

## The Effect of Puberty Education on Knowledge, Attitudes, and Function of Female Students

Shahrban Mehrabi<sup>1\*</sup> (PhD Candidate); Ahmad Etemadi<sup>1</sup> (PhD); Ahmad Borjali<sup>2</sup> (PhD); Esmail Sadipoor<sup>2</sup> (PhD)

<sup>1</sup> Department of Counseling, Faculty of Psychology and Educational Sciences, Allameh Tabatabai University, Tehran, Iran.

<sup>2</sup> Department of Psychology, Faculty of Psychology and Educational Sciences, Allameh Tabatabai University, Tehran, Iran.

ARTICLE INFO	ABSTRACT
<p><b>Article type:</b> Original Article</p> <hr/> <p><b>Article history:</b> Received: 11- Apr-2016 Accepted: 02- May -2016</p> <hr/> <p><b>Keywords:</b> Attitude Function Knowledge Puberty</p>	<p><b>Introduction:</b> The current study examined the effect of puberty education on knowledge, attitudes, and function of female students in Jiroft, Iran.</p> <p><b>Materials and Methods:</b> This was a quasi-experimental study. The population under investigation corresponds to a group of 40 girls studying the first year of high school in Jiroft. These female students were educated in a 12-session course, which targeted some contents such as physical signs of puberty, physiological changes associated with menstrual cycle, nutrition, sleep, and psychological changes. The subjects filled in a researcher-designed questionnaire which measured knowledge, attitudes, and function in two phases, in a form of a pretest and a posttest. The data were analyzed using descriptive indexes, t- and F-tests. The significant level was considered less than 0.05.</p> <p><b>Results:</b> Knowledge, attitude, and function scores were found to be significantly different in the pretest and posttest in both experimental and control groups (<math>p &lt; 0.001</math>). In other words, the puberty education promoted the level of knowledge, attitude, and function in the posttest stage, compared to the pre-test phase (<math>P &lt; 0.001</math>).</p> <p><b>Conclusion:</b> The results demonstrated the importance of puberty education in improving knowledge, attitude, and function of female students.</p>

► *Please cite this paper as:*

Mehrabi SH, Etemadi A, Borjali A, Sadipoor E. The Effect of Puberty Education on Knowledge, Attitudes, and Function of Female Students. *Patient Saf Qual Improv.* 2016; 4(3):405-409.

### Introduction

Puberty is a transitional period between childhood and adulthood, which includes the process of rapid growth, development, and maturation in terms of physical, psychological, biochemical, and social conditions (1). Transition through puberty often begins with the development of external secondary sexual characteristics, which appear as breast enlargement and pubic hair growth in girls. Growth acceleration and peak height velocity occur early in puberty, whereas menarche, the onset of menstrual bleeding, occurs later (2).

Menarche is actually the last stage in a complex series of biological developments related to puberty (3).

It marks an important point in life for the female adolescent, as it symbolizes the entrance into womanhood (4). In females, menarche is the major landmark of puberty, which usually occurs between 12 and 13 years of age, despite regional and ethnical variations (5).

Unlike other gradual pubertal changes, menarche signals a dramatic transition from girlhood to womanhood and is recognized as an important transitional point in women's lives (6). Although menstruation is a natural phenomenon, major psychological changes start with menarche. Menstrual problems are common among adolescent females, such as mood swings, which include menorrhagia, dysmenorrhea, and abnormal menstrual cycle length (7).

Menstruation may be looked at as more than just a physiological process; it may be viewed either positively or negatively by the society. From a positive outlook, menstruation is considered as a sign of femininity, fertility, youth, or body purification. On the other hand, the negative perceptions include vulnerability to different illnesses or feelings of disgust and shame in females. In some societies, these negative perceptions become the basis of certain practices, such

as restrictions on religious, social, and domestic activities of menstruating women (8).

Most researchers, who have studied emotional reactions to menarche worldwide, have found that the majority of girls show either negative or ambivalent responses to menarche. Positive emotional reactions to menarche have been related to positive attitudes toward menstruation, whereas negative responses have been associated with perceptions of menstruation as a negative event (9).

