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Educational needs of female adolescents regarding reproductive health: A case study in Hamadan-Iran

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Journal of Research & Health
Social Development & Health Promotion Research Center
Vol. 7, No. 4, Jul & Agu 2017
Pages: 927 - 934
DOI: 10.18869/acadpub.jrh.7.4.927
Original Article

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Received: 25 Oct 2015
Accepted: 10 Apr 2016

How to cite this article: Masoumi SZ, Kazemi F, Delforouz F, Kousha M, Faradmal J. Educational needs of female adolescents regarding reproductive health: A case study in Hamadan-Iran. *J Research & Health*2017; 7(4): 927 - 934.

Abstract

Due to the evolutionary nature of adolescence period and its specific characteristics and needs, assessment of adolescents' health needs is of great importance. The present study aimed to determine educational needs of female high school students regarding reproductive health. This study was conducted on female high school students in Hamadan, Iran. The study participants included 346 students selected through cluster sampling. The study data were collected using modified WHO's questionnaire. The results showed that 80.4% of the participants had weak to moderate knowledge about nutrition, 54.9% about anatomy, 94.2% about physiology, 85.6% about menstrual health, 93.9% about common cancers among women, 89.9% about genetics, 15.9% about puberty, 72% about STD/HIV, and 48.9% about contraception. The study results revealed the necessity of training in various areas of reproductive health in female high school students.

Keywords: Adolescent, Female, Knowledge, Reproductive Health

Introduction

Adolescence is one of the most important and valuable periods of human life [1]. According to the World Health Organization (WHO) definition, this intermediate stage involves 10-19 years age group [2]. Adolescence is in fact the beginning of physical, mental, and social changes that affect individuals' performance in adulthood and lead to different requirements in this age group [3]. Around 1.2 billion individuals in the world belong to this age group [1]. According to the census performed in Iran in 2011, 12.5 million individuals (16.3% of population) were 10-19 years old [4].

It is evident that adolescents are more at risk of health problems compared to other age groups [5]. Also, adolescents' needs have been increasingly taken into account in the International Conference on Population and Development (ICPD), as a turning point in reproductive health. ICPD announced that adolescents have unique needs compared to adults and asked the committed countries

to identify and try to satisfy these needs [6]. Moreover, girl adolescents are seriously vulnerable to the negative outcomes of reproductive health [7]. Based on WHO, reproductive health is not only lack of disorder in reproductive system and its function and processes, but also involves complete physical, mental, and social welfare [8]. The results of the researches performed in Iran indicated that the most important reproductive health needs of female adolescents and adults included increasing their knowledge about physiology of puberty, physical, physiological, and anatomical changes of the reproductive system, mental changes, nutritional issues, physiology of reproductive ages, marital issues, and delivery, increasing adolescents' and their parents' knowledge about changes of puberty and reproduction, and changing society's attitude towards girls' needs, impact of family on solving puberty problems, and development of consultation centers for providing the society with knowledge in this respect [5].

In Iran, most adolescents, particularly girls, do not have correct knowledge about reproductive health due to cultural issues, and obtaining information from unreliable resources can lead to physical and mental problems in marital life [9]. On the other hand, adolescents' health needs have been combined with those of adults, which can result in the provision of adolescents with inappropriate services [7].

Although attention to health is important in all periods of life, investigation of adolescents' health needs is of great importance due to the evolutionary nature of this period and particular needs and characteristics of this age group [10]. Moreover, development of proper strategies for evaluation of adolescents' health needs, determination of priorities, and satisfaction of these needs using the available resources can have a great impact on next generations' health. In fact, understanding adolescents' health needs can lead to development of strategies for prevention of high-risk behaviors in this period, eventually leading to creation of a healthy society [11].

