

*Original Article***Effects of puberty health education on 10-14 year-old girls' knowledge, attitude, and behavior**

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**Abstract**

**Background:** Unfamiliarity of adolescents with puberty can lead to physical, psychological, and emotional problems. The aim of the present study was to evaluate the effects of a puberty health education course on 10-14 year-old girls' knowledge, attitude, and behavior.

**Methods:** In a semi-experimental study 1670 10-14 year-old girls were selected from schools in Isfahan province using stratified sampling and were educated in a three months course by health teachers. The content of the educational course included physiologic, psychological, physical, and other information about puberty. Data was collected using a questionnaire about knowledge, attitude, and healthy behavior filled out by interviewing the subjects before and after the course. Analysis of data was done using descriptive and inferential statistics (t-test, chi square, and ANOVA).

**Results:** All participants completed the course. Mean scores of knowledge, attitude, and also healthy behavior were significantly higher at the end of the educational course compared with baseline scores ( $p < 0.001$ ). There was also a significant relationship between girls' attitudes toward puberty and their parents' education levels ( $p < 0.001$ ,  $r = 0.5$ ) and also between participants' school achievements and their knowledge, attitude, and behavior ( $p < 0.05$ ,  $r = 0.6$ ).

**Conclusion:** An appropriate educational program including physical and psychological changes, as well as the appropriate nutrition during puberty improves female adolescents' knowledge, attitude, and behavior. To give teenage girls the opportunity to enjoy their youth before becoming a mother, it is necessary to educate them about reproductive health issues.

**Key words:** Puberty, knowledge, attitude, behavior, education

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Puberty refers to the process of physical changes by which a child's body becomes an adult body capable of reproduction and it usually happens in the second decade of life. The World Health Organization defined the ages from 10 to 19 as adolescence age. This is a period in which the individual's personality in terms of culture and health is shaped and the maturity in social, physical, and psychological aspects of life happens. Also, the brain and mind potentials reach perfection and make the mental capacities developed.<sup>1</sup> Among different levels and periods of growth, adolescence is

very important and outstanding because the changes that happen to an adolescent affect family and society as well.<sup>2</sup>

In some cases parents forget their responsibility to transfer health information to their children due to either embarrassment or ignorance or life commitments. They cannot understand the challenge and pain their children have in this process and put the responsibility of informing their children on the shoulders of teachers who may ignore it as well and return it back to the parents. In such situation adolescents will go to classmates, siblings, street talks, and

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mass media to get the information they need.<sup>1</sup> This will lead to wrong or incomplete information and misunderstanding of the situation. Therefore, these adolescents can create problems for both themselves and their parents and put their physical, psychological, and social health in risk. Researches carried out in Isfahan province (Tiran and Kurun) have showed that more than 50% of teenage girls and 23% of parents did not have sufficient information about physical and psychological changes during puberty and had no clue how to face the problems of this period and how to keep healthy.<sup>3</sup> Studies in the developed countries also have showed that 65% of adolescents, especially females do not have sufficient information about puberty and sexuality and just 32% of them had an acceptable behavior toward facing puberty problems.

Considering the above research results and the fact that the number of adolescents in Iran is increasing, it is necessary to educate adolescents before and also during puberty. The increasing population of adolescents in Iran in one side makes the market for puberty education big and in the other side, increases the problems and troubles of this age. Based on a majority of researches, in most countries of the world, female adolescents do not receive formal health education on time, since their puberty happens earlier than boys. Studies have showed that 63.4% of puberty disorders and complications among females were because of their ignorance.<sup>4</sup>

This study tried to educate female adolescents between 10-14 years of age in selected cities of Isfahan province and find out how such education affects their knowledge, attitude, and behavior.

## Methods

This was a semi-experimental study and 1670 urban school girls (10-14 years old), who never received any formal education on puberty before, were selected by stratified sampling based on their population in the selected urban areas of Isfahan province. These are as included Isfahan area one and two, Aran and Bidgol, Ardestan, Borkhar and Meimeh, Khomeini-Shahr, Khansar, Felavarjan, Semirrom, Shahreza, Fari-

dan, Freidun-shahr, Mobarake, Naeen, Tiran and Karvan, and Najaf-abad. The study carried out in the educational year of 2003-2004 in the schools of the above mentioned urban areas.

To ensure the reliability of the educational contents, some pamphlets were prepared by the experts of the school health care office in the Ministry of Health in two months. These pamphlets were given to ten university professors and edited based on their comments. The pamphlets were published as a textbook for health including menstrual period, puberty psychological health, physical signs of puberty, and nutrition during puberty. It was the textbook used by researchers in this study. In the first step, the researchers taught the health personnel of the selected schools using the above textbook teaching guides. Next the health personnel who were responsible for training health teachers in schools prepared them to carry out the special course for the study. After explaining about the research a list of students who wanted to participate in the study was provided, the sample group was selected. First of all, the questionnaire involved 40 closed multi-valued questions (5 choices valued from 1 to 5) was given to them to evaluate their Knowledge, attitude, and behavior about puberty health education, Then the health teachers taught the textbook during a three month course to the sample group and the researchers supervised the quality of education by their presence in the classrooms.

