

Effects of Group Training on Maternal Knowledge and Attitude toward Sexual Health Education to 12 to 14 Years old Boys

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ARTICLE INFO	ABSTRACT
<p><i>Article type:</i> Original article</p>	<p>Background & aim: Sexual health education is an important part of health promotion services. Families including mothers have a major role in boys' sexual education so that they have to be equipped with enough knowledge regarding their young teens. The present study aimed to investigate the effect of group training on maternal knowledge and attitude toward sexual health education to boys within the age range of 12-14 years old</p> <p>Methods: This randomized controlled trial was carried out on a total of 90 mothers with young teens in Mashhad in 2016. They were randomly divided into intervention (n=46) and control (n=44) groups. The data were collected using a demographic and a self-structured questionnaire for maternal knowledge and attitude. The intervention group received four training sessions once a week and the control group did not receive any training. The outcome variables were measured 15 days after the intervention and were analyzed using the Chi-square, Fisher's exact, Kruskal-Wallis, Mann-Whitney U, and <i>Wilcoxon</i> signed-rank tests, as well as the independent and paired t-test.</p> <p>Results: There was no significant difference between two groups before intervention ($P>0.05$). However, a significant difference was seen between the two groups in terms of differences in the scores of knowledge ($P<0.001$) and attitude ($P<0.001$) at the beginning and end of the study.</p> <p>Conclusion: Group training can result in significant changes in maternal knowledge and attitude with regard to the young teens' sexual health education.</p>
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Introduction

Sexual health is an important aspect of health (1) that involves the harmony and adaptation of the physical, emotional, rational, and social aspects of human sexuality in a way to enhance personality, relationship, and love; in addition, it is not summarized only to counseling and care regarding fertility and sexual diseases. The realization of sexual health for everyone means that a person can live with individual and social morals and enjoy and control his fertility

behavior (2).

The access to sexual health education is an important part of health promotion services (3) and has a positive role in the prevention of negative outcomes, such as unplanned pregnancies, sexually transmitted diseases, sexual abuse, sexual violence, and sexual frustrations (1).

Therefore, the first step in the preclusion of sexual deviation and pregnancy in adolescents is

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sexual health education (4). Sexual health education programs can reduce false information, increase proper knowledge, strengthen positive attitudes, and enhance informed decision-making skills. Moreover, sexual health education improves the perceptions about peer groups and social norms, increases communication with parents and other trusted adults, causes restraint or delay in sexual activity initiation, reduces unprotected sex and the number of sexual partners, and increases the use of contraceptive methods (5).

The results of a study conducted by Faghihi showed that there is no proper educational program in the country and most adolescents acquire their sexual knowledge from inappropriate sources (4). Consequently, Iranian teenagers are invaded by a variety of sexually explicit messages and ideas that lacks the correct and enough information in this regard. This increases the risk of premarital sexual behavior and increased risk of HIV and sexually transmitted diseases (6, 7).

According to the literature, it was shown that parents play an effective role in educating their children's sexual health (8) and are concerned that they have insufficient knowledge about sexual health to educate their children (9). Furthermore, parents are not prepared to educate their children about sexual issues (10). Based on a study carried out by Lee and Kevin it was demonstrated that sexual education programs for mothers of pre-school children are effective in the improvement of maternal sexual knowledge (11).

In addition to raising parental information and their role as a reliable source of knowledge for adolescents, it is essential to change parents' attitudes (12) that the selection of an appropriate educational method plays an effective role in learning and changing the health-related behaviors (13). One of the training methods is group training. Teaching people in the group provides the opportunity to simultaneously train several trainees, and allows the client to decide consciously and voluntarily and to deeply investigate the problems (14).

According to the results of a study conducted by Barzanjhe, it was revealed that group

training to mentally retarded children's caregivers increases their knowledge and attitude (15). The results of a study carried out by Mostafavi showed that group training can significantly change the levels of knowledge, attitude, and practice of mothers who have adolescent girls (12). Girls receive sexual education from their parents more frequently than boys (17).

However, the majority of the studies investigating this domain have addressed girls; moreover, those involving gender comparison rarely contain the data considering boys (18). Regarding this and given the gender differences (16), the present study was conducted to determine the effects of group training on maternal knowledge and attitude toward sexual health education to the boys within the age range of 12-14 years old.

