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Improving the level of awareness and attitude toward fertility and fertility counseling skills of health staff with both face-to-face and virtual training methods

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Abstract:

INTRODUCTION: Considering the trend of reducing fertility in recent decades, the level of awareness and attitude of health workers to fertility has an important role in achieving the country's demographic goals. Improving attitudes and improving the scientific level and skills of health workers are the basic pillars to improve the quality and quantity of health-care services. Therefore, this study was conducted with the aim of improving the level of awareness and attitude toward fertility and fertility counseling skills of health workers with both face-to-face and virtual training methods.

MATERIALS AND METHODS: This study was a randomized controlled trial of three groups and pre-test-posttest experiments performed on 108 midwives and health-care workers working in Mashhad Health Center and Community Health Centers and Health Centers in 2015. The tools used in this study were four researcher-made questionnaires that were validated and reliable. Data analysis was performed by Chi-square test, one-way, and independent *t*-analysis of variance using SPSS software version 16.

RESULTS: The results showed a significant increase in awareness level, attitude toward fertility, and counseling skills in the studied groups after the implementation of interventions ($P < 0.001$). Furthermore, there was a significant inverse relationship between the attitude score of the research units at the beginning of the study and the demographic variables with only the average work experience.

CONCLUSION: Training is effective in raising the level of awareness and changing the attitude of health workers. The use of group discussion methods in person as well as through a webinar in which learners think, interact, and gain experience in promoting healthy fertility counseling promotes awareness, attitudes toward fertility, and their counseling skills in providing healthy reproductive counseling.

Keywords:

Attitude, awareness, counseling, education, fertility

Introduction

From the point of view of obstetrics, fertility is of special importance and place. Reproductive health means that people are able to reproduce freely and consciously and decide how, when, and

how often, and when to have children.^[1,2] As a result, in order for people to achieve reproductive health, its components must be observed, which include counseling, information, education, and communication about family planning.^[3] Family planning, which is one of the most important components of reproductive health, does

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not mean reducing fertility, but it does mean preventing high-risk pregnancies, unplanned pregnancies, and ultimately illegal abortions. The purpose of this program is to empower couples and individuals to make informed and responsible decisions about the number and distance between their children.^[4] Receiving information and education, which is one of the basic strategies for changing attitudes toward fertility in most people in society, has had a clear impact on couples' fertility behavior in recent years. In the past, the role of health-care personnel in fertility discourse has included providing education and counseling to clients in order to accept, select, and use contraceptive methods. Currently, the role of many employees in disseminating attitudes and providing counseling and family planning services has not changed significantly, and some of them do not have the necessary attitude to align with the country's new population policies, which has led to conflicting messages about fertility in society. These findings indicate the need for training and change in employees' attitudes toward counseling to promote fertility in society.^[5] In recent years, with the change in population policies in the country, measures have been taken to increase the level of fertility, while these employees have not received the necessary training to provide family planning counseling with the approach of increasing fertility. In drafting the policies of the Population-Family-Schools Health Office, in order to improve the overall fertility rate, fertility, and childbearing health have been mentioned. The program emphasizes staff training in providing reproductive health rights, improving the quality of counseling services, reviewing indicators of reproductive health programs, and improving existing educational content.^[6,7] A review of previous studies shows that there is currently no training program to improve the counseling skills of health-care professionals to increase fertility promotion. The staff of health centers are able to facilitate the achievement of reproductive health goals in the community by providing proper counseling and attracting the participation of clients. Furthermore, considering the role of modeling and guidance of the personnel of health centers in the field of fertility, it is necessary to justify the health staff in this regard and to correct their attitude and performance. It is possible to solve many fertility problems through careful counseling. By interfering with the principles of information, education, and communication in counseling, the quality of counseling improves significantly. In fact, counseling is a process, and the implementation of good counseling depends on how to properly communicate between health personnel and clients and provide accurate information to improve clients' knowledge and encourage them.^[8] Due to the importance of counseling in regulating fertility, the counselor has a serious responsibility and must receive the necessary training and skills before the counseling.^[4]

