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Mothers' Participation in Improving Girls' Knowledge of Reproductive Health.

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ABSTRACT

Mothers play the most important and influential role in training and transferring information and health behaviors to girls. Mothers' lack of sufficient knowledge and their failure in preparing and training the girls are the most important reasons for the girls' lack of useful and reliable information on puberty and reproductive health. This study investigate the effect of educating the mothers on improvement of the girls' knowledge of reproductive health in Hamadan, Iran, 2015. The present quasi-experimental study was conducted on 120 Iranian girls aged 13-15 years old and their mothers. Before the intervention, girls' and their mothers' knowledge of reproductive health was measured by using the questionnaire. The mothers of the intervention group participated in 4 sessions for 4 weeks and received the necessary education on reproductive health. Three month after the educational intervention, girls' knowledge of reproductive health were assessed and compared with pre intervention stage. Mean scores of girls' knowledge of reproductive health in the intervention group was 11.63 ± 4.37 before intervention which has reached 30.60 ± 1.49 after their mothers' education, indicating a significant difference ($p < 0.05$); There was a significant difference between mean scores of the girls' knowledge before and 3 months after their mothers education ($P < 0.05$), but it was not significant in control group. The present study documented the importance of mothers' role as the girls' first teachers in educating and transferring information on reproductive health.

Keywords: Reproductive health, Girls adolescents, Knowledge, Mothers' participation

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INTRODUCTION

Transition from childhood to adulthood is the beginning of physical, psychological, and social changes, which affect the individual's performance in adulthood and lead to formation of behaviors that improve or, in contrast, threaten health[1].

Adolescents account for one fifth of the world's population, 85% of whom live in developing countries[2]; while, half of the adolescents in the world are not adequately protected against venereal diseases such as AIDS and unwanted pregnancy and are exposed to the risk of sexual intercourses, unsafe fertility, early pregnancy and numerous individual health-related and nutritional problems[3]. Adolescents aging 10-19 years old account for 16.34% of the Iranian population, half of whom are female[4]. The girls' fundamental and valuable role in providing reproductive health for the future generation is clear; on this basis, improvement of the girls' reproductive health and addressing its different aspects at national and international levels is one of the basic steps to ensure the health of the society and families focusing on women's health, and investment on ensuring the health of this age group is one of the main paths towards the realization of the developmental objectives of the current millennium[5].

Studies in different countries show that girls, during puberty and subsequent years, are subject to various physical and mental problems such as malnutrition, iron deficiency, genitourinary tract infections, venereal infections, and unwanted pregnancies experienced for the first time[6]. Therefore, many mental problems, infectious diseases, failed marriages, early and risky pregnancies, morbidity and mortality of mother and child, as well as numerous physical, mental, and psychological problems have their roots in the girls' adolescence[7]. Focusing on development of the adolescents, particularly the girls, and observing their rights could accelerate and strengthen the fight against poverty, sexism, gender discrimination, and inequality (2). According to the World Health Organization, training and informing adolescents and their families and raising their awareness of the fundamental principles of reproductive health as well as sensitizing policy makers towards specific psychological, social, and health needs of this age group, are the main elements required for initiating national strategies for adolescents' health education[8].

The high speed of data transfer and social communications in today's world has exposed the adolescents to a large amount of information, while the authorities of this field believe that this educational information must be provided from authentic and reliable sources. In Iran, due to cultural reasons, most of the adolescents and especially the girls, are deprived of receiving accurate information on sexual and reproductive health; further, they might be afflicted with physical and psychological problems due to receiving information from uninformed and unreliable sources[9]. Therefore, knowing safe and effective information sources as well as using the most effective information source for education is of great importance. It is evident that the most important source of information on puberty health for adolescents is family that, as the first social institution, plays the most important and influential role in training and transferring information and health behaviors to adolescents. Although each family member plays a role in teaching puberty-related issues to the adolescents, the mothers' position is the most outstanding one[6]. Studies indicate that girls prefer to receive information on puberty and sexual and reproductive health issues from their mothers; however, studies have reported the mothers' lack of sufficient knowledge and awareness and their failure in preparing and training the girls are the most important reasons for the girls' lack of useful and reliable information on puberty and reproductive health[9]. Therefore, primary education of the girls at home as the best place for this purpose, and informing mothers as the girls' first teachers can be a major contribution to the prevention of reproductive health complications in future generations. In this regard, participation of adolescent girls in educational centers provides a good opportunity for health care providers in schools to do their best to improve the awareness and knowledge of the most effective center of transferring health information, i.e. mothers, and thereby take an effective step in improving the health status of adolescent girls. Thus, the present study is aimed to investigate the effect of educating the mothers on improvement of the girls' knowledge of reproductive health.

