

**THE RELATIONSHIP BETWEEN NUTRITIONAL STATUS AND AGE AT
MENARCHE IN THE FIFTH AND SIXTH-GRADE STUDENTS
OF SDN PABEAN 1 SEDATI, SIDOARJO**

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Abstract

In the last decade, age at menarche comes earlier. The factors affecting the menarche are genetics, nutritional status, and environment. Therefore, this research was purposed to find out the relationship between nutritional status and age at menarche in the fifth and sixth-grade students of SDN Pabean 1 Sedati, Sidoarjo.

This analytic research was done using cross sectional approach. The population involved the students having menarche in the last two months, totally 28 people. Whilst, 26 respondents were taken as the samples by using probability sampling in which simple random sampling technique was used. The independent variable was nutritional status, whereas the dependent one was age at menarche. The instruments used in this research were questionnaire and observation sheet. Moreover, the data were analyzed by using Spearman's Rank test with the significance level $\alpha = 0.05$.

The result of research showed that nearly half of the respondents (46.2%) had normal nutritional status, whereas most of them (53.8%) had menarche at normal age. Moreover, the result of Spearman's Rank test showed that $p = (0.018) < \alpha = (0.05)$ so that H_0 was rejected illustrating that there was a relationship between nutritional status and age at menarche.

In conclusion, the higher nutritional status affects the normal age at menarche. Hence, the health workers are expected to develop cooperation with schools in order to provide reproductive health education for adolescents as well as to integrate it into the curriculum in the fifth and sixth grade.

Keywords: nutritional status, age at menarche

1. Introduction

Adolescence is defined as the period of transition from childhood to adulthood. Before a woman is ready to undergo the reproductive period, there is a period of maturity, better known as puberty. Clinically puberty begins with the onset of secondary sex characteristics, and ends if there is already a reproductive ability. Important events in puberty are a rapid growth, menarche, and psychic change. Young women who have entered puberty will experience menarche (Manuaba, 2009). According to Irchamsyah (2007) age of menarche are grouped into three, namely: the age of menarche < 10 years early menarche, is 10-15 year is normal, menarche > menarche 15 years is slow. Epidemiological studies reveal the phenomenon points to the fact that the age of menarche in women in various parts of the world lately is very fast.

In the last hundred years is the age of menarche has been shifted to a younger age. In Asia such as Hong Kong and Japan the average age of menarche young women was 12.2 and 12.38 years (Karapanaou, 2010). Basic health research results in 2010 shows the average age of menarche in Indonesia is 13 years old with the youngest age of menarche under 9 years old and the oldest 20 years. According to (BKKBN, 2005) the age of menarche women Indonesia is at the age of 13 years.

Based on the preliminary results of a study conducted by researchers from 303 students grades 5 and 6 in SDN 1 Sedati Sidoarjo by 2015, the number of which had already been menstruating as much as 46 students of which 28 students menarche in the last 2 months. Of the 28 students, 10 students who carried out the interview obtained data 6 students undergo early menarche (< 10 years), and 4 students experienced the normal menarche (10-15 years). From 6 students who are experiencing early menarche, 4 students have normal nutritional status and 2 students with more nutritional status.

Factors that affect a woman's menarche age are internal factors and external factors. Internal factors: genetic, reproductive organs, and diseases, while composed of external factors: nutritional status, knowledge, lifestyle, socioeconomic status, and environmental factors (Lestari (2011), Santi (2006), et al). Nutritional status is a State body that is the end result of a balance between the nutrients into the body (Sediaoetama, 2010). The excess

nutrient status and does not comply with the requirements of the hormone estrogen content tend to have high so they got it early menstruation. Teens who are experiencing early menarche (10 < years) will have health problems and psychosocial in teenagers. Teen Nutrition greatly influences the onset of menarche onset age factor both of menarche, the existence of the complaints during the menarche or the length of the day menarche. A good nutritional status can ripen the female reproductive organs so they got the menstruation at a normal age. The content of essential nutrients, namely protein, carbohydrates, vitamins, and mineral resources that are consumed in the diet can affect ovarian primordial follicles growth hormonal estrogen, that is the most important hormone in women. When the nutrients lacking fulfilment will affect the growth of organs, functions, will also cause disruption of reproductive function, this affects the menstrual disorders. In addition the nutrients also affects the production of somatopedin which is a facilitator of growth produced by the liver as the main driving force of sexual maturity (Waryana, 2010).

