

## Predictors of Knowledge and Practice of Girl Students about Puberty Health

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### Abstract

**Background:** Puberty and its consequence changes are one of the most important events of each person's life. Knowledge and practice about puberty health lead to successful passage of this period. This study was aimed to determine factors predicting the knowledge and practice of girl students about puberty health in Tabriz high schools.

**Materials and Methods:** This study was a cross-sectional study conducted on 364 students in seventh and eighth grades in 2015. The participants were selected using random cluster sampling. Their knowledge, practice and socio-demographic characteristics about puberty health were collected using self-completed questionnaires which is standardized questionnaire for Iran society. General Linear Model was used for determining the socio-demographic predictors of knowledge and practice of students about puberty health.

**Results:** The mean score of students' knowledge was  $8.26 \pm 2.21$  (in the range of 0-15 scores) and the mean score of students' practice was  $92.3 \pm 10.0$  (in the range of 32-128 scores). Fathers' education ( $P=0.023$ ) and previous obtained information ( $P=0.001$ ) were knowledge predictors. Adequacy of information, the kind of family and the preferred source of information were practice predictors about puberty health ( $P=0.03$ ).

**Conclusion:** Regarding the mean score of students' knowledge and practice and their direct relationship some factors such as father's education, it is suggested to increase the knowledge of parents especially mothers about puberty health by health providers at schools and the related organization using in present learning pamphlets, sessions and classes.

**Keywords:** Knowledge, Practice, Puberty, Girl students.

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## 1-INTRODUCTION

According to the definition of World Health Organization (WHO), adolescence refers to 10-19 age groups (1). Since adolescents are a great part of the population of the world, addressing various related issues of them is very important (2, 3). Based on statistics published by the Statistical Center of Iran, more than 20% of the population (of approximately 80 million) consists of 10 to 19 year-old adolescents (4, 5). Puberty is an important dimension of adolescence. Knowledge of its natural process and its problems successfully pass the individual to adulthood and fertility (6, 7).

The health of girls in puberty is specifically important compared to boys. Puberty characteristics and specific physical and mental conditions of this period, related needs and their fundamental role in reproduction have a significant effect on their whole aspect of their life (8). Puberty is the predictable sequence of hormonal and physical changes, and these physical and physiological changes are critical in most girls and boys (9). Puberty health includes principles and taking actions that result in maintenance and improvement of physical, mental, and emotional health during this period and requires education more than anything else (10).

According to previous studies in Iran, most adolescent girls do not have enough information regarding menstruation health and most of them have unpleasant feelings about puberty and their first menstruation (11, 12). Sometimes, some of puberty problems put the person at crisis. Three main educational factors including family, school and society play active role in order to eliminate or reduce these problems (13). Since the health of girls in present will supply the health of future generations, the conduction of vast studies on their knowledge, practice and behavior about puberty health and efforts for increasing it, are kind of investments for achieving

personal and social health (14). Therefore, the present study tried to evaluate the knowledge and practice of adolescent girls in seventh and eighth high school grades about puberty health.

## 2- MATERIALS AND METHODS

### 2-1. Study Design and Population

This study was a descriptive-analytical study conducted on 364 students in seventh and eighth grades in the first semester of the academic year (2015) in public and private girl secondary schools in Tabriz. Tabriz is a big city in North West of Iran. The participants were selected using random cluster sampling. Out of the 107 secondary schools for girls (67 public schools and 40 private schools besides schools for exceptional students) covered by the Offices of Education in the 5 districts of Tabriz, 8 public schools and 4 private schools were selected using the simple random sampling method. Regarding that the population of this study included 2,856 people, the size of the sample was considered 364 people using Morgan Table at 95% confidence interval.

### 2-2. Methods

One-third of seventh and eighth grades students in each school were randomly selected using a table of random digits, and students who had not experienced menstrual bleeding for more than 3 months, or who had taken part in similar research, were omitted. After participants' consent, the knowledge, practice and socio-demographic characteristics questionnaires were filled by the students using one standard questionnaire that was standardized in Iran by different authors (15, 16). The information was collected for one month from October 23, 2015 to November 23, 2015 in one shift from the secondary school girls in seventh and eighth grades.

### 2-3. Measuring tests

The questionnaires used in studies conducted by Mohammad Alizadeh et al. were employed to complete the required information (15, 16). The content and face validity of these questionnaires (that included the three sections of socio-demographic characteristic, questions about knowledge, and questions about practice) were re-determined by asking the opinions of 11 faculty members of the Nursing and Midwifery school in Tabriz. First names and family names of the girls were not recorded on the questionnaires to keep anonymity. The section on knowledge questionnaires included 15 questions with 4 possible answers for each one. One point was given to each correct answer, and a zero for a wrong answer or for an unanswered question. The questions were on physical health such as understanding puberty changes and the female reproductive system, nutrition during the puberty period, physical activity and rest, skin health, menstrual health, and mental health during puberty.

The section assessing practice of the girls included 32 items on physical health such as menstruation, nutrition, sports, and physical activity and on mental health. In fact, the students themselves reported their practice because direct observation of the practice related to puberty health in students was not possible. Each item was answered based on the 4 point Likert scale (never, sometimes, often, always) that received scores of 1 to 4, respectively. Six items were scored inversely.