METHODS

The present quasi-experimental study was conducted on 13-16-year-old girls studying in secondary schools of Hamadan, and their mothers. The inclusion criteria for girls were occurrence of menarche, being single, living with parents, having physical and mental health, while the exclusion criteria were marriage or

separation from the parents, being transferred to another school, and occurrence of physical or mental disease during the study. Further, only literate mothers and mothers with physical and mental health were included in the study.

MEASURES

Data collection was performed using a questionnaire prepared based on the World Health Organization's questionnaire and modified according to the Iranian culture and research objectives. The questionnaire consisted of two parts, demographic information and 57 specific questions to measure the participants' knowledge of the fundamentals of reproductive health, including anatomy and physiology, menstrual hygiene, nutrition, and exercise, as well as the information sources about reproductive health. Correct answers to more than 70%, between 30%-70%, and less than 30% of the questions were considered as good, medium, and poor knowledge levels, respectively. The questionnaires were completed by the adolescents and their mothers anonymously through self-report, albeit supervised by the researcher. The questionnaire's validity was assessed using different experts' opinions, and its reliability was calculated using Cronbach's alpha coefficient (0/71).

Sampling

Sampling was performed through two-step cluster sampling method. In the first step, 8 schools were selected from two education districts of Hamadan (4 schools from each district) through simple random sampling method, so that in each district, 2 schools were chosen randomly as the intervention group and 2 schools as the control group. In the second step, 15 students were randomly selected in each school using the students' list and the random numbers table. Then, all the selected students were placed in the intervention (N= 60) and control (N=60) groups.

The girls in both intervention and control groups completed the questionnaires. Then, the mothers of intervention group were invited to the school by written invitation or by phone call and completed the questionnaires after participating in a briefing session and being justified about the voluntarily nature of participating in the study and being assured of their privacy. After arrangements were made, the mothers of the mothers of intervention group participated in 4 sessions in the school for 4 weeks in groups of 10 to 15 and received the necessary education on fundamentals of reproductive health. Afterwards, the mothers were given a three-month opportunity to provide their daughters with necessary information; in the meantime, all the mothers were monitored through phone calls or, if necessary, home visits and invitations to school in order to evaluate their performance and status of data transfer and provide them with answers to their questions. At the end of the three-month period, the questionnaires were once more completed by all the girls in both case and control groups. The statistical analyses were performed using the SPSS statistical software (version 19.0), and $P < 0.05$ was considered as statistically significant.

RESULTS

The average ages of girls in the intervention and control groups were 13.22 ± 0.78 and 13.41 ± 1.03 years, respectively. 46.7%, 38.3%, and 15% of the students were studying in the seventh, eighth, and ninth grades, respectively. The average ages of the mothers in the intervention and control groups were $37.38 \pm 5.42\%$ and $38.42 \pm 4.49\%$, respectively, while the average ages of the fathers in the intervention and control groups were 42.99 ± 4.99 and 43.03 ± 4.87 , respectively. The average numbers of family members in the intervention and control groups were $3.42 \pm 0.81\%$ and $3.57 \pm 0.83\%$, respectively. Based on the Mann-Whitney U test, both groups were homogeneous in terms of the girls' age ($p = 0.144$), mothers' age ($p = 0.709$), fathers' age ($p = 0.307$), and family size ($p = 0.201$) and showed no significant difference ($p\text{-value} > 0.05$). Other qualitative features of the participants are presented in Table (1) for the intervention and control groups separately.

