

The Correlation between Nutritional Status and Age of Menarche among Adolescent Students

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Abstract:

Menstruation for the first time in young women is called menarche which is experienced by girls aged 11 to 14 years. Recently, few researches show there is an earlier age of menarche because of higher nutritional status. The purpose of this study was to determine the relationship between nutritional status and the age of menarche in female students in grades 4, 5, and 6 at Dawuhan Lor 01 Public Elementary School, Sukodono District, Lumajang Regency. The analytic correlation research design with a cross-sectional time approach was used on 39 respondents at Dawuhan Lor 01 Public Elementary School, Sukodono District, Lumajang Regency. Measuring tools in this study were respondent characteristic questionnaires, nutritional status observation sheets, and menarche age. Spearman's rho test was used to answer the purpose of this study. The results showed that the majority of female students had good nutritional status as many as 29 female students (74.4%). The majority of female students have normal menarche age (11-13 years) as many as 24 respondents (61.5%). There is a significant relationship between nutritional status and the age of menarche in grades 4, 5, and 6 at SDN Dawuhan lor 01, Sukodono Lumajang District, namely p-value 0.001. So that nutritional status can affect the age of menarche, normal nutritional status also affects the normal age of menarche. Therefore, the importance of nutritional intake for the age of menarche, parents should be able to pay attention to their daughter's nutritional intake and nutrition because it can be related to the incidence of menarche experienced by their daughter.

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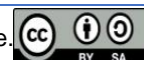
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INTRODUCTION

Adolescence is a transitional period towards adulthood where at this time, young women will experience puberty (Fitriani, 2021). One characteristic that indicates that girls have started to enter their teenage years is menstruation (Rusmimpong, and Hutagaol, 2021). Parents are the people closest to teenagers and have a responsibility towards them. Parents provide initial information to adolescents that has a major impact on the way adolescents determine sexual behavior (Kurniyawan et al., 2023). Teenage girls also menstruate, and because they heavily bleed every month, their iron requirements double during menstruation, and in some cases, even teenage girls may have longer than normal periods (Novelia et al., 2022).

Menarche is the beginning of menstruation in women during adolescence and usually occurs between the ages of 12 and 14 years. Between adolescence and adulthood important changes occur which indicate that the child has reached the stage of internal genital organ maturation (Andriani et al., 2022). Menarche is considered important because menarche is said to be the culmination of a series of changes in a girl who is entering adulthood, where physically her

appearance is marked by the discharge of blood from the vagina due to the shedding of the endometrial lining (Munda, 2013). Diversity of food consumption and genetic factors are the main indicators of early menarche, especially as triggers for the GnRH hormone family. Several studies state that nutritional intake, which includes intake of fat, protein (animal and vegetable), fiber and calcium, plays an important role in determining the age of menarche for adolescent girls (Diana & Cicih, 2019).

Nutritional status is the condition of the body due to food intake and utilization of nutrients (Afandi et al., 2023). The brain, like other body organs, requires a variety of nutrients to maintain its health and function. Nutrition that is good for physical health also has a positive impact on your mental health (Kurniyawan et al., 2023). Negative impacts that can arise in the short term from nutritional problems include disorders of brain and intelligence development, physical growth disorders, and metabolic disorders in the body. In the long term, the impacts can be very bad, including decreased cognitive and learning abilities, weakened body immunity, increased susceptibility to disease, and increased risk of developing diabetes, obesity, as well as heart and blood vessel disease, cancer, stroke, and disability in old age (Carolyn et al., 2021). Intake of nutritious foods such as protein, carbohydrates and fat that is excess or less than required will disrupt the menstrual cycle (Kurniyawan et al., 2023). The purpose of this study was to determine the relationship between nutritional status and the age of menarche in female students in grades 4, 5, and 6 at Dawuhan Lor 01 Public Elementary School, Sukodono District, Lumajang Regency.

METHOD

The analytic correlation research design with a cross- sectional time approach was used on 39 respondents at Dawuhan Lor 01 Public Elementary School, Sukodono District, Lumajang Regency. Measuring tools in this study were respondent characteristic questionnaires, nutritional status observation sheets, and menarche age. Spearman's rho test was used to answer the purpose of this study.

RESULT

The results showed that most female students had good nutritional status as many as 29 female students (74.4%). Most female students have normal menarche age (11-13 years) as many as 24 respondents (61.5%). There is a significant relationship between nutritional status and the age of menarche in grades 4, 5, and 6 at SDN Dawuhan lor 01, Sukodono Lumajang District, namely p-value 0.001.

Nutritional Status

Table 1. Frequency Distribution of Nutrition Status

Nutritional Status	Frequency (f)	Percentage (%)
Severely Thinnes	0	0
Thinnes	0	0
Normal	29	74.4
Overweight	8	20.5
Obese	2	5.1
Total	39	100

Based on Table 1, most students with normal nutritional status are 29 (74.4%).

Age of Menarche

Table 2. Menarche Age Frequency Distribution

Age of Menarche	Frequency (f)	Percentage (%)
Early Age (<11 years)	15	38.5
Normal Age (11-13 years)	24	61.5
Slow Age (>13 years)	0	0
Total	39	100

Based on Table 2, most female students have normal menarche age (11-13 years) as many as 24 respondents (61.5%).