A solution that can be done on the above issues is the nurse or health worker can promote Balanced Nutrition Guidelines (PUGS), nutritional needs of teenagers, relations with reproductive health and nutrition tips for choosing healthy food, providing knowledge of adolescent reproductive health as early as possible as well as providing health counselling about menstruation. In addition the role of parents is very important to eliminate the negative thoughts of the child about menstruation. Parents should be able to explain to the child about menstruation, as well as the need to pay more attention to nutrient content of each food consumed in order not to occur a result of nutritional status that does not comply with the requirement. And vice versa, a child should consult with a parent if there is one thing that is not yet known. Where the target is teenagers itself are working together with teachers from the school.

2. State Of The Art

2.1 The Basic Concept Of Nutritional Status

Nutritional status is the State of health of a person's body or a group of people caused by the ingestion, absorption (absorption), and the use of nutrients to food in the body. Nutritional status is an

important factor to judge someone in good health or not suffer from diseases caused by disorders of nutrition, both mentally as well as physically. An imbalance in the provision of food is causing problems in the fulfillment of nutrition, i.e. the problem of less and more nutritional problems (Dieny, 2014).

2.2 The Basic Concept Of Menarche

Menarche signifies the beginning of menstruation a girl during puberty, which usually appear at the age of 11-14 years. Important changes occurred on the matured girl period soul and her own body through adolescence adult women. This indicates that the child entered the stage of maturity of the sexual organs in his body. Menarche is the reasonable thing and certainly experienced by every woman is normal and not to worry about sebenarnya. Menstrual cycle fertile period shows that have been started that occurs when the lining of the uterine wall disintegrates and menstrual blood in the form of exit (Proverawati, 2009).

2.3 The Basic Concept Of A Teen

Adolescence or puberty, was his liaison between the time of children with adults. Growth and development in adolescence very rapidly, either

| Age (Years) | Frequency (n) | Percentage (%) |
|---------------------|---------------|----------------|
| 6-9 Year | 12 | 46,2 |
| 10-13 Year | 14 | 53,8 |
| The total number of | 26 | 100 |

physical or psychological. Rapid development is taking place at the age of 11-16 years in males and 10-15 years in women. Girls mature faster than boys. Rapid development in puberty is influenced by the sexual hormones. Reproductive organs on puberty has started functioning. One of the characteristics of puberty is starting the onset of menstruation in women. As for the men at the laiki began to produce sperm

3. Research Methods

Research methods used are analytic, time-based sampling this research uses the approach of cross Sectional. Researchers studied the relationship between the independent variable and the dependent variable is done once and at the same time.

Population students grades 5 and 6 in the SDN Customs 1 Sedati Sidoarjo already menarche in the last two months a number of 28 respondents.

Sampling in research using a Probability sampling technique propotional random sampling. The location of the research carried out at the customs 1 SDN Sedati Sidoarjo. The independent variable in this study is the nutritional status and the dependent variable in this study is the age of menarche. In this study uses observations on independent variables (nutritional status) and the dependent variable on the questionnaire (the age of menarche).

How data collection i.e. researchers come up to grade 5 and 6 students who have elected to be the criteria of respondents collected in one class to request approval as the respondent and the respondent provided an explanation of the purpose and benefits of research. After respondents agreed then the researcher directly give sheet questionnaire to review her menarche's age as well as observing the nutritional status with the measurement of W and TB then calculated based on IMT (Body Time Index) = the results included suit graph growth IMT/U (CDC Growt Chart). Data analysis with SPSS 16 using the Spearman Rank test with test validity of 0.05.

4. Research Results

4.1 General Data

General data contains the characteristics of respondents who include age and grade of the respondents.

a. Age

Source : Primary data 2015

Based on the above table shows most respondents 14 (53.8%) aged 10-13 years

b. Class

| Class | Frequency (n) | Percentage (%) |
|---------------------|---------------|----------------|
| 5 | 20 | 76,9 |
| 6 | 6 | 23,1 |
| The total number of | 26 | 100 |

Source : Primary Data 2015

Based on the above table shows that almost all respondents 20 (76.9%) are in the 5th grade.