Table (2) shows that the mothers were the main source of information for the girls in both the intervention (61.7%) and the control group (55%), and the health staff and school staff were the next. None of the girls mentioned their fathers as the source of information. There was no significant difference between the two groups in terms of the girls' information sources ($p\text{-value} > 0.05$).

According to Table (3), the knowledge level of more than 85% of mothers and 98% of girls before intervention was poor and moderate. After educational intervention, all of mothers and their girls gained good knowledge regarding reproductive health; in contrast, knowledge level of mothers and girls in the control group has not changed.

Table (4) shows that the mean score of the girls' knowledge before education of the mothers was 11.63 ± 4.37 which has reached 30.60 ± 1.49 after the education, indicating a significant difference ($p < 0.05$). Further, the mean scores of the educational topics in the intervention group before and after the education showed a significant difference; in contrast, the mean scores of the control group have not changed.

According to Table (5), there was a significant difference between mean scores of the girls' knowledge before and 3 months after their mothers education ($P < 0.05$), but it was not significant in control group.

Table 1: Demographics characteristics of the participants in intervention and control group

variables	categories	Control group		intervention group		Chi-squared	p-value
		Frequency	percentage	Frequency	percentage		
Mother's Age	<30	7	10	1	1.7	5.390	0.165
	30-40	38	63.3	40	66.7		
	40-50	15	25	19	31.7		
Father's Age	30-40	18	30	18	30	0.213	0.899
	40-50	40	66.7	39	65		
	>50	2	3.3	3	5		
Mother's Education	Middle School	34	56.7	33	55.0	3.784	0.171
	High school & Diploma	25	41.7	21	35.0		
	University	1	1.7	6	10.0		
Father's Education	Middle School	32	53.3	34	56.7	1.249	0.536
	High school & Diploma	20	33.3	15	25.0		
	University	8	13.3	11	18.3		
Father's occupation	Staffer	17	28.3	20	33.3	5.845	0.184
	worker	15	25.0	16	26.7		
	shopkeeper	7	11.7	1	1.7		
	Others	21	35.4	23	38.3		
Mother's occupation	Householder	59	98.3	57	95.0	0.619	0.309
	Employed	1	1.7	3	5.0		
Family's economic situation	Good	1	1.7	1	1.7	-	1.000
	Average	59	98.3	59	98.3		
	Poor	0	0.0	0	0.0		
Number of Sisters	None	33	55.0	23	38.3	7.188	0.094
	One	20	33.3	21	35.0		
	Two	6	10.0	11	1.3		
	Tree	0	0.0	4	6.7		
	Four	1	1.7	2	1.7		
Number of Brothers	None	18	30.0	25	41.7	2.676	0.415
	One	34	56.7	28	46.7		
	Two	7	11.7	7	11.7		
	Tree	1	1.7	0	0.0		

Table 2: The comparison of girls' information sources regarding reproductive health in intervention and control group

Source of information	intervention Group		Control Group		Chi-squared	p-value
	Frequency	percentage	Frequency	percentage		
Mother	37	61.7	40	55.0	1.784	0.317
Health Staff	7	11.7	5	8.3		
Teacher	6	10.0	3	5.0		
Friends	5	8.3	3	5		

Source of information	intervention Group		Control Group		Chi-squared	p-value
Book	2	3.3	8	13.3		
Sister	2	3.3	1	1.7		
Media	1	1.7	-	-		
Father & Brother	-	-	-	-		