Emotional responses to menarche are also influenced by attitudes toward menstruation, which are shaped by the immediate environment and the culture in which a woman grows up. In other words, positive reactions to menarche are related to a positive perception of menstruation; i.e., seeing it as a natural event and a sign of healthy body image and rejecting negative attitudes toward menstruation.

On the contrary, negative emotional responses to menarche are related to perceptions of menstruation as a negative event (10). The timing of menarche is an important factor in how young girls feel about menstruation. Girls in the U.S., who reach menarche early compared to their peers, have been found to have less positive experiences and more distress about menstruation than their on-time or late maturing counterparts (11).

While there is little research on adolescents' knowledge and attitudes about menstruation and their preparation for menarche, Marvan & Molina-Abolink investigated the influence of menarcheal experience on attitudes toward menstruation. Although most of the participants knew what they should do in face of menarche, only 39% stated that they felt prepared for menstruation. Regarding menstrual attitudes, adolescents obtained the highest scores on negative feelings and secrecy rather than positive feelings. Participants who had previously discussed the emotional aspects of menstruation with their mothers were more likely to feel prepared for menstruation (10).

White examined the differences in knowledge and attitudes about menstruation and feelings of preparation for early menarche among female adolescents. The study showed that participants lacked menstrual knowledge and felt unprepared for menarche; however, their menstrual attitudes were ambivalent (12).

Studies, which have been performed in Iran, have revealed a low level of knowledge and dysfunction in the field of puberty health. In a study conducted by Sedghi Sabet nearly half of the girls had a negative attitude towards puberty (13).

Mobin investigated knowledge, attitude, and health behaviors of high school female students concerning menstrual hygiene.

The results indicated that almost 50% of the participants considered menstruation merely as physical changes of puberty, 12.2% regarded menstruation as a disease, and 20% considered lack of menstruation as unimportant (14).

Kashefi examined the level of knowledge and performance of high school girls about menstrual hygiene in Bojnourd, Iran. The results showed that 77.9%, 19.8%, and 2.3% of the students had poor, moderate, and good knowledge about menstrual hygiene, respectively. Furthermore, 41.4%, 52.3%, and 6.3% of the participants showed poor, moderate, and good performance levels, respectively (15). In addition, studies by Afghari and Karamati showed that knowledge and attitudes of female adolescents changed after puberty hygiene training (16, 17). Previous studies in Iran have viewed puberty as a unitary physical process with little or no attention to the associated psychological changes. It is crucial to consider both processes when examining the role of puberty in health and behavioral development. Therefore, the purpose of this study was to determine the effectiveness of a puberty training program (physical and psychological issues) on high school girls' knowledge, attitude, and function in Jiroft, Iran.

## Materials and Methods

In this quasi-experimental study, a pretest-posttest control-group design was applied quasi experimental. The study population comprised of 40 female students (experimental group: 20, control group: 20) studying at the first grade of high school in Jiroft in 2013-2014. A multi-stage sampling method was applied. First, one high school was randomly selected among all Jiroft high schools. Then, out of four first-grade classes in the selected school, two classes were randomly chosen. Finally, one class was randomly assigned as the experimental group and one as the control group.

The eligible participants studied in high schools and did not participate in any other training programs. The exclusion criterion was dissatisfaction with the content of sessions. For the purpose of data collection, a researcher-made questionnaire was used, which assessed the participants' function, knowledge, and attitude towards pubertal changes (i.e., physical and psychological changes). This questionnaire contained 30 questions, every 10 of which evaluated one of the given scales, i.e., 10 questions for assessing knowledge, 10 questions for attitude, and 10 questions for function.

Multiple-choice questions were used in the knowledge scale; every correct answer was scored 1 point. In the attitude scale, the questions were graded using the following options: "I agree", "I disagree", and "no idea". In questions number 1, 2, 3, 4, 5, 7, and 9, one point was given if the selected answer was "I disagree"; on the other hand, for questions 6, 8, and 10, one point was allocated if "I agree" was selected.