In the studies that have been conducted in the field of reproductive health, besides the low number of studies carried out on adolescents, these studies have focused on issues related to pregnancy, family planning and sexual issues, and ignored topics such as nutrition, gynecological cancers, and puberty [7,12-16]. Therefore, in order to plan for reduction of the problems related to reproductive health among girls, educational needs assessment should be performed primarily in order to prioritize the areas that require more attention. Therefore, the present study aimed to determine the educational needs of female high school students regarding reproductive health.

Method

This cross-sectional study was conducted on female high school students in Hamadan, 2013. Based on the study carried out by Olfati and Aghili [5], and considering p= 0.11, α=0.05, $Z_{1-\alpha/2}$= 1.96, and d= 0.3p, 346 participants was determined for the study:

The study participants were selected through cluster sampling method. In doing so, four schools from each educational district (a total of 8 schools) were selected using simple random sampling. Then, using the list of students' names, 12 students from each grade were selected from each school.

The study data were collected using WHO's questionnaire [17], which was modified according to the study objectives and Iranian culture. This questionnaire including 2 parts: The first part included demographic information and the second part consisted of 110 questions in 8 areas. These eight areas included nutrition, genetics, reproductive system anatomy, reproductive system physiology, menstrual health, breast cancer, changes in physical and mental puberty, AIDS and sexually transmitted diseases (STD), family planning, and reproductive health information resources. To investigate the content validity, 8 professionals in the field of reproductive health were asked to express their opinions in relation to the questionnaire. For reliability, a two-week test-retest study was conducted in which the questionnaire

was completed by 10 participants. Intra-class correlation was obtained as 0.76.

The inclusion criteria of the study were being high school student and being interested in the participation in the study. On the other hand, the exclusion criterion of the study included participants with unfinished questionnaires. After explaining the study objectives to the students, obtaining their written informed consent, and reassuring them about the confidentiality of their information, the questionnaires were distributed to the participants. In this questionnaire, scores 1 and 0 were allocated to true and false answers, respectively. Considering different number of questions in different areas of reproductive health, the score of each area was computed from 100. Accordingly, scores below 33.33, 33.33-66.66, and above 66.66 represented weak, moderate, and excellent knowledge levels, respectively.

After all, the data were entered into the SPSS-21 and were analyzed using multivariate linear regression analysis, t-test, ANOVA, and Mann-Whitney test. $p<0.05$ was considered as statistical significance.

Results

Demographic characteristics of the participants in this study are summarized in Table 1. The participants' grade and major, father's education level, and mother's education level were significantly associated with knowledge score. Accordingly, the pre-university students obtained higher knowledge scores compared to those at the second and third grades of high school ($p=0.01$ and $p<0.000$, respectively).

Table 1 *Frequency distribution of the participants' demographic characteristics and its relationship with total score of knowledge about reproductive health*

Demographic features		N (percent)	Mean±SD	df*	t/f	P
Age	14-16	203 (59.5)	48.73±12.00	339	0.49**	0.61
	17-20	138 (40.5)	48.04±13.44			
Grade	1st grade of high school	71 (20.9)	49.35±10.48	3	6.01	0.001
	2nd grade of high school	109 (32.2)	47.5±12.21			
	3rd grade of high school	98 (28.9)	45.47±13.63			
	Pre-university	61 (18.00)	53.76±12.30			
Major	General	62 (17.9)	49.40±10.5	4	6.95	<0.000
	Math/physics	45 (13.0)	50.00±11.51			
	Experimental Sciences	133 (38.4)	51.05±13.56			
	Human sciences	32 (9.3)	46.03±10.62			
	Conservatory	74 (21.4)	42.11±12.31			
Father's education level	Below diploma	99 (29.5)	46.43±11.59	3	3.65	0.01
	Diploma	113 (33.6)	49.67±12.86			
	Bachelor's degree	65 (19.3)	51.18±11.66			
	Other	59 (17.6)	45.11±13.78			
Mother's education level	Below diploma	117 (35.1)	47.65±11.92	3	6.39	< 0.000
	Diploma	117 (35.1)	50.95±12.58			
	Bachelor's degree	39 (11.7)	49.90±11.74			
	Other	60 (18.1)	42.50±13.67			
Father's occupation	Self-employed	151 (45.2)	48.51±13.09	4	0.28	0.88
	Worker	25 (7.5)	46.03±12.26			
	Employee	108 (32.3)	48.53±11.80			
	Teacher	16 (4.8)	46.66±16.03			
	Other	34 (10.2)	48.06±11.56			
Mother's occupation	Homemaker	283 (84.0)	47.63±12.62	4	1.36	0.24
	Worker	2 (0.6)	60.11±11.80			
	Employee	24 (7.1)	52.40±13.70			
	Teacher	17 (5.0)	48.23±10.00			
	Other	11 (3.3)	50.96±15.59			