The counselor should be interested in communicating with people and working with them, and should be fully aware of the importance of regulating fertility and its benefits.^[4]

Health-care workers play a major role in promoting family and community health and are the best counselors in population control and implementation of fertility adjustment programs.^[1-4] Using active and modern training methods will help employees to play their role more effectively. One of the components of the health of the society is the educational ability of the employees of the health centers of that society. Thus, changing and improving the structures, systems, processes, and classical methods of teaching can be helpful in this regard.^[9,10]

Among the teaching methods, group discussion is an effective and common method for changing the attitude of health workers. In this method, all participants defend their ideas and attitudes while discussing the reasons based on facts, concepts, and scientific principles. A group discussion is about useful topics that can be interpreted differently and learners can have the necessary information in that field or be able to obtain it. In this way, learners are required to find results, principles, and solutions. One of the limitations of this method is that it is used to train a limited number of learners. It is also very difficult to implement and requires skill.^[11] On the other hand, with the advancement of science and technology, new technologies have rapidly replaced the old technologies and provided powerful tools for users.^[12] The use of these technologies in the field of health is considered with the aim of achieving three outcomes, including learning the right information, changing attitudes related to health, and creating new behaviors that are consistent with health.^[13] Web-based learning is one of the new teaching methods that is able to increase critical thinking and decision-making ability of learners and improve their psychomotor skills and performance.^[14] Moreover, allow learners to focus on the goals and educational content they need and to learn at their own pace.^[15] Meanwhile, training through webinar software has recently received special attention. A webinar is a seminar, lecture, or workshop provided over the Internet. In Webinar, it is possible to communicate audio and video in two ways and to send text messages from the instructor and learners. In addition, each participant can communicate with other participants through the Internet. In this way, the instructor can give the learners the opportunity to hold a conference and give a speech.^[16] In a study by Lanken *et al.*, web-based and group discussion-based training focused on improving attitudes and increasing communication skills of internal residents and physicians in managing patients with substance abuse, but learners'

attitudes and communication skills did not differ significantly between the two groups).^[17] There was no program that enabled employees to play their expected role in the current state of society and to promote the country's population policies. It is also necessary to use effective and efficient training methods that provide the possibility of extensive training of skills required by employees as soon as possible.^[18,19] Due to the lack of information in this field, the present study was conducted to improve the level of awareness and attitude toward fertility and fertility counseling skills of health workers with both face-to-face and virtual training methods.

Materials and Methods

This research is a randomized controlled trial with a three-group design and pre-test-post-test with number 931,438 approved by the Research Vice Chancellor of Mashhad University of Medical Sciences. The aim of this study was to "compare the effect of two face-to-face and virtual training methods on the level of awareness and attitude toward fertility and counseling skills of health workers" was performed on 108 midwives and health-care workers working in health centers and community health centers and health centers with entry criteria. In health centers under the subcomplex of health centers 2-3 and 5 (by random selection method) Mashhad in 2015.

The sample size was calculated using the following formula with 95% confidence coefficient (1.96) and 80% power factor (0.84). The research units were randomly assigned to three groups of webinars, group discussions, and controls (36 people in each group).

$$n = \frac{(s_1^2 + s_2^2) \left(z_{1-\alpha/2} + z_{1-\beta} \right)^2}{(\bar{x}_1 - \bar{x}_2)^2}$$

The criteria for entering the study were as follows:

Have a midwifery degree (associate's, bachelor's, or master's degree) or a family or public health degree (bachelor's or master's degree), employees of maternal, child and family planning units, counseling or health-care plan (polyvalent) selected health centers, have at least 6 months of work experience in health-care centers, written consent to participate in the research, lack of experience in attending fertility counseling classes and workshops for at least the last 6 months. The absence of a history of major stressors in 6 months before the intervention (Serious illness of oneself or one's spouse and child, death of a loved one, accident, severe family dispute, divorce and financial bankruptcy), ability to use computer and internet, access to the Internet and computers or smartphones. The criteria for leaving the

study were as follows: lack of willingness to continue participating in research, failure to attend one of the training sessions, and occurrence of major stressors during research. The instrument used in this study was a questionnaire which is briefly mentioned below.