Table 3: knowledge level of mothers and their girls regarding reproductive health before and after intervention

knowledge level	intervention Group				Control Group			
	Mothers		Girls		Mothers		Girls	
	Before	After	Before	After	Before	After	Before	After
Poor	18 (30.0)	0 (0.0)	26 (43.3)	0 (0.0)	13 (21.7)	13 (21.7)	9 (15.0)	9 (15.0)
Average	34 (56.7)	0 (0.0)	33 (55.1)	0 (0.0)	39 (65.0)	37 (61.7)	51 (85.0)	51 (85.0)
Good	8 (13.3)	60 (100.0)	1 (1.7)	60 (100)	8 (13.3)	10 (16.6)	0 (0.0)	0 (0.0)

Table 4: The comparison of girls' knowledge regarding reproductive health before and after intervention

Group	Educational Topics	Before intervention	After intervention	Z-test	p-value
		$\bar{X} \pm SD$	$\bar{X} \pm SD$		
Intervention Group	Genital Anatomy	0.72 ± 1.25	4.83 ± 0.53	-6.878	<0.0001
	Genital Physiology	1.32 ± 1.35	6.83 ± 0.46	-6.787	<0.0001
	Menstrual Hygiene	4.67 ± 1.88	9.90 ± 0.35	-6.761	<0.0001
	Nutrition	4.93 ± 1.60	9.03 ± 0.97	-6.628	<0.0001
	Exercise	1.83 ± 0.92	3.00 ± 0.00	-5.916	<0.0001
	General Knowledge	11.63 ± 4.67	30.60 ± 1.49	-6.740	<0.0001
Control Group	Genital Anatomy	1.77 ± 1.47	1.75 ± 1.48	-0.100	0.921
	Genital Physiology	1.57 ± 1.31	1.68 ± 1.40	-0.367	0.714
	Menstrual Hygiene	4.98 ± 1.35	5.01 ± 1.37	-0.098	0.922
	Nutrition	4.88 ± 1.09	4.90 ± 1.07	-0.061	0.951
	Exercise	1.90 ± 0.86	1.90 ± 0.86	-0.98	0.922
	General Knowledge	13.20 ± 2.98	13.30 ± 3.03	0.311	0.756

Table 5: Comparison of girls' knowledge regarding reproductive health before and after intervention between intervention and Control Group

Variable	Before intervention			After intervention		
	Intervention Group $\bar{X} \pm SD$	Control Group $\bar{X} \pm SD$	Z-test p-value	Intervention Group $\bar{X} \pm SD$	Control Group $\bar{X} \pm SD$	Z-test p-value
Anatomy	4/93 ± 1/60	4/88 ± 1/09	-0/530 0/596	9/03 ± 0/97	4/88 ± 1/07	-9/411 0/0001
Physiology	1/24 ± 0/72	1/77 ± 1/47	-4/245 0/0001	4/83 ± 0/53	1/78 ± 1/48	-9/221 0/0001
Menstrual Hygiene	1/32 ± 1/35	1/57 ± 1/31	-1/170 0/242	6/83 ± 0/46	1/63 ± 1/40	-9/880 0/0001
Nutrition	4/67 ± 1/88	4/98 ± 1/35	-1/207 0/227	9/90 ± 0/35	5/01 ± 1/37	-9/996 0/0001
Exercise	1/83 ± 0/92	1/90 ± 1/86	-0/384 0/701	3/00 ± 0/00	1/90 ± 0/86	-8/226 0/0001
General Knowledge	11/63 ± 4/37	13/20 ± 2/98	-2/523 0/012	30/60 ± 1/49	13/35 ± 3/08	-9/510 0/0001

DISCUSSION

Information sources of the adolescents, especially the girls, about sexual and reproductive issues are the key factors affecting their sexual decision-makings; therefore, if they are deprived of appropriate

information sources including family and school, prevalence of high-risk sexual behaviors such as early and unprotected sexual intercourses, unwanted pregnancies, intentional abortions, drug abuse, unhealthy weight controlling behaviors, depression, and suicide attempts is increased in this population[10-12]. The effective role of the family as the most important social unit in the formation of health and social behaviors of the adolescents is evident. It is shown that the parents' communication with their children, and especially spending time with them can protect them from the consequences of their sexual and reproductive health, such as early sexual intercourses, and unwanted pregnancies, and pave the way for interactions between parents and children and, as a result, ensure their healthy growth and development[13-14].

