, we analysed data from twin pairs in which the co-twins differed by their smoking behaviour to evaluate if the association between smoking and body mass index (BMI) remains after controlling for family background. The research will be carried out at the palm oil mill of PT. Syaukath Sejahtera, Bireuen Regency. Sampling was carried out by means of simple random sampling on selected subjects using a cross-sectional design. . The end result of this study is smoking is associated with lower BMI and smoking cessation with higher BMI.

Keywords: *BMI, Smokers, Weight.*

1. INTRODUCTION

Health is an important element to be able to enjoy a quality of life, either at home or at work [1]. Occupational health is a free conditon from physical disturbance, mental, or emotional pain caused by the work place [2]. Occupational health includes harmonization of various efforts between the workers with a job and workplace both physical and psychological. One of them is aimed to prevent the onset of health problems of workers due to situation or conditions of the workplace [3].

Smoking and obesity are among the leading modifiable risk factors for many non-communica- ble diseases, contributing to an increased risk of premature death and rising healthcare costs [4,5]. While smoking prevalence has globally decreased during the last decades, especially in high-income countries, body mass index (BMI, kg/m³) has increased during the same time period [5, 6]. There is a common belief that smoking controls weight and that quitting leads to increases in body weight [7, 5]. The causal association of smoking and changes in smoking with BMI is, however, unclear.

Smoking and nicotine are suggested to reduce weight both by increasing energy expendi- ture and by suppressing appetite [6]. On average, current smokers have lower BMIs than never smokers [8]. The causal effects of nicotine and other components of tobacco smoke on BMI are also supported by evidence that those who successfully quit smoking tend to gain, on average, 0.63 kg/m² in BMI, compared to those who continue to smoke [7].

2. METHOD

The research will be carried out at the palm oil mill of PT. Syaukath Sejahtera, Bireuen Regency. Sampling was carried out by means of simple random sampling on selected subjects using a cross-sectional design. The end result of this study is a formula for predicting the risk of hypertension in palm oil factory workers. The variables in this study were age, sex, blood pressure, education level, income level, marital status, body mass index, smoking behavior, stress level, history of diabetes mellitus and physical activity.

3. RESULT AND DISCUSSION

Description of Characteristics of Palm Oil Mill Workers

Table 1 Characteristics of Palm Oil Factory Workers

No	Variable	Frequency (n=100)	Percentage (%)
1	**Body mass index**		
	Underweight	5	5
	Normal	21	21
	Overweight	26	26
	Obesity	48	48
2	**Age**		
	≤ 35 Years	65	65
	> 35 Years	35	35
2	**Gender**		
	Man	92	92
	Woman	8	8
2	**Education**		
	No school	0	0
	SD	2	2
	JUNIOR HIGH SCHOOL	0	0
	SENIOR HIGH SCHOOL	49	49
	PT	49	49
5	**Smoking Behavior**		
	Do not smoke	58	58
	Light	12	12
	Currently	27	27
	Heavy	3	3

Based on the results of the analysis, it can be concluded that most workers have an overweight BMI (53%), are under 35 years old (65%), are male (92%), have graduated from university and high school (49%), and are not smoking (58%).