* Standard deviation, *Degree of freedom, **t-test, the rest: One-way ANOVA

In addition, the conservatory students got lower knowledge scores compared to general (p=0.007), math (p=0.008), and experimental sciences (p<0.000) students. Moreover, the students whose father had bachelor's degree had higher knowledge scores compared to the others (p=0.04). The students whose mother had diploma or bachelor's degree also had higher knowledge scores compared to the others (p<0.000 and p=0.02, respectively). Yet, the results of linear regression analysis showed that none of the study variables was significantly associated with the total score of knowledge (data not shown).

Frequency percentage of the total scores obtained in the different areas of reproductive health based on knowledge levels has been presented in Figure 1. Knowledge status was evaluated in different aspects of reproductive health at three levels: poor, medium, and excellent (Figure 2) and the questions for which the respondents obtained low scores as well as the frequency of correct responses have been presented in Table 2.

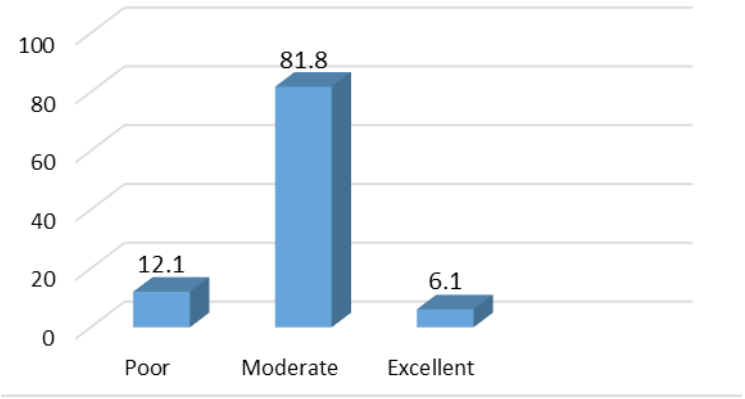

Figure 1 *Frequency percentage of various knowledge levels regarding reproductive health*

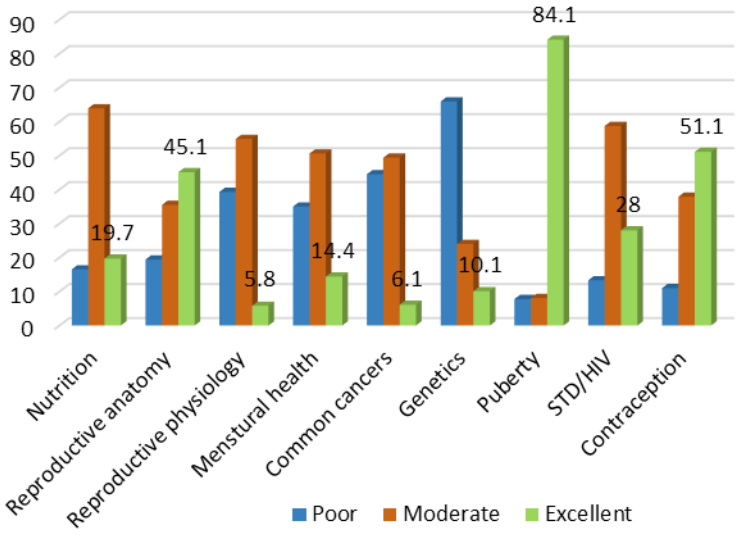

Figure 2 *Frequency percentage of various knowledge levels based on different areas of reproductive health*