4.2 Special Data

Special data outlining the characteristics of respondents based on nutritional status and age of menarche.

a. The Nutritional Status

Source : Primary Data 2015

Based on the above shows that almost half of respondents 12 (46.2%) had normal nutritional status.

b. Age of Menarche

Source : Primary Data 2015

Based on the table above shows that most respondents 14 (53.8%) normal menarchenya age i.e. the age of 10-15 years.

4.3 Data analysis

Cross-tabulated the relationship of nutritional Status with the age of Menarche in 5th and 6th Grade Students in SDN Customs 1 Sedati Sidoarjo

Source : Primary data 2015

| The nutritional status | Age of Menarche | | | | The total number of | |
|------------------------|-----------------|------|--------|------|---------------------|-----|
| | Early | | Normal | | Σ | % |
| | n | % | n | % | | |
| Less | 0 | 0 | 3 | 100 | 3 | 100 |
| Normal | 3 | 25 | 9 | 75 | 12 | 100 |
| More | 9 | 90 | 1 | 10 | 10 | 100 |
| Obesity | 0 | 0 | 1 | 100 | 1 | 100 |
| The total number of | 12 | 46,2 | 14 | 53,8 | 26 | 100 |

Based on the above table shows that from 26 reponden including 3 respondents that the status of its nutrition value less entirely (100%) menarchenya normal age, from 12 respondents that the status of its nutrition value of a normal majority (75%) of normal menarchenya, age of 10 respondents that the status of its nutrition value better is almost entirely (90%) the age of the early menarchenya, and of the status of its nutrition value respondents 1 obesity entirely (100%) menarchenya normal age.

From the table, then in the analysis using statistical test of Rank Spearman. Calculation with SPSS 16 for windows brings about that $p = \alpha = 0.05$ and of 0.018 means $p < \alpha$ then the $H_0 < \text{rejected}$ stating that there is a relationship between the nutritional status with the age of menarche in 5th

and 6th Grade Students SDN Customs 1 Sedati Sidoarjo.

4.4 Discuss

In this chapter will be outlined the results of the research on nutritional status with the age of

| The nutritional status | frequency (n) | Percentage (%) |
|------------------------|---------------|----------------|
| Less | 3 | 11,5 |
| Normal | 12 | 46,2 |
| More | 9 | 34,6 |
| Obesity | 1 | 3,8 |
| The total number of | 26 | 100 |
| Early | 12 | 46,2 |
| Normal | 14 | 53,8 |
| Slow | 0 | 0 |
| The total number of | 26 | 100 |

menarche in 5th and 6th grade students in the 1st Customs Sedati SDN. in accordance with the purposes for which it has been in charge, then it can be described the deliberations as follows:

a. Description of nutritional status

The results of the research undertaken researchers showed that 26 of the respondents obtained almost half of it (46.2%) respondents had normal nutritional status of as many as 12 of the respondents. On school age children currently has many activities in addition to learning such as follow the existing extracurricular school, play with peers, and work out appropriate hobby each so a balance between intake and energy needs his nutritional needs. Energy demand is very necessary at this time to daily activity and the body's metabolic processes to support its growth. Therefore, foods that are provided for school-aged children should contain good nutrition and quality assured, so as not to disturb the growth process (Arisman, 2006).

Nutritional status is said to be good if necessary nutrients good protein, fat, carbohydrates, minerals, and vitamins are used by the body as needed. The age of elementary school children are experiencing growing very rapidly and the flower will experience puberty then expected they can have normal nutritional status so that the growth and development of the body in balance and be a productive, healthy teenager, and intelligent.