In both fields, the primary score of each individual and the total obtained scores were calculated and then, knowledge scores for each individual were considered very weak, weak, average, good, and excellent if they were less than 3.83, 3.84 to 6.49, 6.50 to 10.46, 10.47 to 12.67, and more than 12.68, respectively. The practice scores were also considered very weak, weak, average, good, and excellent if they

were less than 72, 72 to 81, 82 to 101, 102 to 111 and more than 112, respectively.

#### **2-4. Inclusion Criteria**

Inclusion criteria included having 13-14 year-old, having no mental disease, high school students and satisfaction to participate in the study.

#### **2-5. Exclusion Criteria**

Exclusion criteria included participation in other classes related to puberty health and unwillingness to continue the participation in the study.

#### **2-6. Ethical Considerations**

This study was approved by the Ethics Committee of Tabriz University of Medical Science (ID Code: 9381) and the objectives of the study were explained to all participants and all of them accepted to participate and were assured of the confidentiality of their individual information as well as the voluntary nature of participating in the study.

#### **2-7. Data Analyses**

SPSS version 13.0 was used for data analysis. In order to describe socio-demographic characteristics, knowledge and practice about puberty health, descriptive statistics including frequency and percent, mean and standard deviation were used. In order to determine the relationship of the knowledge and practice scores in area of puberty health with socio-demographic characteristics, the relationship was first measured using bivariate tests such as independent t-test and one-way ANOVA.

Then, in order to determine the effect of each independent variable (socio-demographic characteristics) on the dependent variable (knowledge and practice in area of puberty health), those variables whose significance were confirmed ( $P < 0.05$ ) in bivariate tests were

inserted to the General Linear Model together. The significance level of  $P < 0.05$  was selected.

### 3-RESULTS

The socio-demographic characteristics of the participants are presented in **Table.1**. The mean age of participants were  $12 \pm 3.6$  years old. The majority of students had experienced their first menstruation within the last 12 months. 57% of the students were in seventh grade and 43 % of them were in eighth grade from 364 students.

The knowledge and practice of the participants are shown in **Table.2**. The mean score of knowledge score was  $8.3 \pm 2.2$  (in the range of 0-15 scores) that mean the students have average knowledge. The mean score of practice score was  $92.3 \pm 10.0$  2 (in the range of 32-128 scores) which was at an average level. The results of bivariate tests showed that there was a relationship between knowledge score and the age of students ( $P = 0.002$ ), their parents' age ( $P = 0.001$ ),

their fathers' education ( $P = 0.001$ ), previous obtained information ( $P = 0.002$ ), and the most preferred source of information ( $P = 0.001$ ). In addition, there was a statistically significant relationship between practice score and previous obtained information ( $P = 0.001$ ), the most preferred source of information ( $P < 0.001$ ) and the kind of family ( $P = 0.007$ ).

According to adjusted General Linear Model, fathers' education and previous obtained information had a significant relationship with knowledge that predicts 73% percent of variance in knowledge scores (**Table.3**).

In addition, there was a significant relationship between students' practice and previous obtained information, the kind of family and the most preferred source of information that altogether predict 78% of variance in practice score (**Table.3**). Indeed, **Tables 3** shown the correlation between some individual and social predictor with the knowledge and practice of puberty in participant girls.

**Table 1:** Socio-demographic characteristics of participants in this study (n=364)

Variables		Mean	SD
Age (year)	Age of student	12	3.6
	Age of father	41.7	10.09
	Age of mother	37.6	7.9
Mother's education	Illiterate	20	5.5
	Lower than diploma	158	43.3
	diploma and Higher than diploma	145	39.8
	licentiate and Higher than licentiate	38	10.4
Father's education	Illiterate	12	3.3
	Lower than diploma	141	38.8
	diploma and Higher than diploma	145	39.8
	licentiate and Higher than licentiate	62	17
Mothers' job	Housewife	309	85.1
	Employed	22	6
Fathers' job	Worker	40	11
	Clerk/retired	117	32.1
	Shopkeeper	23	6.3
	Private sector	170	46.7
Age at menarche (each month)	<12	227	62.5
	12 - 24	82	26.6
	>24	54	14.9

Type of family	Both of father and mother	338	94.2
	Living with stepfather and mother	4	1.1
	Only with mother	17	4.7
Previous acquisition information	Yes	332	91.5
Sufficiency of acquired information about puberty	Insufficient	26	7.2
	Moderate	218	60.1
	Sufficient	103	28.4
Main source of information about puberty	Mother	251	69
	Health providers	55	15.1
	Magazines and books	52	14.3
Preferred source of information about puberty	Mother	234	64.5
	Sister and Friends and peer group	56	15.4
	Health educator & Teacher	70	19.2
Feeling at onset of menarche	Fear and worry	81	22.3
	Shame and embarrassment	120	33.1
	Pride and happiness and enlargement	54	14.9
	Anger	25	6.9

**Table 2.** Knowledge and practice of girl students about puberty health

Characteristics	Range	Mean (SD)	Minimum and maximum scores
Practice	0 - 15	8.2 ± 2.2	0 -14
Knowledge	32 - 128	92.3 ± 10	65 – 127

SD: Standard deviation.