The function scale contained 10 multiple-choice questions and every question had 3 items, in the case of correct answer one score was given. In order to measure the questionnaire validity, a panel of three experts was asked to give relevant suggestions to assess its content validity. The reliability of the questionnaire was assessed by using Cronbach's alpha, which was

measured at 0.64, 0.61, and 0.69 for knowledge, attitude, and function scales, respectively.

After obtaining permission from Jiroft Education Office, the researcher entered the research environment. In the first session, after getting familiar with the students, the control and experimental groups were independently given a pretest. The posttest was administered after the final session. During this time, the control group was under routine supervision and did not participate in any training programs related to puberty. However, due to ethical considerations, the control group was allowed to participate in the puberty educational program by the end of the study. In order to observe research ethical principles, some explanations about the study were presented to the experimental group and the researchers were assured about the willing participation of the subjects and their parents.

Then, the experimental group was trained in twelve 90-min sessions according to the following process:

First session: getting familiar with the students, administering the pretest, stating the purposes of the intervention, and answering the student's questions;

Second session: discussing adolescence, puberty, and physical changes (such as increased weight and height and growth of breasts and body hair) and answering the student's questions;

Third session: getting familiar with the womb (e.g., ovaries, uterus, fallopian tubes, and eggs), menstrual cycle, menarche, and menstrual hygiene and answering the students' questions about misunderstandings of menstruation;

Fourth session: discussing menstrual pain, premenstruation syndrome, methods of pain control and relief, taking bath, and exercise during menstruation;

Fifth session: targeting self-knowledge, cognitive changes, and adolescents' thinking properties including egocentrism, imaginary audience, personal fable, and invulnerability;

Sixth session: training cognitive control skills including focusing attention, controlling obtrusive thoughts, setting objectives, and planning;

Seventh session: training of decision-making skills and problem-solving;

Eighth session: identifying various emotions in oneself and others;

Ninth session: discussing the need for regulating severe emotions by cognitive re-evaluation techniques, distraction, positive interpretation of the situation, and delay the emotion.

Tenth session: training communicative skills (including listening), expressing feelings, saying "No", and knowing others' feelings;

Eleventh session: training anger management skills;

Twelfth session: training relaxation techniques and giving posttest.

The data were analyzed using both descriptive and inferential statistics. The descriptive statistics were calculated by measuring standard deviation and mean

scores. On the other hand, the inferential statistics were measured through t-test, using SPSS Version 18.

## Results

### Demographics

Based on the evaluation of demographic characteristics, the mean age of the participants was 13.5 years with a standard deviation of 3.11 years (age range: 12-14 years).

### Knowledge scale

The results revealed an increase in the posttest scores (mean=8.70, SD=0.57), compared to the pretest scores (mean=5.35, SD=2.47) in the experimental group. In other words, the experimental group showed a better level of knowledge in the posttest. Moreover, analysis of the pretest (mean=4.8, SD=1.36) and posttest scores (mean=4.75, SD=1.55) in the control group through paired t-test showed no significant difference between the two phases (P=0.71). The Levene's test results demonstrated homogeneity of variance (F=3.62, P=0.8).

Planned t-test results revealed a significant difference between the pretest and posttest knowledge scores in the experimental (df=3.35, SD=5.03) and control groups (df=0.05, SD=1.76) at the end of the training program (t=5.03, df =38, P<0.01) (Table 1).

**Table1: The independent t-test results for the comparison of the average of difference between the pretest and posttest of knowledge scores in the experimental and control groups**

Groups	Average difference	SD	T	P-value
Experimental	3.35	2.25	5.03	0.0001
Control	0.05	1.76		

As can be seen in Table 1, the t-value, obtained at the lower level of 0.01 was significant.

### Attitude scale

The results showed an enhancement in the posttest scores (mean=8.50, SD=0.68), compared to the pretest scores (mean= 4.85, SD=2.51) in the experimental group. In other words, the experimental group showed better attitudes in the posttest.

Additionally, the pretest (mean= 4.85, SD=1.66) and posttest scores (mean= 4.75, SD=1.55) did not show a significant difference in the control group, based on paired t-test results. Also, the Levene's test results showed homogeneity of variance (F=2.34, P=0.22).

