



# Comparison of Knowledge, Attitude, and Practice of Adolescent Girl Students and Non-Students Regarding Menstrual Health in Rural Areas of Fars Province, Iran

Mehrab Sayadi<sup>1,2</sup>, Leila Malekmakan<sup>3,\*</sup> and Khojaste Rahimi Jaberi<sup>3</sup>

<sup>1</sup>Cardiovascular Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

<sup>2</sup>Student Research Committee, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran

<sup>3</sup>Shiraz Nephro-Urology Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

\*Corresponding author: Shiraz Nephro-Urology Research Center, Shiraz University of Medical Sciences, Shiraz, Iran. Email: malekmakan\_l@yahoo.com

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## Abstract

**Objectives:** The aim of this study was to determine the level of knowledge, attitude, and practice of adolescent girls toward menstrual health during puberty in the rural areas of Fars province.

**Methods:** This was a cross-sectional analytical study of 550 girls from rural areas in two groups of students (n = 318) and non-students (n = 232). Data were collected via a 47-item researcher-made questionnaire that included questions on knowledge, attitude, and practice of menstrual health that was completed during interviews. The significance level was set at < 0.05.

**Results:** In our study, the age distribution of the subjects was between 10 and 17 years and the mean age was  $14.1 \pm 1.1$  years. About 77.5% of the subjects had experienced menstruation, of whom 83.1% stated that they had information about the issue before menstruation. Moreover, 10.0% of them experienced fear and worries, 5.4% were surprised, and only 10.8% expressed satisfaction. The analysis of questions related to knowledge showed that the two groups had a moderate level of knowledge. There was no statistically significant difference between the two groups in all items except for the exercise item. From the practice point of view, the two groups were compared, while the two groups were significantly different in pain sensation ( $P = 0.006$ ).

**Conclusions:** The results of this study showed that the level of knowledge, attitude, and practice was low among rural students and non-students in Fars province and education is an important and essential factor that should be put on the agenda.

**Keywords:** Menstrual Health, Puberty, Knowledge, Attitude, Performance, Adolescence

## 1. Background

Adolescence (age between 12 and 18) is one of the most important periods of life for promoting health. It can be defined as a transition from childhood to adulthood, with the occurrence of physical and mental growth, sexual development, and social maturity (1-4). Maturation is a complex biological event characterized by specific physical changes that prepare the body for reproduction. Menarche (the first occurrence of menstruation) is an outstanding event that occurs in the process of puberty of girls (5, 6). According to a study conducted in 2000, adolescents in Iran constituted 27% of the total population and like other developing countries, Iran has a young population. However, approximately 11.5 million Iranian people are girls aged 10-24 years (7) for whom, increasing the knowledge of this natural process is essential. Therefore, recognizing the natural process of puberty and its problems can help succeed in passing from adolescence to puberty and fertility (8). Hav-

ing the correct information at first menstruation will make the person have a positive image in this regard (9, 10). According to a survey in the USA (2006), early puberty and menstruation were associated with overweight and these girls may be more hyperinsulinaemic than normal (11). A cohort study conducted in the UK (2017) revealed menstruation occurred at the age of 11 years and it was related to adiposity and psychosocial stress (12).

In Iran, studies of menstrual health show that Iranian girls' knowledge of puberty health and their health behaviors varies with their age, family, education, and their parent's knowledge and their levels are much lower than expected (13, 14).

## 2. Objectives

In this study, we evaluated and compared the knowledge, attitudes, and practice of students and non-students regarding menstrual health in rural areas.

### 3. Methods

This cross-sectional study was conducted on the population of students and non-students in the puberty age in rural areas of Fars province selected through multistage sampling in 2018 - 2019. The minimum required sample size ( $d = 0.05$ ,  $\alpha = 0.05$ , and  $P = 0.05$ ) was 384 due to the cluster sampling method and to increase the accuracy, the project effect was considered as 1.5. Finally, 550 people from both groups took part in the study. The cities were considered as classes and according to the size of each city, the share of the village of each city was determined from each sub-population. In each city, some health houses were selected randomly and based on the information available in each selected health house, based on family records, seven non-student girls and seven student girls were selected and were trained by an expert.

