

## The Relation between Lifestyle and Nutritional Status of Adolescents in Central Jakarta

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### Abstract

*Purpose:* The purpose of this study was to determine the relation between lifestyle with nutritional status of adolescent in Central Jakarta. *Methodology:* This research is quantitative with a cross sectional design. The research population was 268 adolescents with a sample of 135 adolescents. Samples were taken using probability sampling technique with proportionate random sampling. The dependent variable in this study was nutritional status and the independent variable in this study was lifestyle including physical activity, smoking behavior, and sleep duration. *Results:* The results of univariate analysis in this study showed that 54.8% of adolescents had poor nutritional status, 61.5% of adolescents had mild physical activity, 78.5% of adolescents had no smoking behavior, and 63.0% of adolescents had a good sleep duration. The results of the chi square statistical test showed that there was a relation between physical activity (pvalue = 0.004) and sleep duration (pvalue = <0.0001) while there was no relation between smoking behavior (pvalue = 0.799) and nutritional status. *Applications/Originality/Value:* This manuscript is an original work that has never been published or published in other media.

### Introduction

The adolescence stage is the transition from childhood to adulthood, where this stage experiences many hormonal changes that affect physical development. Adolescent need more nutrition than children for their physical growth (Diananda, 2019). Adolescent often experience problems with themselves because they are in the process of finding their identity, influenced by the environment and changes in lifestyle. Lifestyle irregularities can cause nutritional problems in adolescents (Kemenkes RI, 2020).

In public health, nutritional problems are among the most important and require special attention. The adolescent stage of malnutrition and excess nutrition can make a person more susceptible to disease. Especially for young women, if it continues into adulthood and marriage, it can affect the fetus in the womb (Kemenkes RI, 2020).

Nutritional status is an individual's physical health condition which is determined by nutritional measurements. The amount and types of food consumed can affect an individual's nutritional status, income and eating habits personally. The categories of nutritional status are undernutrition status, good nutritional status, overweight status and obesity (Nugraheni., et al 2018). Good nutrition is achieved when sufficient nutritional intake is met. Malnutrition is experienced when the body lacks essential nutrients. Nutrition is experienced more when the body gets nutrients that exceed the adequacy rate, so that it will have a negative impact on the body.

Lifestyle includes indirect factors that can affect individual nutritional status. Lifestyle refers to how a person lives; a negative lifestyle, including a lack of exercise, smoking and drinking alcohol, triggers the development of various diseases (Nugraheni et al., 2018). According to the WHO, Physical activity is defined as any movement of the body caused by skeletal muscles and generates useful energy for maintaining mental and physical health and keeping the body fit and healthy every day.

Adolescents with less physical activity automatically spend less energy and their nutritional intake is also lacking, so they easily experience nutritional problems. Physical activity is one way to avoid gaining too much weight. Nutritional status is also affected by sleep duration; a lack of sleep duration leads to hormonal and metabolic changes that can lead to weight gain and even obesity. The cause of sleep deprivation is due to changes in sleep patterns.

Based results of the 2018 Basic Health Research (Riskesmas), the nutritional status of adolescents aged 13-15 years in Indonesia was found to be 1.9% very thin, 6.8% thin, 11.2% overweight, and 4.8% obese based on Body Mass Index/Age. Data obtained from the prevalence of nutritional status of adolescents aged 16-18 years based on BMI/Age revealed that 1.4% were very thin, 6.7% were thin, 9.5% were overweight, and 4.0% were obese.

Based results of the 2018 Basic Health Research (Riskesmas), the nutritional status of adolescents aged 13-15 years in the DKI Jakarta area was found to be 1.9% very thin, 6.2% thin, and 15.1% overweight based on Body Mass Index/Age. and 10% are overweight. According to the prevalence of nutritional status in adolescents aged 16-18 years based on BMI/Age, 1.9% were very thin, 7.0% were thin, 12.8% were overweight, and 8.3% were obese. Where the prevalence of underweight nutritional status is higher at the age of 16-18 years than at the age of 13-15 years.

A healthy lifestyle is an effort to achieve a healthy life and avoid bad habits that can affect health. Healthy lifestyle indicators such as not smoking, diet and regular physical activity (Husin et al., 2019). According to the results of research conducted by Iftita Rochman and Merry Adriani (2013) at Trimurti Surabaya High School, there is a relationship between lifestyle factors such as smoking behavior and drug consumption and nutritional status. And there is no relationship between lifestyle as usual sports and drinking behavior and nutritional status in adolescents. This shows that not all lifestyle indicators are related to nutritional status.