Planned T-test results demonstrated a significant difference in the average pretest and posttest attitude scores in the experimental (df=3.65, SD=2.25) and control (df=0.35, SD=1.35) groups at the end of the training program (t=5.62, df =38, P<0.01) (Table 2).

**Table2: The independent t-test results for the comparison of the average difference between the pretest and posttest attitude scores in the experimental and control groups**

Groups	Average difference	SD	T	P-value
Experimental	3.65	2.25	5.62	0.0001
Control	0.35	1.35		

As presented in Table 2, the t-value obtained at the lower level of 0.01 was significant.

#### Function scale

The results demonstrated an enhancement in the posttest scores (mean= 9.30, SD= 2.34), compared to the pretest scores (mean= 5.75, SD= 2.57) in the experimental group. In other words, the experimental group showed a better function in the posttest. Besides, paired t-test results revealed no significant difference between the pretest (mean= 5.30, SD=1.26) and posttest (mean= 5.15, SD=1.27) scores in the control group. The Levene's test results also showed homogeneity of variance ( $F=2.71$ ,  $P=0.13$ ). Planned t-test results revealed a significant difference between the function scores in the experimental ( $df=3.55$ ,  $SD=3.80$ ) and control ( $df=-0.15$ ,  $SD=1.30$ ) groups at the end of the training program ( $t=4.11$ ,  $df=38$ ,  $P<0.01$ ) (Table 3).

**Table3: The independent t-test results for the comparison of the average difference between the pretest and posttest function scores in the experimental and control groups**

Groups	Average difference	SD	T	P-value
Experimental	3.55	3.80	4.11	0.0001
Control	-0.15	1.30		

According to Table 3, the t-value obtained at the lower level of 0.01 was significant.

## Discussion

The research findings showed that teaching puberty issues to first-grade high school students can increase the knowledge of female students about puberty and menstruation. It can also change their attitudes toward menstruation and improve their function in menstrual hygiene. The results of this study were consistent with previous studies, conducted by Marvan (2012), Karamati and Afghari (9, 16, 17). These studies found that puberty health education would increase the knowledge of puberty, change attitude, and improve function regarding puberty.

Menstruation may be looked at as more than just a physiological process; it may be viewed either positively or negatively by the society. From a positive outlook, menstruation is considered as a sign of femininity, fertility, youth, or body purification. On the other hand, the negative perceptions include vulnerability to different illnesses or feelings of disgust and shame in females. In some societies, these negative perceptions become the basis of certain practices, such as restrictions on religious, social, and domestic activities of menstruating women (8). Adequate preparation prior to menarche has an important impact on girls' initial experience of menarche. In other words, girls with inadequate preparation are more likely to

## References

- 1- Yaziki S, Dolgun G, Ozturk Y & Yilmaz F. The level of knowledge and behavior of adolescent male and female students in Turkey on the matter of reproductive health. *J Sex Disabil* 2011; 29: 217-227.
- 2- Williams RM, Ong KK, Dunger DB. Polycystic ovarian syndrome during puberty and adolescence. *Molecular and Cellular Endocrinology* 2013; 373: 61-67.

present negative emotional responses to menarche, while girls with higher preparation are expected to exhibit positive menarcheal reactions (10). Inadequate understanding of menstruation exposes girls to feelings of shame about their reproductive functions, negative menstrual attitudes, and low self-esteem.

Additionally, girls who are unknowledgeable about menstruation are also more likely to engage in sexual behaviors at an earlier age, which can result in exposure to sexually transmitted diseases and unwanted pregnancies (12). Knowledge about body changes during puberty is important not only for the psychosocial adjustment of young adolescents but also for self-esteem, body esteem, and initiation of safer sex behaviors (18). Limitations of this study were the small sample size, exclusive sampling of first-grade high school female students, and the average reliability of the questionnaire. There are several directions in which future research should proceed. In addition to broader sampling, it is necessary to educate young adolescents and teenagers about their changing bodies. In addition, with the increasing use of technology by children and adolescents, use of advanced devices for this type of education may serve a significant effect. Social and cultural factors also play an important role in girls' understanding of puberty. Awareness of how these factors specifically influence menstrual knowledge, preparation, and attitudes can help introduce strategies for helping girls cope with the turmoil of adolescence. Therefore, further attention should be paid to culture and social factors.