#### 3.1. Data Collection Tool

Data collection was done through a researcher-made questionnaire whose items were extracted from the Health Ministry's Adolescent Health Questionnaire. The validity of the questionnaire was confirmed by experts based on content and face validity and its reliability was measured by Cronbach's alpha, which was 82%. The 47-item questionnaire was completed by face-to-face interviews. General information was collected about their age, education level (self, paternal, and maternal), and puberty.

#### 3.2. Ethical Considerations

The present study was approved by the Ethics Committee of Shiraz University of Medical Sciences. The participants were willing to participate in the study and announced their informed consent. All the information was kept confidential and the participation of students was voluntary and had no effect on their grade and educational status.

#### 3.3. Statistical Analysis

The statistical analysis was performed by Statistical Package for Social Sciences version 18 (SPSS Inc., Chicago, IL, USA). Continuous variables were presented by mean  $\pm$  SD and data related to the qualitative or categorical data were shown as frequency and percentage. The chi-square or Fischer's exact test was used for analyzing single-variable qualitative data. P values of less than 0.05 were considered significant.

### 4. Results

In this study, 550 students were studied in two groups of students ( $n = 318$ ) and non-students ( $n = 232$ ). The age distribution of the subjects was between 10 and 17 years and the mean age was  $14.1 \pm 1.1$  years. The body mass index (BMI) was between 12.1 and 35.2, with an average of  $20.4 \pm 3.6$  kg/m<sup>2</sup>. The frequency distributions of age and other demographic characteristics are presented in Table 1. According to the data of this table, BMI was significantly higher in the non-student group than in the other group ( $21.2 \pm 3.6$  in the non-student group vs.  $20.0 \pm 3.4$  in the student group,  $P < 0.001$ ). There were significant differences in the education level of self, fathers, and mothers between the two groups ( $P < 0.001$ ,  $P < 0.001$ ,  $P = 0.009$ ). The results showed the level of education among students and their parents was more than non-students participants and their parents. The birth order was significantly higher in students ( $P = 0.01$ ), but the birth order among girls was not different between the two groups ( $P = 0.124$ ).

**Table 1.** Demographic Characteristics of the Participants in the Two Groups<sup>a</sup>

Variables	Student (N = 318)	Non-Student (N = 232)	P Value
Age	14.0 $\pm$ 1.8	15.0 $\pm$ 1.6	0.060
BMI	20.0 $\pm$ 3.4	21.2 $\pm$ 3.6	< 0.001
<b>Participants' education</b>			0.009
Fourth grade	19 (6.1)	13 (6.1)	
Fifth grade	21 (7.0)	23 (12.3)	
Sixth grade	79 (26.0)	29 (14.0)	
Seventh grade	61 (20.0)	37 (17.5)	
Eighth grade	56 (18.1)	49 (23.1)	
Ninth grade	73 (24.0)	58 (27.4)	
<b>Father's education</b>			< 0.001
Illiterate	29 (9.2)	50 (22.1)	
Elementary	82 (26.0)	94 (43.0)	
Secondary	116 (33.0)	46 (20.4)	
High school	68 (22.0)	29 (13.0)	
University	20 (6.4)	7 (3.1)	
<b>Mother's education</b>			< 0.001
Illiterate	27 (9.0)	40 (18.0)	
Elementary	136 (44.0)	114 (51.0)	
Secondary	85 (27.2)	45 (20.1)	
High school	49 (16.0)	18 (8.0)	
University	15 (5.0)	7 (3.1)	
<b>Birth order</b>	2 (1-12)	2 (1-9)	0.01
<b>Birth order among girls</b>	1 (1-8)	1 (1-5)	0.124

<sup>a</sup>Values are expressed as mean  $\pm$  SD or No. (%).

Data in Table 2 show that 422 (77.5%) participants experienced menstruation, and 354 (63.8%) of them stated that

they had information about this process before menstruation. The mean age at menarche was  $12.7 \pm 1.3$  years without a significant difference between the two groups ( $P = 0.298$ ), and 38.0% of the participants had irregular periods. Most of them (70.3%) stated that their menstruation duration was between 21 and 35 days, which was more in the non-student group than in the student group. There was no significant difference in terms of feelings among participants when experienced menstruation for the first time so that 60.0% had fear and anxiety, 42.5% had experienced a surprise, and only 10.8% expressed satisfaction. Also, 37% of the participants stated that they had no special feeling.