Materials and Methods

The present randomized controlled trial was conducted on the two control and intervention groups using a pretest-posttest design. This study aimed to determine the effects of group training on maternal knowledge and attitude toward sexual health education to boys in Mashhad during 2016. The study population consisted of a total of 90 mothers with 12 to 14-year-old boys who were students in the first grade of junior high school. The women lower than 50 years of age who had a teenage boy within the age range of 12 to 14 years majoring in the first grade of junior high school and were living with their husbands (father of the adolescent boy) were included in this study.

The exclusion criteria included the absence in more than one training session, former participation in teenage boys' sexual health education sessions, and occurrence of adverse and stressful events during the study. In order to determine the sample size, the repeated method was used based on F-test power through numerical repeat methods by PASS software (version 11). Therefore, the sample size was calculated as 27 cases in each group based on the data obtained from a thesis (mean and standard deviation) considering a 95% confidence interval and a power of 99%. Regarding 10% sample attrition, 30 cases were assigned in each group. Accordingly, the sample

size of 30 cases was enough for each group; however, the researcher conducted the study on larger sample size. The final sample size was 46 and 44 for the training and control groups, respectively.

Sample size formula: $F = \frac{MSB}{MSW}$

MSB: Mean of inter-group error (due to the intervention)

MSW: Mean of intra-group error (due to an intrinsic difference between the samples)

The participants were selected through systematic random sampling among the mothers of boys in the first grade of junior high school in Mashhad. According to the list of students in the classes with a random start (closing the eye and placing the fingers on the numbers), the first person was chosen based on the number in the list and then from the two students, one was selected.

In the next step, the random blocks of three volumes were used to allocate the participants to the control and intervention groups. In the implementation stage, two cases in the intervention group and four cases in the control group were excluded due to lack of participation in the class and failure to complete the questionnaire, respectively. Therefore, the numbers of mothers were 46 and 44 in the intervention and control groups, respectively.

The study setting was the boys' junior high schools of Mashhad. The present study was approved by the Ethics Committee of Mashhad University of Medical Sciences and the presentation of a written letter by the Faculty of Nursing Midwifery to seven districts of Mashhad department of education. Then the sampling started; out of seven districts, only the districts no. 2 and 3 agreed to collaborate with this project. Among the junior high schools in the two districts, Payam Shahed Alghadir, Shohadaye Hasteie, Shahid Hebrani, and Khaliye Fars junior high schools were selected using convenience sampling. The reason for choosing these schools was better cooperation of the staff.

Three questionnaires were used for data collection, including a demographic questionnaire and a researcher-made questionnaire about maternal knowledge and attitude toward sexual health education to boys. The second

questionnaire consisted of 23 multiple choice questions in which one point was given to each correct answer and zero point was given to each wrong answer (maximum score: 23, minimum score: zero). The attitude questionnaire had 27 questions scored based on the five-point Likert scale (maximum score: 135, minimum score: 27).

The validity and reliability of knowledge and attitude questionnaires were confirmed through the study of scientific books and previous studies and the questions were adjusted in accordance with the Iranian culture. The internal consistency of the knowledge and attitude was calculated, rendering Cronbach's alpha coefficients of 70% and 71%, respectively. Additionally, the external consistency of these variables was evaluated using test-retest method (91% and 98%, respectively). Therefore, the reliability of knowledge and attitude questionnaire was obtained.

This study was performed in two stages of pre- and post-intervention. In the first stage, the informed consent forms and the questionnaires were completed for both intervention and control groups. To reduce the information exchange between the mothers in the two groups, the pre-test was separately conducted for each group and in different days. In the second stage (the intervention stage), four sessions of group training were held for mothers for 60 min once a week.

The Individuals in each group were 11-10 cases. The researcher presented the educational content of each session using Powerpoint software, lecture (45 min), as well as question and answer (15 min). Post-test was held 15 days after the last session. During this time, the control group did not receive any training and participated in the pre-test and post-test. The content of the training sessions is presented in Table 1.

Then, the data of the two groups were coded and analyzed before and two weeks after the intervention. Finally, the data were analyzed using SPSS software (version 16), the Chi-square, Fisher's exact, Kruskal-Wallis, Mann-Whitney U, and *Wilcoxon* signed-rank tests, as well as the independent and paired t-test. P-value less than 0.05 was statistically considered significant.