## Conclusion

The results of this study demonstrated that educating adolescent girls about puberty increases their knowledge, changes their attitudes, and improves their function in pubertal matters. It is recommended to deliver some health courses in early puberty which can help adolescents be familiarized with their own bodies and deal with the common problems during this period. These training programs should be incorporated in formal educational curricula; in addition, these programs should be comprehensive, covering both physical and psychological changes of puberty. Furthermore, students should be comprehensively and gradually informed on pubertal issues with respect to their age and needs through appropriate sources.

## Acknowledgement

This article was adapted from the first author's doctoral thesis. The authors would like to acknowledge the high school adolescents of Jiroft who participated in this study.

- 3- Alison C, Shibley-Hyde J. Early menarche: Confluence of biological and contextual factors. *Sex Roles* 2013; 68: 55-64.
- 4- Harel Z. Dysmenorrhea in adolescents and young adults: etiology and management. *J Pediatr Adolesc Gynecol* 2006; 19: 363-371.
- 5- Deligeoroglou E, Tismaris P. Menstrual disturbances in puberty 2010; *Best Practice & Research Clinical Obstetrics and Gynaecology* 24, 157-171.
- 6- Marvan ML, Morales C, & Cortes-Iniestra S. Emotional reactions to menarche among Mexican women of different generations. *Sex Roles* 2006; 54: 323-330.
- 7- Balik G, Ustuner I, Kagitci M, Sahhin FK. Is there a relationship between mood disorders and dysmenorrhea? *J Pediatr Adolesc Gynecol* 2014; 27: 371-374.
- 8- Saeed Ali T, Rizvi S N. Menstrual knowledge and practices of female adolescents in urban Karachi, Pakistan. *Journal of Adolescence* 2010; 33: 531-541.
- 9- Marvan ML, Alcala-Herrera V. Age at menarche, reactions to menarche and attitudes towards menstruation among Mexican adolescent girls. *J Pediatr Adolesc Gynecol* 2014; 27: 61-66.
- 10- Marvan ML, Molina-Abolnik M. Mexican adolescents' experience of menarche and attitudes toward menstruation: role of communication between mothers and daughters. *J Pediatr Adolesc Gynecol* 2012; 25: 358-363.
- 11- Estanislau MC, Hardy E, Hebling EM. Menarche among Brazilian women: memories of experiences. *Midwifery* 2011, 27: 203-214.
- 12- White LR. The function of ethnicity, income level, and menstrual taboos in postmenarchal adolescent's understanding of menarche and menstruation. *Sex Roles* 2013; 68: 65-76.
- 13- SedghiSabet M, Hasavari F, SeyedFazel Poor IF, A survey of knowledge, attitude, and health behavior of girl students about puberty. *J guilan University of Medical Science* 2003; 12(47): 31-38. [In Persian].
- 14- Mobin E, Mirzaei M, Karimi M. Investing knowledge, attitude, and health behavior of high school female students concerning menstrual hygiene. *Toloo Behdasht* 2012; 4(41): 70-78. [In Persian]
- 15- Kashefi F, NasiryZarinGhabaee D, Bavandi H, Aliakbari R, Akaberi A, Sharafi A. Knowledge and performance about menstrual hygiene in high school students in Bojnourd. *J North Khorasan University of Medical Sciences* 2013; 5: 989-996. [In Persian].
- 16- Afghari A, Eghtedari S, Pashmi R, Sadri G. Effects of puberty health education on 10-14 year old girls' knowledge, attitude, and behavior. *J Nursing and Midwifery Research* 2008; 13(1): 38-41. [In Persian].
- 17- Karamati MR, Esfandiari MR, Mahjoob H. The effects of puberty hygiene training on knowledge, attitude, and mental health of adolescents. *New Ideas in Education* 2008; 5(1): 35-50. [In Persian].
- 18- Cousineau TM, Franko DL, Green TC, Watt M, Rancourt D. Body Morph: Feasibility testing of an interactive cd-rom to teach young adolescents about puberty. *J Youth and Adolescence* 2006; 35(6): 1015-1021.