Table 2 *The questions related to the participants' weak knowledge and frequency of correct responses*

Questions	Scope	Number of correct answer	Percent of correct answer
Can menstruation occur before ovulation?	Reproductive physiology	112	33.2
What is the appropriate age range for pregnancy?	Reproductive physiology	103	29.9
How many glasses of water should an adolescent drink each day?	Nutrition	88	26.0
What are the signs of reproductive system's infection in women?	STD/HIV	86	26.4
How often is breast examination necessary?	Women's cancers	85	24.9
Are sexually transmitted diseases preventable?	STD/HIV	84	24.7
Is discharge of blood or colored fluids from breasts a sign of breast cancer?	Women's cancers	79	23.1
Does consumption of oral contraceptive pills lead to infertility?	Contraception	74	22.0
Can two individuals with minor thalassemia marry together?	Genetics	72	21.4
When is emergency contraception used?	Contraception	72	21.4
Should certain foods be avoided during menstruation?	Nutrition	61	18.5
How many kilocalories does an adolescent need a day?	Nutrition	58	17.3
Which organ regulates ovaries' function?	Reproductive physiology	42	12.3
Is genetic consultation necessary for marrying couples?	Genetics	35	10.3
Which factor is necessary for testicles' regular function?	Reproductive physiology	25	7.4
Does menstruation blood accumulate in vagina?	Reproductive anatomy	23	7.2

Considering the resources of information, the adolescents tended to get their required information from books (42.5%), followed by their mothers (33.2%) and teachers (22.5%). The majority of the participants considered their mothers (33.5%), friends (31.2%), and books (29.8%) as their most important sources of information. Moreover, 37.9% and 30.3% of the participants preferred to say their physical and mental problems to their mothers and friends, respectively. However, 52.9% of the students mentioned that schools did not use any resources to inform them about reproductive health.

Considering the adolescents' feeling about menstruation, 36.6% of the participants hated the changes related to menstruation and 43.3% had felt worried and anxious in their first menstrual cycle.

In response to the question "about which method of contraception do you have more information", 50.3% of the students mentioned "condom". Also, in response to the question "what is the most appropriate contraception method for adolescents and young adults", 34.7% of the participants mentioned "using condoms".

Discussion

The present study aimed to determine the educational needs of high school girls regarding reproductive health. The results showed that more than three fourths of the participants had weak to moderate knowledge about nutrition, reproductive physiology, menstrual health, common cancers, genetics, and STD/HIV. Besides, nearly half of the students had weak to moderate knowledge about reproductive anatomy and contraception. However, 84.1% of the adolescents had excellent knowledge about puberty. These results were confirmed by those of the previous studies conducted on the issue. Olfati et al. performed a study on middle-school students in Qazvin in 2005 and reported weak to moderate knowledge scores [5]. Nevertheless, those mean scores were lower compared to the current study. Similarly, Simbar et al. conducted a study in Qazvin in 2001 and reported moderate

knowledge level among non-medical students [13]. The results of the study conducted by Khaleghi Nejad et al. in Mashhad in 2006-2007 also indicated a great need for training in all areas of reproductive health [15]. Thus, it can be concluded that necessity of obtaining information regarding reproductive health is not limited to a particular population or age group. Yet, priorities of gaining information in this respect might be different in various age groups. Considering the sources of information, the findings of the present study were in agreement with those of the research performed by Bazarganipour et al. in Qom [7]. Although that study was conducted on female university students, the majority of the participants mentioned mother and books as their most important sources of receiving information. Although the level of knowledge about reproductive health increases proportionally with increasing educational level of parents in European and American countries, and the results of a study conducted by Simbar and colleagues also confirmed this matter [13], the lack of this relationship in this study indicates the significance of educating parents on how to teach these things to their children.