Table 1. Content of training sessions

Training content	
First session	Nature of relationships in family, cause of parents' concerns about puberty of adolescents, puberty, socialization and influence of parents, relationship between mothers with adolescents, adolescents and media as well as impact on adolescents, knowledge about impact of peer group on sexual health, required knowledge and attitude about dangers and negative consequences of street friendships, how to know about the sexual issues (how to get started, barriers to a good relationship, how to communicate and discuss, and how effective you are).
Second session	What is puberty, types of puberty (i.e., physical, sexual, psychological, and social), what causes stimulating the onset of puberty? biomedical factors (nutrition and inheritance), emotional and psychological factors, situational factors, geographical factors, general health status and adolescent intelligence level, knowledge of boys' sexual maturity symptoms (growth mutation, odor and hair of the body, changes in voice, acne, mood fluctuations, spontaneous erection, autoeroticism, orgasm, and male sexual hormones, proper understanding of anatomy and physiology of male reproductive system, use of method of determining degree of sexual maturity, as well as early and delayed puberty)
Third session	Identity crisis (puberty evolution, factors influencing identity formation, solving identity crisis), continence, cognitive abilities and decision making of adolescents in fields of sexual issues, sexual deviation (definition, causes of sexual deviation), masturbation (definition, damages, and prevention strategies)
Fourth session	Health tips on puberty, health issues related to male reproductive system (testicular cancer, hernia, and testicular scrotum), correct and complete knowledge of risks and adverse effects, along with ways of sexually transmitted diseases (gonorrhoea, syphilis, AIDS), and methods of self-protection against all types of sexual abuse and required measures after HIV abuse)

Results

The results of independent t-test showed that at the beginning of the study, there was no

significant difference between the two groups in terms of the mean scores of maternal knowledge (P=0.476).

Table 2. Comparison of mean scores of maternal age, and age of older boy in two groups

Variable	Group					
	Training group			Control group		
	n	Mean	Median	n	Mean	Median
Maternal age	46	38.50	7.25	44	38	6.75
Age of older boy	18	20	6.25	9	23	8

Therefore, the control and intervention groups were homogeneous in this regard. However, at the end of the study, there was a significant difference between the two groups in terms of the mean scores of maternal knowledge (P<0.001).

Moreover, the obtained results of independent t-test revealed a significant difference between the two groups in terms of mean change in the knowledge score (difference of knowledge scores at the beginning and end of the study) (P<0.001). Furthermore, the intra-group comparison by paired sample t-test showed the intervention group showed a significant difference in the knowledge score at the end of the study, compared to that at the

baseline (P<0.001). However, this significant difference was not observed in the control group (P=0.11; Table 4).

The results of Mann-Whitney U test demonstrated that at the beginning of the study, there was no significant difference between the two groups regarding the attitude scores of mothers (P=0.253); therefore, the two groups were comparable in this respect. Nonetheless, at the end of the study, this variable showed a significant difference between the two groups (P<0.001).

In addition, according to the findings of Mann-Whitney U test, there was a significant difference between the two groups in terms of mean change in the attitude score (difference in the attitude scores at the beginning and end of

the study) ($P < 0.001$). The comparison of the mean scores regarding the attitude between the two groups (intra-group comparison) using

Wilcoxon signed-rank test showed a significant difference between the two stages of the study ($P < 0.001$; Table 5).

Table 4. Comparison of mean scores of mothers' knowledge in sexual health education in two groups

Knowledge score	Training group	Control Group	Independent t-test result
	Mean±Standard deviation	Mean±Standard deviation	
Beginning of study	11.97±3.23	11.40±4.26	P=0.476 t=-0.716
End of study	19.29±2.28	11.58±3.82	P<0.001 t=-10.54
Difference in mean score of beginning and end of study	7.12±2.20	0.444±1.62	P<0.001 t=-14.93
Paired t-test result	P<0.001 df=40 t=-20.68	P=0.111 df=35 t=-1.637	

Table 5. Comparison of attitude scores of mothers in sexual health education in two groups

Attitude score	Group		Man-Whitney U test result
	Training group Median (Interquartile range)	Control group Median (Interquartile range)	
Beginning of study	93.5 (4.25)	96 (8)	P=0.253 z=-1.14
End of study	120.5 (6.25)	98 (8)	P<0.001 z=-6.98
Difference in mean score of beginning and end of study	27.5 (7.5)	3 (1)	P<0.001 z=-7.55
Wilcoxon signed-rank test	P<0.001 z=-5.582	P<0.001 z=-4.843	

Discussion

This study was performed in order to investigate the effects of group training on maternal knowledge and attitude toward sexual health education to 12 to 14-year-old boys in Mashhad. According to the findings, it was revealed that group training could improve maternal knowledge and attitude toward sexual health education to the boys in the intervention group. Before the beginning of the study, the mean scores of maternal knowledge in the intervention and control groups were reported as 11.97±3.23 and 11.4±4.26, respectively.