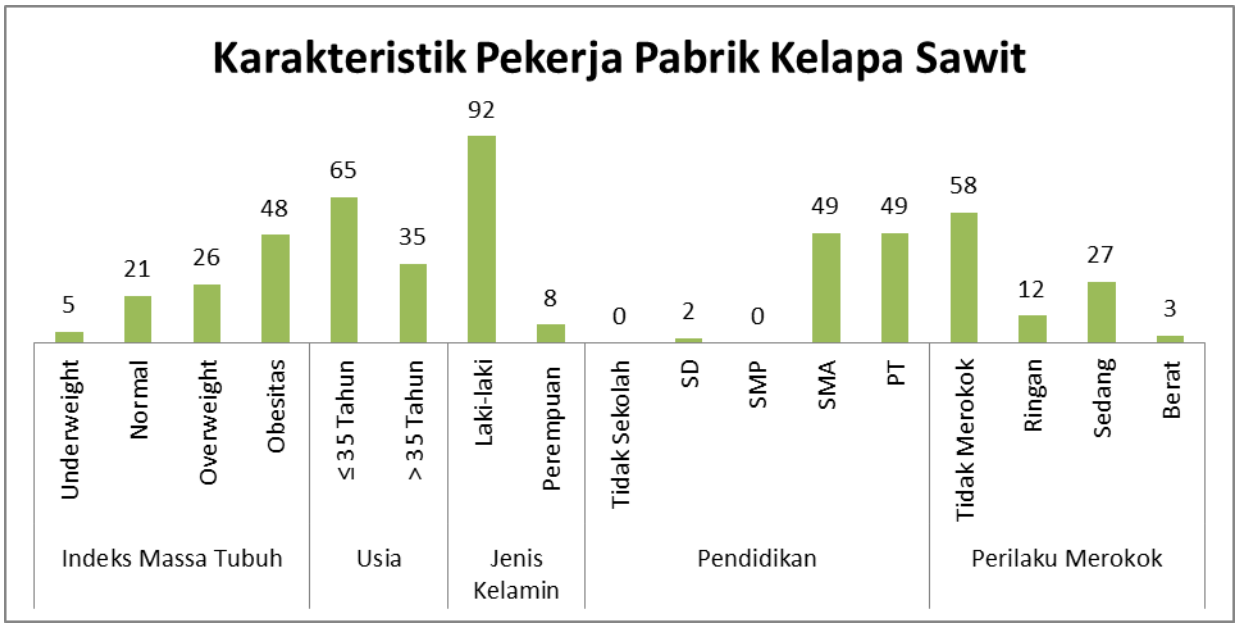

Figure 1 Characteristics of Palm Oil Factory Workers

The Relationship between Smoking Behavior and Body Mass Index

Table 2 Relationship between Smoking Behavior and Body Mass Index

Smoking Behavior	Body mass index										p-value
	Underweight		Normal		Overweight		Obesity		Total		
	n	%	n	%	n	%	n	%	n	%	
Do not smoke	3	5,2	6	10,3	12	20,7	37	63,8	58	100	0.009
Light	0	0	4	33,3	3	25	5	41.7	12	100	
Currently	2	7,4	11	40,7	9	33,3	5	18.5	27	100	
Heavy	0	0	0	0	2	66,7	1	33,3	3	100	

The results of the analysis show that workers who do not smoke are mostly obese (63.8%). Workers who were light smokers were also the most obese (41.7%). Many moderate smokers are overweight and heavy smokers also have more BMI in the overweight category. Statistical tests using Chi-Square showed that there was a significant relationship between smoking behavior and body mass index (pv = 0.009 < α = 0.005). Smoking and nicotine are suggested to reduce weight both by increasing energy expendi- ture and by suppressing appetite [6]. On average, current smokers have lower BMIs than never smokers [8]. The causal effects of nicotine and other components of tobacco smoke on BMI are also supported by evidence that those who successfully quit smoking tend to gain, on average, 0.63 kg/m² in BMI, compared to those who continue to smoke [7].

