

The Relationship between Age at Menarche and Primary Dysmenorrhea in Female Students of Shiraz Schools

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Abstract

Background: Dysmenorrhea is one of the most common gynecological problems. This study aimed to determine the relationship between age at menarche and painful menstruation among female students of Shiraz schools.

Methods: This cross sectional study was conducted on 2000 female students. For data collection, a researcher-made questionnaire was applied. Data were analyzed using statistical tests in SPSS version 21.

Results: About 69.3% of the participants had experienced at least 1 episode of menstrual bleeding. Among postmenarcheal subjects, 77.7% had dysmenorrhea, while 22.3% did not. There was no significant relationship between age at menarche and dysmenorrhea ($P = 0.15$). However, there was a significant relationship between the onset of dysmenorrhea and postmenarche years ($P < 0.001$).

Conclusions: Although two-thirds of students suffered from primary dysmenorrhea, no significant relationship was found with age at menarche. Therefore, the high prevalence of dysmenorrhea among students calls for proper counseling and management.

Keywords: Primary Dysmenorrhea, Menarche, Students, Girl

1. Background

Primary dysmenorrhea is a common gynecological condition, characterized by contractions due to prostaglandin release in the secretory phase (1). Its prevalence varies from 51% to 92.5%, based on the results of previous studies on female adolescents (2).

Menarche is considered the most important sign of puberty, which can predict the adolescent's puberty process and fertility onset (3). The mean age at menarche is affected by different characteristics of the community, such as nutritional patterns, weather conditions, environmental status, and socioeconomic status. For most females, it occurs between the age of 10 and 16 years (4). On the other hand, menstrual irregularities are common in the first year after menarche among female adolescents. Most adolescents refer to endocrinology outpatient clinics due to such problems. Therefore, puberty development and menstruation hygiene should be considered as an important part of primary care during adolescence (5).

Menstrual irregularities follow different patterns in developed and developing countries. The pattern of changes at the age of menarche and dysmenorrhea can affect adolescents' health status and economic indicators. Moreover, it may be a cause of mental disorder in the adolescents and their families. However, no research has simultaneously examined the status of primary dysmenorrhea and age at menarche among Iranian students. There-

fore, the present study aimed to assess dysmenorrhea and its relationship with age at menarche.

2. Methods

This cross sectional study was conducted in 2014 - 2015. The study population included all female students of elementary, middle, and high schools in 4 districts of Shiraz, Iran. The sample size was calculated at 1625 (alpha, 5%; 95% CI; power, 0.8; β , 0.2), based on previous studies using the following formula (6):

$$n = \frac{Z^2 pq}{d^2} \quad (1)$$

Finally, considering the sample loss (20%), the sample size was calculated to be 2000. The inclusion criteria were as follows: 1) age range of 9 - 18 years; 2) elementary, middle, or high school education; 3) tendency to participate in the study (written consent forms from the students and their parents); 4) no history of drug use (other than allergy drugs or sedatives) 3 months prior to the study; and 5) no history of chronic physical or mental diseases.

On the other hand, the exclusion criteria included crisis or stressful events, tendency to withdraw from the study, and parents' request for withdrawal. First, 6 to 8 schools were selected from each region as a cluster. Then, 500 students were selected from all schools, based on the study objectives.

The demographic form and researcher-made questionnaire (eg, menstruation characteristics, visual analogue scale [VAS], location, and duration of pain) were completed after checking the inclusion and exclusion criteria, as listed above. The experts' comments were applied to determine the content validity of the demographic form. The validity and reliability of VAS have been confirmed in various studies (Cronbach's alpha, 0.94) (5). Descriptive statistical tests and Chi square were performed, using SPSS version 21 to analyze the data.

3. Results

The dominant age range in the study population was 11 - 12 years (n, 732). About 69.3% (n, 1386) of the participants had experienced at least 1 episode of menstrual bleeding, out of which 77.7% (n, 1077) had dysmenorrhea (versus 22.3%). There was no significant relationship between age at menarche and dysmenorrhea ($P = 0.15$). However, a significant relationship was found between the onset of dysmenorrhea and postmenarche years ($P < 0.001$). Based on the findings, most participants with dysmenorrhea experienced dysmenorrhea during the first year of menstruation (Table 1).

4. Discussion

Different studies have reported inconsistent results regarding the relationship between menarche age and menstrual problems among adolescent girls (7). According to the present study, there was no significant association between menarche age and dysmenorrhea, which was in accordance with a study by Kural et al. (1). However, Shrotriya revealed a significant correlation between these variables, which could be due to the longer exposure of prostaglandins, leading to a higher incidence of uterine dysmenorrhea in adolescents with early menarche (8).

According to previous studies, dysmenorrhea usually occurs 1 to 2 years after menarche, which can be considered an indicator of impaired psychosocial adaptation among 13- to 19-year-old girls (5). There was a significant association between menarche age and dysmenorrhea onset. Regardless of the menarche age, 59% of the participants had dysmenorrhea in the first year after menarche. In this regard, Seven reported different results, which might be due to differences in nutrition, public health, mental health, and geographical location (9). However, the results of the present study are consistent with those reported by Chia and colleagues (10).

According to the American Women's College, the first visit by gynecologists or midwives should be devoted to

the evaluation of preventive measures, screening, and preparation of a health guide for adolescents aged 13 - 15 years. In this guide, the physician can play the role of an educator for adolescents' physical development, normal puberty indices, menarche, and menstrual cycle and explain issues related to health for both young girls and parents (5).

The limitation of this study was its cross sectional design. Therefore, prospective studies are needed to assess the association between some variables.

4.1. Conclusions

Two-thirds of the study population had painful dysmenorrhea. Therefore, it seems necessary to design and implement an educational program for students during the first year after menarche regarding the significant association between menarche age and onset of dysmenorrhea after menarche. Moreover, promotion of health and quality of life in female adolescents should be prioritized.

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Footnote

Conflicts of Interest: None.

Table 1. The Relationship Between Age at Menarche and Dysmenorrhea and Comparison of the Onset of Dysmenorrhea After Menarche Among Female Students in Shiraz, Iran^a

Variables		Groups				Total	Chi Square	P Value
		9 -10	11 -12	13 -14	15 -16			
Dysmenorrhea	Yes	58 (81.7)	583 (79.6)	421 (39.1)	15 (71.4)	1077 (77.7)	5.25	0.15
	No	13 (18.3)	149 (20.4)	141 (45.6)	6 (28.6)	309 (22.3)		
	Total	71 (100)	732 (100)	562 (100)	21 (100)	1386 (100)		
Onset of dysmenorrhea	One-year after menarche	39 (54.9)	428 (54.9)	336 (59.8)	15 (71.4)	818 (59)	35.71	< 0.001
	1-3 years after menarche	13 (18.3)	183 (25)	119 (21.2)	4 (19)	319 (23)		
	3 years after menarche	19 (26.7)	121 (16.6)	107 (19.1)	2 (9.6)	249 (17.9)		
	Total	71 (100)	732 (100)	562 (100)	21 (100)	1386 (100)		

^aValues are expressed as No. (%).

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