Then, 15 days after the intervention, the mean scores of maternal knowledge in the intervention and control groups increased to 19.29±2.28 and 11.58±3.82, respectively indicating a statistically significant difference between the two groups. The mean changes in maternal knowledge scores in both intervention and control groups were considered statistically significant. The intra-group analysis showed

that maternal knowledge score in the intervention group had a significant increase after the intervention, compared to that at the baseline. This finding suggested that group training had an important effect on the enhancement of maternal knowledge regarding sexual health education to the boys.

In order to confirm the aforementioned findings, the results of a study carried out by Mostofi et al. (2016) revealed that there was no significant relationship between the two groups with regard to the knowledge before the intervention ($P < 0.05$). However, in the intervention group, there was a significant difference between the level of knowledge before and three months after training ($P < 0.001$) and the mean score of knowledge progression after the intervention was reported as 11. In the control group, no significant difference was observed between the mean scores before and after the

intervention ($P < 0.05$) (12).

The obtained results of the aforementioned study despite the differences in adolescent gender and educational content are consistent with the findings of the present study that reflects the impact of group training on the improvement of maternal knowledge. According to the results of a study conducted by Lee et al. (2013), it was shown that in the intervention group, the level of maternal knowledge was significantly different after the intervention, compared with the reported level before the intervention ($P < 0.001$). Furthermore, the mean score of knowledge increased from 16.19 ± 3.53 at the beginning of the study to 19.70 ± 0.47 at the end of the study (11). This finding is consistent with the results of the present study.

Although Lee has achieved positive results in his study, the tools were completely different from that of the Iranian community in terms of cultural variables and cannot be generalized to the results of this study. The findings of a study performed by Barzanjhe et al. (1393) demonstrated that after the intervention, the mean score of the variable of knowledge had a significant difference in the intervention group, compared to that of the control group ($P < 0.001$). In addition, the mean score of knowledge increased from 8.54 ± 2.80 at the beginning of the study to 14.50 ± 1.86 at the end of the study (15). Their results despite the difference in educational content, the use of PowerPoint, and photos are consistent with the findings of the present study.

Lou et al. (2006) showed that the mean score of knowledge in the intervention group (63.4%) was higher than that of the control group (55.1%) ($P < 0.001$) (19). The aforementioned finding is consistent with the results of the present study. Although Lou has achieved positive results in his study, in the group training method, the learners are actively involved in the learning process and by asking questions the vague points of learning are eliminated. Therefore, the effect of the content's sustainability on the learner is greater and plays an undeniable role in people's knowledge (20).

The results of a study carried out by Zabihi (2002) showed that before training, only 13.4% of the students had a high level of knowledge about puberty health, while after training this

ratio increased to 73% that was statistically considered significant (21). Their obtained results despite the difference in educational content and study population are consistent with the findings of the present study. The training in Zabihi's study was two 45-minute sessions, while in the present study the training was conducted in four 60-minute sessions once a week and the participants had an opportunity to review the content during the week. In addition, if they had any questions, they were discussed and clarified in class next session.

On the other hand, the obtained results of the present study are not in line with the findings of a study carried out by Devgan et al. (2012). The results of the aforementioned study showed that the changes in teachers' knowledge score about adolescent health were not statistically significant (22). The reason for the lack of consistency is probably the inadequacy of the training sessions with regard to the curriculum. Moreover, some of the topics were different from those of the present study. In addition, in the study of Devgan, the post-test was held three months after the training sessions, while in the present study it was held 15 days later; it could be one of the reasons for the differences between the results of the two studies.

According to the findings of the present study, it was revealed that group training was effective in the improvement of mothers' attitudes toward boys' sexual health education. Before the beginning of the study, the median scores of attitude in the intervention and control groups were 95 (26) and 96 (38), respectively that was not significantly different between the two groups. Fifteen days after the intervention, the median scores of mothers' attitudes in the intervention and control groups increased to 120 (6.53) and 98 (8), respectively that was indicative of a significant difference between the two groups.

The changes in the mean scores of mothers' attitude in both intervention and control groups were significant. The intra-group analysis showed that the attitude scores of mothers in the intervention group had a significant increase in comparison to that in beginning of the study. This finding showed that group training had a significant effect on the improvement of mothers' attitudes regarding boys' sexual health

education.