In contrast, the results of the study carried out by Al-Mazrou et al. in Saudi Arabia in 2002-2003 revealed friends and educational booklets as the most important sources of information among boys and girls, respectively [18]. In spite of the fact that enrichment of parents-child relationship is associated with reduction of high-risk behaviors among adolescents [19,20], information about reproductive health is rarely transferred by informed individuals and even parents, and in some cases, they are not the first source of information transfer [5]. The findings of our study demonstrated that in addition to mother and books, friends play a critical role in information transfer. In case this issue is guided in a positive direction and peer education is used in training adolescents, it can have a great impact on increasing transfer of correct information in different areas, particularly in reproductive health, to adolescents [21,22].

According to the present study findings, the participants had felt worried and anxious in their first menstrual cycle, which is consistent with the results of other studies [23,24]. This implies that although menstruation is a physiological phenomenon, adolescents are faced with it without prior awareness, causing worry and anxiety. Alavi et al. carried out a research in Tehran and stated that only 17.4% of the adolescents were prepared for menarche [23]. Liu et al. also conducted a study in China and reported that 63.8% of the adolescents had entered puberty without prior information [25]. Hatred towards menstruation has also been mentioned in other studies [23,25].

While Olfati and colleagues conducted their study on middle school girls and concluded that most teen girls did not know the meaning of puberty and their knowledge was poor about the puberty and it was associated with misconceptions and unrealistic [5]. This shows the need to begin the education from the younger ages. In fact, education increases information and makes positive attitude towards puberty phenomenon and leads to acceptance of puberty as a normal physiological change. The effectiveness of education will increase if the training includes the three dimensions of physical, mental, and social domains, as well as how to deal effectively with problems; by training adolescents, the parents also will be trained.

By informing mothers regarding the necessity to provide their daughters with correct information before menarche, adolescents can be prepared for encountering this phenomenon. In addition, school, as the first source of information transfer, can play a key role in increasing knowledge in this respect.

This study will give policy-makers a comprehensive perspective and provide them with necessary data to set up appropriate health programs concerning female youth reproductive health.

The limitations of this study was that the participants were not representative of all adolescents and young adults; the results of this study may not be generalizable

to other adolescents and young adults of other geographic region or different ethnic backgrounds. Further studies are recommended to be conducted on 10-19 years old adolescents and their parents about the level of awareness in reproductive health.

Generally, it can be said that training children and adolescents requires specific skills and must be performed by experienced individuals. Additionally, parents should be informed in this regard and help the authorities by accepting some educational responsibilities. The role of media in education and increase of knowledge should not be neglected, as well. Furthermore, plans and activities not only should consider correct information transfer, but they should also create the necessary motivation and sensitivity and provide individuals with fighting power in different situations by training life skills. Overall, all the related organizations should make their best in order to solve a social problem.

Conclusion

The results of this study showed a great need for training in different areas of reproductive health. This requires determination of educational priorities followed by development of a comprehensive plan for increasing adolescents' knowledge about reproductive health. Since the previous studies on this issue were performed on younger populations and revealed weak to moderate knowledge levels, training reproductive health issues should be appropriate to different age groups and be started at school.

The findings of the present study can be used for prioritization of reproductive health areas for adolescents. In this way, by providing the required trainings, steps can be taken towards increasing the knowledge of this vulnerable group that forms the future of the society. In fact, by increasing adolescents' knowledge about reproductive health, many problems that can occur due to unawareness can be prevented.

Contribution

Study design: SZM, FD, MK

Data collection and analysis: SZM, JF, FD, MK

Manuscript preparation: SZM, FK

Acknowledgements

This paper was extracted from a student thesis. This study was supported by the research deputy of Hamadan University of Medical Sciences. The authors would like to thank Education Department of the University and all the individuals who cooperated in the research.

Conflict of Interest

"The authors declare that they have no competing interests."

Funding

The authors received financial support from Hamadan University of Medical Sciences for this study with approval code: 9209193362.

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