Although appropriate communication between parents and children is formed based on gender standards and social status[15], and the parents make better communications with children of the same gender, often mothers are the first members in the family consulted by girls and boys to provide their health-related viewpoints[11,16-17]. Our study documented the importance of mothers' valuable role as the girls' first teachers in educating and transferring health behaviors and information; here, girls introduced their mothers as the first, most important and best source of information, and health and school staffs were the next. Although lack of consultation with the fathers in the present study can be attributed to cultural and religious backgrounds of the Iranian society, previous studies in different societies have also shown limitations in communication between adolescents and fathers, even for male adolescents[16].

On the other hand, in the present study, due to social and cultural barriers, education of the mothers was limited to topics such as the anatomy and physiology of the reproductive system, reproductive physiology, menstrual hygiene, nutrition, and physical activities, and did not include all sexual and reproductive health issues. Other researchers have also pointed to this limitation in their studies[18-20]. In a qualitative study by Sistani et al, aimed to compare the viewpoints of women, girls, and teachers on determination of the girls' pubertal health priorities, mothers stated that open and frank provision of knowledge and information on all fields is one of the ways of improving the girls' health status; meanwhile, they believed that teachers are responsible for teaching puberty-related issues, especially sexual puberty health[21]. Moreover, Park et al. showed that mothers talked with their daughters about nutrition and sport exercises, but left the girls' health education, the changes in growth and development, health issues such as AIDS screening and preventive behaviors for the school staff[22]; further, in Opara et al., 65% of the mothers sometimes talked with their children about sexual matters, most of which were mainly about the body and sexual organs[23].

The important point in the present study is that, prior to educational intervention, the knowledge level of more than 85% of all mothers was low and moderate. Lack of education of the mothers and shortage or lack of sufficient knowledge on the basics of sexual and reproductive health among them is a major gap in the girls' health maintenance and improvement programs, also evident in other studies[24-25]. In the study conducted by Opara, 80% of the mothers agreed with sexual education for the girls, while only 15% of them had good information on sexual education23. On the other hand, in the study by Amoran et al., the most powerful predictor of the Tehrani girls' level of knowledge of puberty health was the mothers' knowledge level[26], and the predictor of the increase in the girls' sexual activities was the mothers' comprehensive education[27]. Therefore, mothers, as the first caregivers of the girls, must be well informed of sexual issues. In the present study, education of the mothers through increasing their knowledge and, subsequently, transferring this information to the girls significantly increased the girls' levels of knowledge of the primary fundamentals of reproductive health. The importance of correct education of the mothers for preparing the girls for entering the reproductive age, including acquiring a general knowledge of the anatomy and physiology of the women's reproductive system and the menstrual and reproductive health, has been emphasized in several studies. Two other important educational topics in the present study were nutrition and exercise in adolescence, which are of great importance in ensuring the health of next generation[28]. Other researchers have also shown that appropriate education of the mothers would be useful for protecting the girls from nutritional problems[29-30]. Increasing mothers' and children's level of awareness and knowledge of the principles of correct nutrition and appropriate exercise is considered as one of the most effective ways for weight loss and a key factor in success of weight loss programs for children.

Although intermediation of the mothers is the easiest, most reasonable, and most cost-effective approach to meeting the educational needs of the girls, cultural taboos, embarrassment, and lack of communicative skills, which are among the reasons for reduction of interactions between mothers and girls about sexual matters, are serious obstacles on this way[31]. Therefore, health education staff should educate

the families on effective relationships with adolescents, and this is why school-centered education is of great importance in improving the interactions between parents and adolescents about sexual health issues. Professional work with adolescents and their families, especially by the school counselors, can improve parent-child relationships and pave the way for parental contribution and participation in primary preventions of the adolescents' risky behaviors.

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