The results of a study conducted by Thammaraksa et al. (2014) can be noted to confirm the above-mentioned results. The findings showed that before the educational intervention, there was no significant difference between the two groups regarding the mean scores of attitude and the mean scores of attitude in the intervention and control groups were reported as 61.7 ± 5.8 and 59.3 ± 6.8 , respectively. Furthermore, after the completion of the educational intervention, the mean scores of attitude in the intervention and control groups increased to 71.6 ± 5.8 and 54.9 ± 4.8 , respectively. In addition, a significant difference was observed between the mean scores of attitude in the two groups ($P < 0.001$) (23).

The results of the aforementioned study, despite the difference in training type, some educational materials, and the research community, are consistent with the findings of the present study suggesting that a sexual education programs can increase positive attitudes toward sexual education. According to the results of a study by Khadivzadeh et al. (2002), it was shown that mean scores of girls' attitude toward physical health in the intervention and control groups before and after the intervention were 13.1 ± 4.1 increased to 16.4 ± 3.9 and 13.5 ± 4.3 increased to 13.1 ± 3.2 , respectively (24).

The results of the above-mentioned study, despite the difference in educational content and adolescents' gender, are consistent with the findings of the present study indicating that educational programs can improve the attitude of mothers. Based on the results of a study carried out by Lou et al. (2006) it was revealed that there was no significant difference between the two groups in terms of the attitude before educational intervention. However, a significant difference was observed between the two groups with regard to the attitude level after the educational intervention. In addition, the mean score of attitude in the intervention group (64) was higher than that of the control group (56) (19).

Lee et al. (2013) concluded that educational intervention significantly increased mothers' attitude towards sexual health. Accordingly, the mean score of mothers' attitude increased

from 41.37 ± 5.23 to 44.63 ± 2.47 (11). Similarly, Mostofi et al. (2016) achieved similar results in their study. The results of the aforementioned study demonstrated that the level of attitude was significantly different before and three months after the training in the intervention group. In this regard, the mean score of attitude development after the intervention was reported as 10.8. However, in the control group, the mean of attitude scores before and after the intervention was not significantly different, and the mean of attitude development was zero (12) that reflected the effect of group training on the improvement of mothers' attitudes.

On the other hand, the obtained results of the present study are not consistent with the findings of the studies carried out by Foroozi Azizzadeh et al. (2003) (25) and Nair et al. (2012) (26) probably due to the cultural domains of the society. Furthermore, the findings of the present study are not in line with those of a study conducted by Mahajan et al. (2005) (27). The reason for this inconsistency is possibly due to the fact that gender issues are still considered taboo in the Indian community. This goes back to the cultural context of the community in addition to another reason that parents do not have scientific knowledge in this regard.

Therefore, human attitudes throughout life are gained through various sources, such as training. In educational methods, the change of attitude level may occur immediately after an intervention; however, these changes cannot be sustainable and in subsequent follow-ups may reach a level close to the pre-training level. On the other hand, negative attitudes toward sexual aspects can have a cultural and social context.

Therefore, sometimes changing the attitude requires a wider transfer of information and more time allocated to training and related education can help enhance the attitudes toward these issues (24, 28, 29). In this regard, the group training method was effective in the present study. As a result, after the training, a significant difference was observed between the intervention and control groups in terms of attitude.

The limitations of this study included the individual differences, mother's mental status affecting the answers, sensitivity of the subject

influencing the completion of the questionnaire, as well as the exchange of information between the intervention and control groups despite the planned measures. Therefore, it is suggested to carry out further studies in this field to evaluate other educational methods and compare the results with mothers' group training method about adolescent sexual health in order to provide the appropriate educational programs and strategies. It is also recommended to compare the effects of training on the education-received groups (mothers, fathers, health care providers, and teachers) regarding the knowledge and attitude of adolescents toward sexual health.

Conclusion

According to the obtained results of this study, it was shown that sexual health education to mothers was effective in the improvement of their knowledge and attitude. As a result, mothers' empowerment in this field through participation in group training workshops can improve their knowledge and attitude. Moreover, the mothers who obtain communicative and behavioral skills can prevent their adolescents from the tensions of puberty and subsequent sexual deviations. In addition, attracting parental involvement by means of organizing training sessions for families and collaborating with parents and training institutes can improve the level of adolescent sexual health and enhance the level of knowledge and attitude of the family, school, as well as the community.

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Conflicts of interest

The authors declare no conflicts of interest.

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