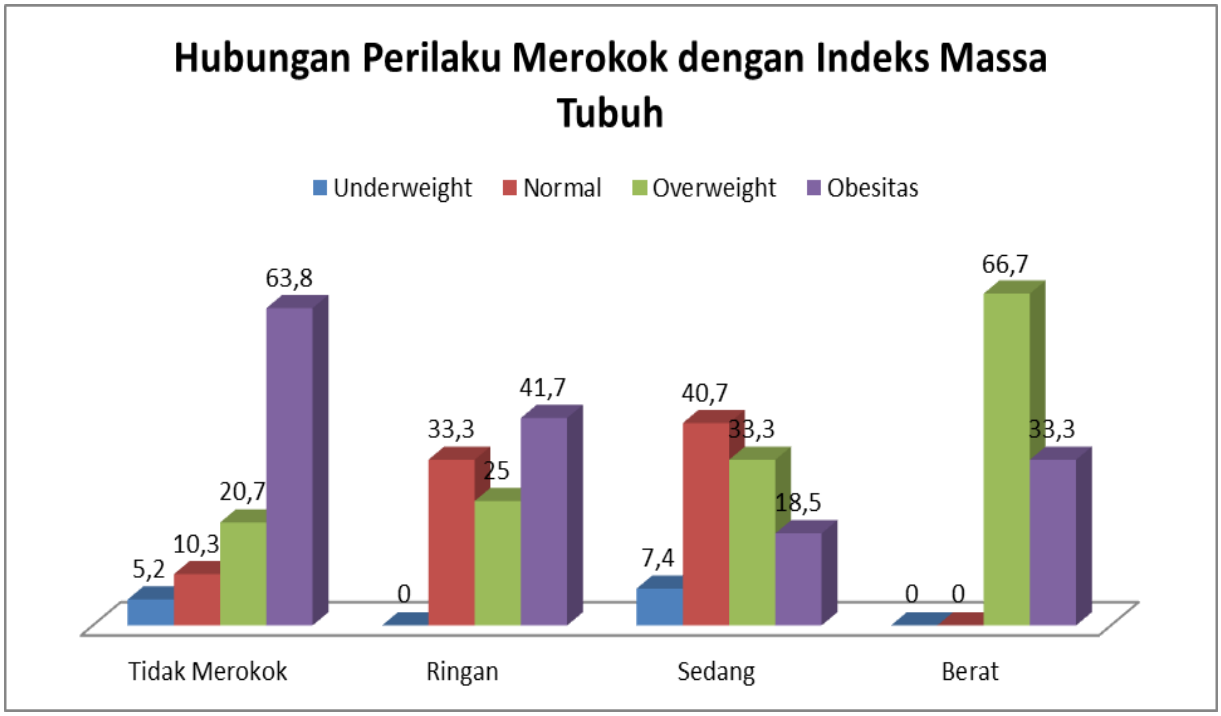

Figure 2 Relationship between Smoking Behavior and Body Mass Index

4. CONCLUTION

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5. FIGURES AND TABLES

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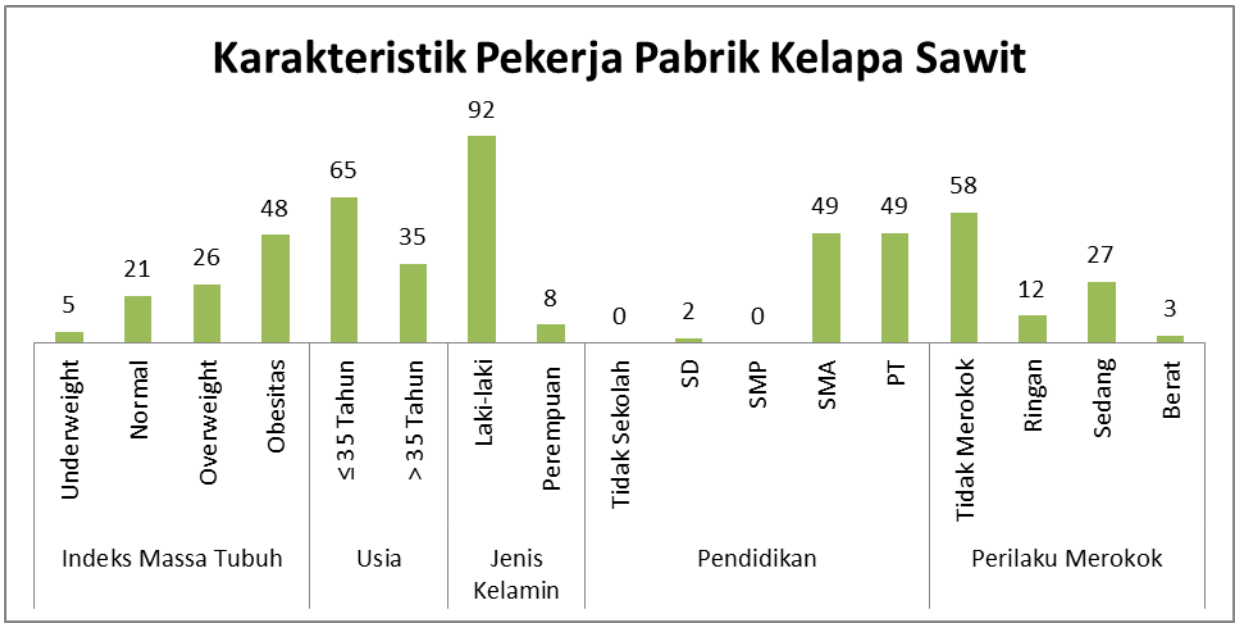