The questionnaire contained equal number of questions on each area of the research including general information, knowledge, attitude, and behavior. To make the questionnaire reliable, first many questions in various fields were prepared and given to the university professors to select the best. Then, it was given to 40 female adolescents. The questions were multi-valued, covering different fields including knowledge, attitude, and behavior. Therefore the Cronbach's alpha was used to ensure its validity ( $r = 0.92$ ). The questions about attitude were based on Likhert scale (5 scales) and questions on knowledge and behavior were multi-valued. The questionnaire was filled by the

health personnel, interviewing participants before, and after the education. The behavior was also measured by the mentioned questionnaire because the sample was big and it was the limitation of this research, which was tried to be eliminated using multi-valued questions. Descriptive and inferential statistics (*t*-test, chi square, and ANOVA) were used for data analysis. The maximum error for all the tests was considered as 5%.

## Results

The educational level of 1.31% of fathers and 36.8% of mothers of the 10-14 year old girls participated in this study was primary school and the statistical analysis showed a significant relation between parents' education and knowledge and attitudes. 35.4% of girls learned the health issues from their parents.

The results showed that the mean scores of knowledge before and after the education was relatively 5.6 ( $\pm$  1.1) and 12 ( $\pm$  3.8) and the

paired *t*-test showed a significant difference between the two ( $p = 0.001$ ). The mean scores for attitude before and after the education were respectively 26 ( $\pm$  10.2) and 48 ( $\pm$  16.8) and the chi square test showed a significant relation between education and the increasing amount of right attitude ( $p = 0.01$ ). Moreover, the mean scores of behavior before and after education were relatively 37 ( $\pm$  11.5) and 47 ( $\pm$  15.4), which showed significantly different in chi square test ( $p = 0.005$ ).

Finally, an analysis of variance was used to find the most important factor in adolescents attitude and behavior and found that the adolescents' understanding of the menstrual period as a natural phenomenon was related to education ( $p = 0.01$ ). Also, the female adolescents behavior during menstruation including frequent showering, using the proper period pads, and washing themselves after using toilet was corrected after education ( $p = 0.02$ ). The main cases are in the table 1.

**Table 1:** Comparison of the questionnaire before and after education

Education Field	Before	Education	After	Education	P value
	Number of subjects with accepted scores	Mean scores before education	Number of subjects with accepted scores	Mean scores after education	
Knowledge	957	5.6 ( $\pm$ 1.1)	1023	12 ( $\pm$ 3.8)	0.002
Attitude	750	26 ( $\pm$ 10.2)	1573	48 ( $\pm$ 16.8)	0.001
Behavior	780	37 ( $\pm$ 11.5)	1128	47 ( $\pm$ 15.4)	0.002

## Discussion

The research findings showed that the mean scores of knowledge for 10-14 year old girls before and after education were significantly different. The expected score for knowledge was 12 and the mean score of knowledge during the research increased about 6.4. Therefore, it seems that puberty education had an impact on improving the female adolescents' knowledge. In another study, Sadri found that health education on puberty for high school girls significantly increased their understanding of the puberty changes.<sup>3</sup> Coelho also proved that health education of puberty not only affect the adoles-

cents' knowledge, but improves their healthy behavior.<sup>8</sup>

In the present study, health education of puberty increased the adolescents' attitude from a mean score of 26 to 48. The expected score for attitude was 48 and there was 22 score difference which seems to be a significant change in the participants' attitude. Yong believes that health education for adolescents strongly affects their attitude toward their abilities and suggests that education should be long term enough (at least ten years) to develop their attitude.<sup>5</sup> Poopoe also showed that educational films improve the adolescents' attitude toward adolescents' rela-

tionships and their knowledge about various safe sexual behaviors.<sup>9</sup>

The findings of the present study showed that the mean score of female adolescents' behavior had a significant difference before and after education increasing from 37 ( $\pm 11.5$ ) to 47 ( $\pm 15.4$ ). It means that appropriate education can improve adolescents' behavior and health. Coelho and colleagues in a research on adolescents' nutritional behavior found that education improved the adolescents' behavior on selecting their food and decreasing eating disorders during puberty.<sup>8</sup>

In this study the results would differ if puberty health education was made by health personnel.

We suggest this research to be carried out in a wider area in Iran and the health education of puberty be added to the curriculum in guidance schools.

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