**Table-3:** Relationship between socio-demographic characteristics and Knowledge and Practice score in adolescent girls according to univariate and multivariate general linear model

Variables		B (95%CI)*	P-value	
Knowledge	Father's education	Illiterate	-1.5(-3.3 to 0.2)	0.088
		Lower than diploma	-8.4(-1.7 to 0.7)	0.072
		diploma & Higher than diploma licentiate and Higher than licentiate	-0.8 (-1.6 to -0.2)	0.023**
	Previous acquisition information	Yes	2 (1 to 3.7)	0.001**
	Sufficiency of acquired information	Insufficient	-7(-11.2 to -2.7)	0.001**
		Moderate	-3.4(-5.8 to -1.1)	0.003**
Practice	Sufficiency of acquired information	Insufficient	-7(-11.2 to -2.7)	0.001**
		Moderate	-3.4(-5.8 to -1.1)	0.003**
	Type of family	Both of father and mother	-6.3(-5.5 to 4.3)	0.802
		Living with stepfather and mother	-12.9(-23.7 to -2.1)	0.018**
	Preferred source of information	Mother	3.2 (0.3 to 6.7)	0.03**
		Health educator and Teacher	-0.5(-4.7 to 2.9)	0.745

R Squared= 0.118 (Adjusted R2: 7.3); \*95% Confidence interval (CI) (difference between two groups is significant); \*\* P value <0.05 showing the significance of variable of interest.

#### 4-DISCUSSION

This study was aimed to determine factors predicting the knowledge and practice of girl students about puberty health in Tabriz high schools. The mean score of students' knowledge was  $8.26 \pm 2.21$  (in the range of 0-15 scores) and the mean score of students' practice was  $92.3 \pm 10.0$  (in the range of 32-128 scores). There was a statistically significant relationship between knowledge and fathers' education and previous obtained information. Also, there was a statistically significant relationship between practice about puberty health and kind of family, adequacy of information and the most preferred source of information.

In this study, the high level of fathers' education has been associated with the high level of girls' knowledge. The high level fathers' education underlies cultural information exchange about puberty. These findings were in line with the results of the study done by Kazemi et al. and Abokoti et al. (17, 18). In the present study, approximately 93% of the participants argued that they have previously had knowledge but over half of them (60.1%) considered their information as average regarding that previous obtained information is in direct relationship with knowledge, adequacy of information and practice of puberty and most students said that their first source of information was their mother and a low percentage said that their source of information was health providers.

Thus, the low level of mothers' knowledge and correct information or insufficient attention to puberty issues can be reasons behind the lack of knowledge and poor practice of these adolescents. As noted in studies done by Abdollahi et al. (19), Olfati et al. (20), and Koff et al. (21), there was a direct relationship between the amount of primary information and adequacy of information, and knowledge and practice. Knowledge and practice of

most teenage girls were weaker in comparison with puberty health. Furthermore, these three mentioned study indicated that their source of information were their mothers. Thus, strengthening the relationship between mothers and teenage daughters, removing the barriers such as shyness and embarrassment in expressing issues relating to puberty and menstruation by girls or mothers, indifference to lack of knowledge and proper practice of the girls in issues related to puberty health and its consequences should be incorporated into educational courses. Thus, it is suggested to inform mothers with the adoption of proper and friendly methods of attracting trust, friendship and necessary attention related to puberty health.

The current study showed that most girls live with their parents. This issue had a significant relationship with their practice. This shows the effect of the presence of both parents in the life of teenage girls. The results of this study showed that most girls referred to their mothers as the most preferred source of information. This issue had a significant relationship with knowledge and practice scores. This result was also found in the study of Hagh Khani et al. (11).

This finding also showed the necessity of increasing the literacy and knowledge of families especially mothers. It is suggested to strengthen proper relationship between parents and teenage girls and remove barriers such as shyness and embarrassment in relation with the puberty-related issues. Puberty health should also be incorporated into educational courses of parents especially mothers

##### 4-1. Limitations of the study

The data collected was drawn from only in seventh and eighth grades. Another limitation was the small sample size of

include studies as well as small size of participants.

## 5-CONCLUSION

Regarding the average knowledge and practice of the participants in puberty health and also the effectiveness of family variables in the knowledge and practice of the participants and also regarding that mothers are the most preferred and the first source of information about puberty health and menstruation-related issues, more attention should be paid to increasing parents' knowledge especially mothers, the how-about of information transfer and communication with the girls. In addition to training mothers, other proper and specialized educational sources such as health care providers, health care providers of schools, and the media by considering cultural and educational sensitivities.

## 6-AUTHORS CONTRIBUTIONS

- Study design: AF, MM, SV.
- Data Collection and Analysis: MA, AF.
- Manuscript Writing: MM, MA.
- Critical Revision: SV, AF.

**7- CONFLICT OF INTEREST:** None.

## 8- ACKNOWLEDGMENTS

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