Participants' knowledge sources are specified in Table 3. The participants stated that they received information mostly from their mothers, sisters, and teachers, in sequence. Based on these results, there was no significant difference between the student and non-student groups regarding their knowledge sources ( $P = 0.078$ ).

The range of knowledge scores was 4 to 34 (of a total score of 38) with an average of  $20.3 \pm 6.2$ . The 25th percentile was 16, the 50th percentile was 21, and the 75th percentile was 25. To compare the knowledge score between the two groups, the *t*-test was used. Based on results, the two groups had no significant difference and both had a low level of information. The range of attitude scores was 0 to 5 (out of 5) with a mean score of  $4.1 \pm 1.1$ . The correlation between knowledge and attitude was weak but significant ( $P < 0.001$ ,  $r = 0.171$ ). The chi-square test was used to compare the attitude scores between the two groups (Table 4). The results showed no significant difference between the two groups.

In Table 5, the two groups were compared in terms of performance and data showed no significant difference ( $P > 0.05$ ).

## 5. Discussion

The aim of this study was to determine the level of knowledge, attitude, and practice of girl students and non-students in the rural areas of Fars province in Iran regarding menstrual health. The age distribution of the subjects was 10 to 17 years and the mean age was  $14.1 \pm 1.1$  years. The mean age at menarche was  $14.0 \pm 1.3$ , which was higher than the mean age at menarche in studies by Rabiepour et al. (15) ( $12.3 \pm 1.0$ ), Jarrah and Kamel (16) ( $13.1 \pm 2.1$ ), and Takre et al. (17) ( $13.0 \pm 0.9$ ). These variations may be due to differences in genetic factors, socioeconomic factors, environmental factors, and food habits in different societies. According to studies conducted in Iran, most teenage girls do not have sufficient knowledge of menstrual health and have unpleasant feelings about the phenomenon of puberty and menarche (8, 18). In our study, participants had a moderate level of knowledge of menstruation and they

received information from their mothers and their teachers. In Urmia, Iran, a study was conducted to examine the students' attitudes and knowledge of menstruation. The results showed a meaningful association between knowledge and attitude, negative emotions, living with menstruation, acceptance of menstruation, and its symptoms. This means that with an increase in knowledge, the attitude increased in the mentioned items; however, there was no significant relationship between knowledge and positive emotions, acceptance of menarche, and acceptance of menstruation (15).

Girls' attitude toward menstruation is related to their cultural backgrounds (8). The family as a primary social unit plays an important role in education of health behaviors to adolescents and transfer of information to them. Each family member may have a role in adolescent's health puberty education but the mother plays the most prominent role in this education (19, 20). A study in Turkey assessed the level of information among high school girls about their menstruation and their health and showed that 57% of the students had enough information about menstruation. Information about menstruation health was 89% among mature students and 61.2% among immature students (21). Social barriers and the negative attitude of parents toward talking about issues related to puberty and menstruation may prevent adolescent girls from accessing proper information, especially in rural and tribal communities (22). Some studies in developing countries have suggested that reproductive health education programs should be presented as the best way to remove the needs of adolescent students (23, 24). Inadequate education about puberty may lead to essential problems in relationship and family planning, and based on a survey conducted in 2013, it is associated with early pregnancy, marriage and poor health outcomes (25). Studies have also shown that the attitude toward menstruation in girls can be improved by increasing menstrual knowledge through mothers, sisters, and teachers (15). It seems that the role of health educators and teachers in the transfer of health knowledge, especially puberty knowledge, is as important as the role of mothers. In this study, most girls had previous information about menstruation. After comparing the two groups using *t*-test, the results showed that the two groups had a moderate level of knowledge. In the context of our study, Lawan's study in Nigeria reported the relative knowledge of participants. These results are consonant with other studies that showed a lack of knowledge about physiological and psychological aspects of menstruation, which indicates that there is no readiness and training before menarche (16, 17, 26).