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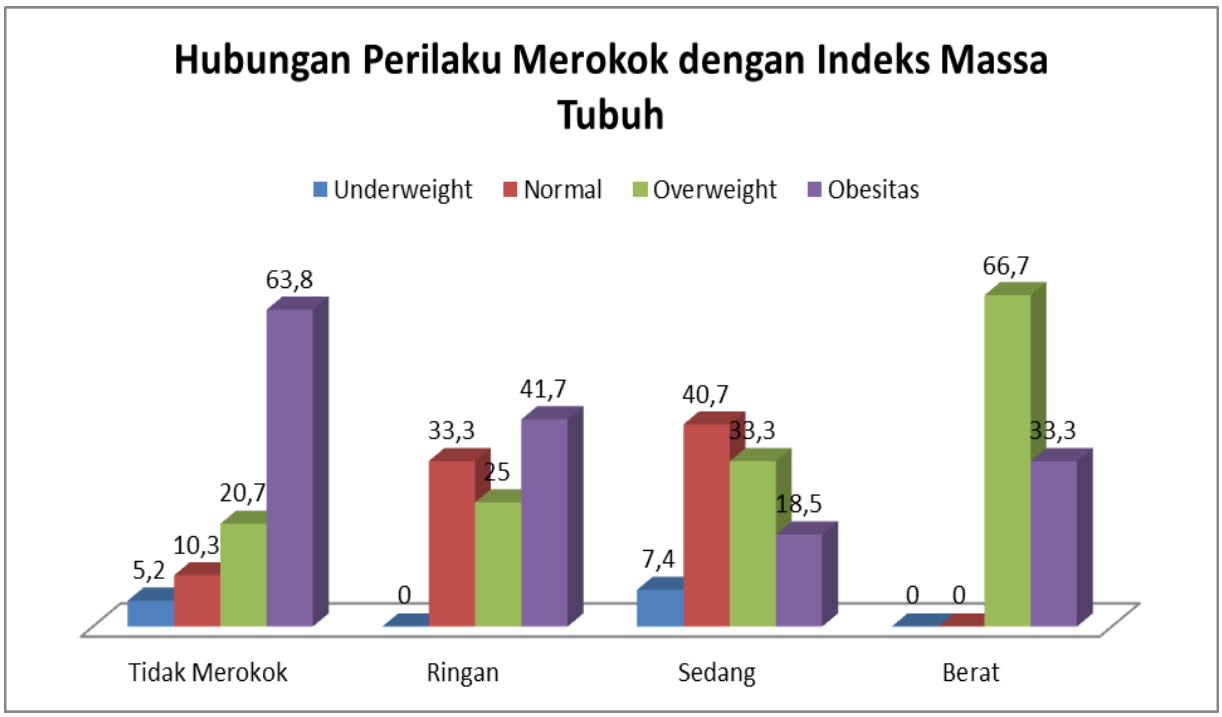

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AUTHORS' CONTRIBUTIONS

YUZIANI, RIZKA SOFIA, HARVINA SAWITRI

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