Determination of the nutritional status of adolescent can be determined with the measurement of Anthropometry, namely weight (W) and height badan (TB). The method used is by body mass index calculation is obtained by dividing the weight (kg) to the square of height (in meters). The value of the IMT was later diplotkan in the graph of the IMT according to age (IMT/U) by category of nutrition less IMT under 5 percentile, the category of normal nutrition IMT of 5 percentile to under 85 percentile, categories nutrition more IMT of 85 percentile to under 95 percentile, obese category and IMT of 95 percentile and above.

b. The age of menarche

Based on the results of the study showed that out of the 26 responden obtained the majority of the respondents (53.8%) normal menarchenya age as much as 14 respondents. This happens in vary on each individual, as influenced by several factors, namely environmental factors, heredity, hormonal, nutritional status, gidup style, and in addition it is also caused by the social economy. A teenage daughter who experience menarche normal will experience growth of normal reproduction as well.

In line with the increase of the age of menarche, someone else will take place by itself because the menarche is physiological events experienced by a woman who stepped on the fertile period. This is in accordance with the theory according to Moersintawati in Masruroh (2012) menarche is the culmination of a series of physiological changes that happen to a girl are stepping up, changes arising from a series of interactions between a number of glands in the body.

c. The Relationship Between Nutritional Status

With The Age Of Menarche

The research of the relationship between nutritional status with the age of menarche was conducted an analysis of the correlation of SPSS 16 for Windows with the analysis of the statistical test of Rank Spearman with the level of significance of $\alpha = 0.05$ indicates 0.018, then $p = p \alpha$ so that $H_0 <$ denied stating that there is a relationship between the nutritional status with the age of menarche in 5th and 6th Grade Students SDN Customs 1 Sedati Sidoarjo.

The fulfillment of the nutrients that the body needs can influence the development and growth of the organs of the body including the reproductive

organs. On teenagers who have a good nutritional status then the maturity of the reproductive organs will grow and develop in accordance with its normal. The State of the child's body with a good nutritional status can influence the onset of menarche. Factors that influence is good eating patterns and the type of food consumed. So the intake of nutrients in the body can be sufficiently filled with nutritional substances needed by the body. According to Supartini (2008), the first menstruation occur in adolescents aged 10-15 years experienced by children with good nutritional status. The intake of good nutrition can fullfill the needs of nutritional substances in the body. Where the better nutritional status, the influence of puberty is characterised by the arrival of menarche age in normal.

Excessive nutritional fulfillment and not in accordance with the needs of the body that can influence the development and growth of the organs of the body including the reproductive organs. On teenagers who have nutritional status is more then the maturity of reproductive organs will grow and grow faster. According to Wiknjosastro, Hanifa, et al (2005) nutritional status are more likely to contain the hormone estrogen is high, causing a person's sexual maturity faster children characterized by early onset of menarche. Girls with more fatty tissue, mostly faster experience menarche than girls who liked the vegetarian or vegetables and fruit.

Hormones that influence is GH, thyroid, and hormones produced by the adrenal glands. GH is a hormone growth hormone, while sex hormones play a role in fertility and reproduction. At the beginning of puberty, sex hormones stimulate the growth of the body. Heredity and environment can also affect the age of menarche (Sarwono, 2007). Nutritional status was not the main factor that can affect the age of menarche, because each person has different body State, so that the factors affecting menarche is also different. Including public health, the body is weak or diseases that whack a girl like a chronic disease, mainly affecting the input food and the oxygenation of the tissues can slow the onset of menarche.

5. Summary advice

5.1. Summary

A summary of the results of this research are:

1. Nutritional Status of students in grades 5 and 6 SDN Customs 1 Sedati almost half of it is normal.
2. grade 5 and 6 Students at SDN Customs 1 Sedati most of his normal menarche age.
3. There is a relationship between the nutritional status with the age of menarche in 5th and 6th grade students SDN 1 Sedati at customs.

5.2 Advice

1. For parents

Expected parents can eliminate eliminate negative thoughts of the child about menstruation. Parents should be able to explain to the child about menstruation, as well as the need to pay more attention to nutrient content of each food consumed in order not to occur a result of nutritional status that does not comply with the requirement and to prevent the occurrence of early menarche.

2. For subsequent researchers

The results of this research can be used as a reference in research related to the relationship of nutritional status with the age of menarche with the development of research methods and use other correlation test, other than that expected for the next researcher can understand more about the happenings at menarche teenager, and can use other factors related to the age of menarche is invalidated so that the research results are more accurate.

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