Based on the above description, the researcher is interested in conducting research to determine whether there is a relationship between lifestyle and nutritional status in adolescents in Central Jakarta.

## Method Of Research

This type of research uses a cross-sectional research design, which is a type of research that emphasizes the time of measurement or observation of the independent and dependent variables only once at that time (Notoatmodjo, 2018). Determining the number of samples was calculated using the two-proportion difference hypothesis test formula according to Lemeshow, and the sampling technique used was probability sampling with proportional random sampling, namely the technique of taking proportions to get a representative sample and taking subjects from the specified area so that it is balanced (Isgianto, 2017 ). This study's sample size was 135 people between the ages of 15 and 18. This study makes use of primary data types. Direct interviews with respondents were used to collect primary data (Sugiyono, 2016). The following information is required for this study: the respondent's identity, namely name, age, gender, and date of birth. Measurements of BMI/A and the respondent's lifestyle include physical activity, smoking behavior, and sleep duration.

Data analysis is the process of reducing data to a more readable form, primarily through univariate and bivariate analysis. The goal of univariate analysis is to use descriptive statistics to describe the characteristics of each research variable. The results of these statistical calculations form the basis for further calculations (Sitoyo & Sodik, 2015). The Chi square statistical test is used in bivariate analysis to determine the significance of the independent and dependent variables, which is used to test the descriptive hypothesis if the population consists of two or more, then the data is nominal and the sample is large (Sugiyono, 2013). The prevalence ratio is the ratio between the number of respondents with cases of poor nutritional status at one time and the total number of respondents. PR calculations are carried out to find out which groups have a greater risk than other groups. To find out the degree of relationship between the independent and dependent variables can be known by calculating the PR.

## Research Result

**Tabel 1.** Summary of nutritional status and lifestyle in adolescents

| Variable           | Category | Frequency |      |
|--------------------|----------|-----------|------|
|                    |          | n         | %    |
| Nutritional status | Not good | 74        | 54.8 |
|                    | good     | 61        | 45,2 |
| Physical Activity  | Mild     | 83        | 61.5 |

|                  |             |     |      |
|------------------|-------------|-----|------|
|                  | Moderate    | 52  | 38,5 |
| Smoking Behavior | Smoking     | 29  | 21,5 |
|                  | Not smoking | 106 | 78,5 |
| Sleep Duration   | Not good    | 50  | 37,0 |
|                  | Good        | 85  | 63,0 |

Based on Table 1 shows that the majority of respondents with poor nutritional status were 74 people (54.8%), mild physical activity were 83 people (61.5%), not smoking were 106 people (78.5%), and good sleep duration as many as 85 people (63.0%).

**Table 2.** Summary of relations between lifestyle and nutritional status

| Variable          | Nutritional status |      |      |      | Pvalue  | PR(95%CI)     |
|-------------------|--------------------|------|------|------|---------|---------------|
|                   | Not good           |      | Good |      |         |               |
|                   | n                  | %    | n    | %    |         |               |
| Physical Activity |                    |      |      |      |         |               |
| Mild              | 54                 | 65,1 | 29   | 34,9 | 0.004   | 1,692         |
| Moderate          | 20                 | 38,5 | 32   | 61,5 |         | (1.159-2.469) |
| Smoking Behavior  |                    |      |      |      |         |               |
| Smoking           | 17                 | 58,6 | 12   | 41,4 | 0.799   | 1,090         |
| Not Smoking       | 57                 | 53,8 | 49   | 46,2 |         | (0.766-1.552) |
| Sleep Duration    |                    |      |      |      |         |               |
| Not good          | 38                 | 76,0 | 12   | 24,0 | <0.0001 | 1,794         |
| Good              | 36                 | 42,4 | 49   | 57,6 |         | (1.339-2.405) |

Based on Table 2 shows that of the three independent variables there are two variables related to nutritional status in adolescents with pvalue <0.05, namely physical activity variables (0.004 ) and sleep duration (<0.0001), while smoking behavior does not relation with nutritional status (0.799).

## Discussion

### *Respondents Nutritional Status*

Based on table 1 nutritional status the study, it was shown that most of the adolescents with poor nutritional status (54.8%) were in the categories of undernutrition (29.2%), excess nutrition (21.5%) and obesity (3.7%). The percentage of nutritional status based on Riskesdas for 2018, this figure exceeds the national prevalence of 8.1% for wasting and 13.5% for obesity. In addition, the percentage of undernourished and overweight was also higher than the prevalence of emaciation and obesity in the DKI Jakarta area, namely 8.9% for thinness and 21.1% for obesity.