In relation to having certain symptoms during menstruation, the two groups reported no significant difference in pain sensation ( $P > 0.05$ ) and the majority of the

**Table 2.** Menstruation Characteristics of the Participants in the Two Groups<sup>a</sup>

Characteristics	Student (N = 318)	Non-Student (N = 232)	P Value
Menstrual experience	219 (70.0)	207 (90.0)	< 0.001
Prior knowledge	181 (84.0)	173 (84.0)	0.959
Mean menstrual age, y	12.7 ± 1.3	12.7 ± 1.3	0.298
Regular menstruation	123 (58.0)	135 (67.0)	0.064
<b>Menstruation cycle duration, d</b>			0.003
Less than 21	52 (24.4)	31 (15.1)	
21 - 35	134 (63.0)	160 (78.0)	
More than 35	27 (13.0)	14 (7.0)	
<b>Feelings</b>			
Fear	125 (77.0)	130 (76.5)	0.963
Happiness	15 (11.0)	31 (23.5)	0.007
Surprise	86 (60.0)	95 (67.4)	0.233
Senseless	98 (55.1)	62 (48.1)	0.226

<sup>a</sup>Values are expressed as mean ± SD or No. (%).

**Table 3.** Source of Knowledge of the Participants<sup>a</sup>

Source	Total	Student (N = 318)	Non-Student (N = 232)	P Value
Mother and sister	121 (52.0)	76 (52.4)	55 (50.5)	0.078
Teacher	47 (18.5)	27 (19.0)	20 (18.4)	
Friends	36 (14.2)	14 (10.0)	22 (20.2)	
Health workers	38 (15.0)	26 (18.0)	12 (11.0)	
Media	2 (0.8)	2 (1.4)	0 (0.0)	

<sup>a</sup>Values are expressed as No. (%).

**Table 4.** Attitude of the Participants Toward Menstruation<sup>a</sup>

Variables	Student (N = 318)	Non-Student (N = 232)	P Value
Bathing and changing the underwear during menstruation is essential	275 (90)	203 (91)	0.655
Daily activity changes during menstruation	211 (70.3)	177 (79.0)	0.125
You can exercise during menstruation	192 (63.0)	154 (70.0)	0.098
Menstruation is a natural and necessary phenomenon	292 (96.1)	219 (99.0)	0.077
Teaching girls is essential	298 (98.3)	214 (97.0)	0.252

<sup>a</sup>Values are expressed as No. (%).

**Table 5.** Practice of the Participants<sup>a</sup>

Variables	Student (N = 318)	Non-Student (N = 232)	P Value
Feeling of pain	187 (75)	183 (85.1)	0.060
Warming the area or showering with hot water	238 (86.5)	191 (90)	0.293
Limiting the consumption of flatulent foods	208 (84.2)	158 (81)	0.378
Exercising	127 (53)	105 (56)	0.555

<sup>a</sup>Values are expressed as No. (%).

participants reported pain as the main symptom of menstruation. However, there was no significant difference in heating the area, hot water showers, and limiting the flatulent foods and exercise. These results indicate that participants are more likely to use local and practical methods to reduce their pain. In the context of our study, Busari's study also found that 56% of rural teenage girls experi-

enced menstrual pain and only 7% visited a doctor for advice (27). Generally, there is a negative attitude toward menstruation in girls in most cultures and this issue requires extensive research. In this study, with respect to the attitude of participants in our study, the majority of girls stated that bathing was necessary during menstruation and menstruation was a natural and necessary phe-

nomenon; they also believed that educating girls in puberty health was necessary. Generally, we can conclude that girls do not have adequate attitude and knowledge of puberty issues and that it is necessary to develop appropriate training programs in schools, as well as for families, and experts should explain the issues to people with complete clarity to take effective steps in this regard.

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## Footnotes

**Authors' Contribution:** Study concept and design: Mehrab Sayadi; analysis and interpretation of data: Leila Malekmakan and Mehrab Sayadi; drafting of the manuscript: Khojaste Rahimi Jaber; critical revision of the manuscript for important intellectual content: Leila Malekmakan.

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