

Association Between Nutritional Status and Age at Menarche

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ABSTRACT

Background: Menarche age is often considered for various reasons. It is one of the major indices of the female fertility which includes the period up to the menopause. More critically, menarche marks the onset of ovarian activity associated with reproduction, and affects breast cancer risk. Some earlier studies reported that subjects who had menarche before 13 years of age were at a significantly higher risk of cancer cervix. Nutrition has an important bearing on age at menarche. Menarche is attained earlier by well nourished adolescents. This study aimed to assess the relationship between menarche age and body mass index.

Subjects and Method: This was a cross sectional study conducted at Ki Hajar Dewantara Foundation Junior High School, Kota Pinang, Labuhanbatu Selatan, North Sumatera, in December 2017. A sample of 58 school girls attending the Junior High School were selected for this study. The dependent variable was menarche age. The independent variable was body mass index (BMI). Body weight was measured by a scale. Body height was measured by micro toise. Other variables were measured by questionnaire. The data were analyzed by a simple logistic regression.

Results: BMI \geq 25 was associated with an earlier menarche age (OR = 0.71; 95%CI= 0.20 to 0.85; p= 0.046).

Conclusion: BMI \geq 25 is associated with an earlier menarche age.

Keywords: menarche age, body mass index, adolescents

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BACKGROUND

Adolescence or menarche age is a stage between childhood and adulthood. According to WHO, called adolescence is a population of the age range of 10-19 years (Infodatin, 2012). Adult transitions vary, but generally it is defined as the time when individuals begin to act regardless of their parents. Growth and development in adolescence is very rapid, both physical and psychological. As for one of the developments that occur in adolescents, especially young women, is marked by the arrival of menarche. But even so, they often fail in their growth and development. Many factors influence these failures such as

genetic, nutritional status, social, economic and others (Proverawati, 2009).

According to the 2010 Basic Health Research (Riskesmas) in Indonesia the average age of menarche for young women is 13 years with an earlier occurrence at ages less than 9 years and slower to 20 years. At present, there is a tendency for children to get menarche at a younger age. The change in age of menarche in adolescents is one of them caused by an improvement in nutrition in the family.

The results of Aishah (2011) study concluded that female students who had a higher nutritional status (BMI) tended to get menarche faster. In line with Munda's research (2012) that female students with

overweight nutritional status experience menarche faster than female students with normal and underweight nutrition status.

The age of menarche that is too fast in adolescents can cause teenage unpreparedness and problems due to maturation of the reproductive organs which will provide sexual drive and can cause problems such as unwanted pregnancies (Fadhilla in Putri, 2009). In addition, too fast menarche is also a risk factor for breast cancer, ovarian cancer, the risk of cardiovascular disease and also a greater use of it (Kaparano, 2010).

SUBJECTS AND METHOD

1. Study Design

This was a cross sectional study conducted at Ki Hajar Dewantara Kotapinang College Foundation, Medan, Indonesia.

2. Population and Samples

The population in this study were all young women from the Ki Hajar Dewantara College Foundation Kotapinang starting from class VII to XII amounting to 784 students. While the sample in this study were students who had experienced menstruation for the first time, namely amounting to 58 students selected through simple random sampling technique.

3. Study Instruments

The instruments used were questionnaires, manual and microtoise scales. The dependent variable in this study was the age of menarche in young women aged 13-18 years at Ki Hajar Dewantara College Foundation Kotapinang. The independent variable is nutritional status (BMI).

Research ethics was obtained from the foundation or the school, then giving an explanation to the respondent, asking the respondent's willingness and filling out informed consent, giving the questionnaire and measuring the height and weight.

4. Data analysis

The data were analyzed by a multiple logistic regression.

RESULTS

The majority of respondents in this study were at the age of 15-16 years old, who were 32 female students (55.2%). On the characteristics of the respondents based on the class, the most female students in class X SMK were 22 students (37.9%). The majority of nutritional status (BMI) in the normal category was 46 female students (79.3%). Whereas in the age variable menarche was dominated by the normal age of menarche which was 30 female students (51.7%). Characteristics of respondents can be seen in Table 1.

Table 1. Sample Characteristics

| Characteristics | Total | % |
|---------------------------------|-------|------|
| Age | | |
| 13-14 | 5 | 8.6 |
| 15-16 | 32 | 55.2 |
| 17-18 | 21 | 36.2 |
| Class | | |
| VII | 3 | 5.2 |
| VIII | 2 | 3.4 |
| IX | 2 | 3.4 |
| X | 22 | 37.9 |
| XI | 15 | 25.9 |
| XII KK | 14 | 24.1 |
| Nutritional Status (BMI) | | |
| Normal | 46 | 79.3 |
| Abnormal | 12 | 20.7 |
| Age of Menarche | | |
| Normal | 30 | 51.7 |
| Abnormal | 28 | 48.3 |

The relationship between nutritional status and age of menarche in adolescent girls can be seen in Table 2. The data showed a significant relationship between nutritional status (BMI) and the age of menarche of female adolescents (OR = 0.71; 95%CI= 0.20 to 0.85; p= 0.046)

Table 2. The Relationship between BMI and the Age of Menarche

| Nutritional Status | The Age of Menarche | | OR | p |
|--------------------|---------------------|--------|------|-------|
| | Abnormal | Normal | | |
| Normal | 23 | 23 | 0.71 | 0.046 |
| Abnormal | 5 | 7 | | |

DISCUSSIONS

The age of menarche in this study was influenced by nutritional status, it can be said that with nutritional status (BMI) ≥ 25 or fat category would accelerate the age of menarche while if the BMI of female adolescents was ≤ 17 then the age of menarche was slower. Sarwono (2012) stated that there were several factors that influence variations in age of menarche and one of them was the presence of nutritional factors. Even a study showed that the average age of menarche in urban area was faster than in villages because the condition of nutrition in urban area was better than in villages.

This study was in line with Lasandang (2016) which stated that there was a relationship between nutritional status (BMI) and age of menarche.

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