The findings of this study are consistent with Mulyasari research (2017), based BMI/Age which found that most students had abnormal nutritional status (55.2%). This is likely influenced by various factors, such as nutrient intake, gender differences, education, consumption habits of vegetables and fruit, physical activity and other factors. Nutritional problems, such as undernutrition and overnutrition, will increase the risk of non-communicable diseases. Especially in young women, if this problem continues into adulthood and marriage, it will affect the health of the fetus they contain.

### *Relation Physical Activity with Nutritional Status*

Physical activity is one of the factors that influence nutritional status, which is an important component of energy expenditure. According to the study's findings, the majority of respondents with poor nutritional status (65.1%) had a low level of activity. Low physical activity is a risk factor for obesity, where there is an influence between eating a lot and low physical activity can cause obesity (Rizkiriani, 2014). The Chi square test results showed that the pvalue = 0.004, indicating that there is a significant relationship between adolescent physical activity and nutritional status.

The results of this study are in line with Yulianingsih research (2017), showing that there is a significant relationship between physical activity and the nutritional status of adolescents at SMKN 03, with a pvalue = 0.000. Serly et al., (2015) discovered a significant relationship between physical activity and nutritional status with a pvalue = 0.000 in their study. The reason for the high level of physical activity is that many teenagers now prefer to use motorized vehicles compared to walking. This condition causes the intensity of physical activity to decrease. According to the World Health Organization (2010) adolescents should engage in physical activity of a moderate intense for at least 60 minutes each day.

#### ***Relation between smoking behavior and nutritional status***

Smoking behavior is also a lifestyle that cannot be denied from the lives of teenagers. According to the study's findings, some respondents with poor nutritional status smoked (58.6%). This is presumably because the substances contained in cigarettes can reduce appetite and make a person an addict. The Chi square test revealed a pvalue of 0.799, indicating that there is no significant relationship between adolescent smoking behavior and nutritional status.

The findings of this study are consistent with the findings of Husin et al., (2019), who found no relationship between smoking behavior and nutritional status with a pvalue = 0.072. According to Khudoifah (2018) findings, there is no relationship between smoking behavior and nutritional status of adolescents at SMAN 1 Tengaran, with a pvalue = 0.174. There is no relationship between smoking behavior and the nutritional status of adolescents, but some adolescents with smoking behavior control their nutritional status through a healthy lifestyle such as adequate food intake, exercise and a good sleep duration, this shows concern for matters related to nutrition. Although in this study smoking behavior was not related to nutritional status, adolescents should avoid this behavior because smoking can have a negative impact on themselves and those around them. According to Anita et al., (2015) in cigarettes there are various substances that have a negative impact on users.

#### ***Relation between sleep duration and nutritional status***

Sleep duration is one of the most important indicators of one's health (Rachmawati et al., 2021). According to the study's findings, the majority of respondents with poor nutritional status (76.0%) had insufficient sleep duration. Based on research findings, some adolescents sleep less than 7 hours (18.5%) and adolescent sleep deprivation affects hormonal and metabolic changes which can lead to weight gain and obesity. The Chi square test yielded a pvalue = 0.0001, indicating that there is a significant relationship between adolescent sleep duration and nutritional status.

The findings of this study are consistent with the findings of Intan Hartanigrum et al., (2020), who discovered a relationship between sleep duration and nutritional status with a pvalue = 0.006. The results revealed that the majority of respondents (87.7%) slept for less than 8 hours. Another study, conducted by Rachmawati et al.,

(2021), discovered that sleep duration has a significant relationship with the prevalence of obesity  $p$ value = 0.000. According to the Ministry of Health (2018) the need for sleep for each individual is adjusted for age because as you get older the need for sleep will decrease. Whereas 7 to 9 hours of sleep per day are recommended for adolescents aged 12 to 18 years old.

## Conclusion

Based on the findings of a study on the relationship between lifestyle and nutritional status in adolescents in Central Jakarta, the following conclusions can be drawn: Adolescent nutritional status is mostly poor (54.8%), there is a relationship between physical activity and nutritional status  $p$ value = 0.004, sleep duration and nutritional status  $p$ value = <0.0001, and there is no relationship between smoking behavior and nutritional status  $p$ value = 0.799

## Acknowledgement

The authors thank the respondents who were involved in the research for their willingness to participate, and special thanks to the Faculty of Health Sciences, University Muhammadiyah Prof. Dr. Hamka.

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