Bivariate Analysis

Table 3. The Correlation Between Nutritional Status and Age of Menarche in Adolescent Students Grades 4, 5, and 6 at Dawuhan Lor 01 Public Elementary School, Sukodono District, Lumajang

	p-value
Nutritional Status	0.001
Age of Menarche	

Table 3 shows a significant relationship between nutritional status and menarche age in female students in grades 4, 5, and 6 at SDN Dawuhan lor 01, Sukodono Lumajang District, with p-value 0.001.

DISCUSSION

Identification of the Nutritional Status of Adolescent Students Grades 4, 5, and 6 at Dawuhan Lor 01 Public Elementary School, Sukodono District, Lumajang Regency.

The results of this study indicate that most female students have good nutritional status as many as 29 female students (74.4%). This is in line with research conducted by Adam et al (2022) which stated that the majority of respondents' body mass index was 19.65 or one could say they had a normal body mass index. Nutritional status is the result of a balance between the consumption and absorption of nutrients and the use of these nutrients or the physical state resulting from the availability of nutrients throughout the body.

Nutritional status is the level of balance between nutritional intake and nutritional needs. The balance is influenced by various factors, namely physiology, psychosocial, development, culture and economy. Nutritional status is also influenced by food consumption and the use of nutrients in the body. If the body gets enough nutrition and uses it efficiently, it will be achieved optimal nutritional status that allows for physical growth, brain development, work ability and general health at the highest possible level.

It should be noted that the variation in nutritional status among female female students can occur due to the influence of several factors including diet, infectious diseases, social culture, income, level of knowledge, habits, or environmental sanitation. In this modern era, teenagers often eat ready-to-eat food that needs to be questioned for its nutritional content. So the researchers assumed that the more often adolescents consumed unhealthy foods, the more at risk of over-nutrition or under-nutrition that could affect the age of menarche.

Identification of the Age of Menarche in Grade 4, 5, and 6 Adolescent Girls at Dawuhan Lor 01 Public Elementary School, Sukodono District, Lumajang Regency.

The results of this study indicate that the majority of female students have normal menarche age (11-13 years) as many as 24 respondents (61.5%). Menarche is the first menstruation which is a sign of sexual maturity in young women. Menarche is the first menstruation that occurs which is a characteristic of the maturity of a healthy, non-pregnant woman and occurs on average at the age of 11-13 years.

The speed of menarche is assisted by the fulfillment of adequate nutrition where good nutrition helps the growth of the reproductive organs of adolescents. According to the researchers' assumption that young women are overweight, menarche also occurs earlier. Meanwhile, for young women who are below normal weight, Menarche will occur more slowly.

It can be concluded that nutritional status is positively related to Menarche age (Syam et al., 2022). So the researchers assumed that the better the nutritional status of adolescents, the better the age of menarche. It should be noted that apart from nutritional status, factors that can also affect a person's menarche age include school environment, lifestyle, and mass media exposure. Lifestyle plays a very important role in determining the age of menarche, in adolescents who have sports activities, field activities.

Analysis of The Correlation Between Nutritional Status And Age Of Menarche In Adolescent Students Grades 4, 5, And 6 At Dawuhan Lor 01 Public Elementary School, Sukodono District, Lumajang

The results of this study indicate that there is a significant relationship between nutritional status and the age of menarche in female students in grades 4, 5 and 6 at SDN Dawuhan lor 01, Sukodono Lumajang District, namely p-value 0.001. It can be proven that the results obtained in this study were 2 female students with obese nutritional status who experienced menarche at an early age, namely at the age of 9 and 10 years.

The nutritional status of female adolescents greatly influences the occurrence of menarche both from the age factor at menarche, the presence of complaints during menarche and the length of the menarche days. An imbalance between intake needs or adequacy will cause nutritional problems, both in the form of problems of excess nutrition and malnutrition. Nutrition affects sexual maturity in adolescents who get earlier menarche.

Optimal nutrition can help accelerate the growth and development of the sexual organs, while inadequate nutrition can result in delayed sexual maturation and growth retardation. Meanwhile, in adolescents with excess nutrition, menarche also occurs earlier. This is associated with levels of leptin secreted by adipose glands.

The chronic increase in leptin concentrations in the periphery contributes to an increase in serum LH, both during the day and at night. LH is a hormone produced in the anterior pituitary and can be used as a parameter to assess puberty in women. Serum LH which is earlier than it should have an impact on increasing serum estradiol which then ends with early menarche.

Leptin as the production of the ob gene in obese patients affects ovarian maturation (Adam et al., 2022). From this explanation, the researchers assume that the nutritional status of adolescents can affect the age at which menarche occurs. Because nutrition also determines the age of maturity in adolescents.

CONCLUSION

The conclusion obtained from this study is that this study found that most female students have nutritional status. as many as 29 female students (74.4%). This study also found that most female students had normal menarche age (11-13 years) as many as 24 respondents (61.5%). This study shows that there is a significant relationship between nutritional status and the age of menarche in female students in grades 4, 5, and 6 at SDN Dawuhan lor 01, Sukodono Lumajang District, namely p-value 0.001.

This research can be used as teaching material at Dawuhan Lor 01 Public Elementary School in order to reduce the problem of Nutritional Status with Menarche Age in Adolescent Students in grades 4, 5, and 6 by providing counseling on reproductive health to young women at Dawuhan Lor 01 Elementary School, Sukodono Lumajang District.

Researchers obtained the relationship between Nutritional Status and Menarche Age in Adolescent Students grades 4, 5, and 6 which researchers can use as material for further research. This research can also be used for further research by adding other factors that can affect the age of menarche such as lifestyle, psychosocial and economics, and exposure to mass media.

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