The Questionnaire for Measuring Attitude to Fertility had 47 items, which were prepared based on the qualitative study of Khodiuozadeh *et al.* (2013) Questionnaire scores were designed with a five-point Likert scale (I strongly disagree, I disagree, I have no opinion, I agree, and I strongly agree) and scored 1-5. The validity of this questionnaire was confirmed by the content validity. Its reliability was also confirmed by Cronbach's alpha alignment method with $\alpha = 0.65$. The Self-Assessment Counseling Skills Questionnaire was a 12-item questionnaire. The questionnaire was based on the Self-Assessment Skills Questionnaire from the Family Planning Counseling Book, authored by the Ministry of Health and Medical Education and the United Nations Population Fund. The questionnaire was designed on a Likert scale (no, sometimes, yes) and scored 1-3 points. The validity of the questionnaire was confirmed by the content validation method. Its reliability was also confirmed by Cronbach's alpha alignment method with $\alpha = 0.68$.

The Listening Skills Assessment Questionnaire had 10 questions. The questionnaire was based on a hearing assessment questionnaire from the Family Planning Counseling Book, authored by the Ministry of Health and Medical Education and the United Nations Population Fund. The questionnaire was designed on a Likert scale (no, sometimes, yes) and scored 1-3. The validity of the questionnaire was confirmed using content validity. Its reliability was also confirmed by Cronbach's alpha alignment method with $\alpha = 0.65$. The Informatics Assessment Questionnaire had 8 two-choice questions. The questionnaire was based on a hearing assessment questionnaire from the Family Planning Counseling Book, authored by the Ministry of Health and Medical Education, and the United Nations Population Fund. The correct answer was given in the questionnaire with a score of 2 and the wrong answer was given in the questionnaire with a score of one. Consciousness was then divided into three levels: weak (8 and <8), moderate (1.8-12), and good (12.1-16). The validity of the questionnaire was confirmed by the content validation method. Its reliability was also confirmed by Cronbach's alpha alignment method with $\alpha = 0.64$. All questionnaires were completed once before the start of the study and once 2 weeks after the completion of the study by the participants of all three groups and the review, group discussion and control. In order to conduct the research, after confirming the research in the ethics committee of Mashhad University of

Medical Sciences and obtaining the necessary licenses, the researcher referred to the research environments. After presenting the goals and working methods to the target group, invite them to participate in the research. The individuals then completed the written consent to participate in the study if they had the criteria to enter the study. Finally, individuals were randomly divided into three groups. The two webinar groups and the group discussion, which were intervention groups, participated separately in 4 training sessions (90 min in the first session, 65 min in the second session, 50 min in the third session, and 80 min in the fourth session). Educational content was prepared based on the protocol of the Ministry of Health and Medical Education and books and scientific resources.^[5,20-24] It should be noted that the educational content of both the groups was the same and only the teaching method was different from each other. Finally, data analysis was performed using descriptive and analytical statistical tests and IBM SPSS package statistical software version 16 of IBM, USA, 2007(IBM, SPSS Inc., Chicago, Illinois, USA).

Results

Data analysis was performed on 108 study participants in three groups group discussion, webinar, and control. At the beginning of the study, all three groups were normal in terms of demographic variables. A summary

of the demographic characteristics of the participants is shown in Table 1.

A study of the frequency of awareness level (low, medium, and good) using Kruskal–Wallis test showed that three groups at the beginning of the study did not have a statistically significant difference in the average rank of fertility awareness scores ($P = 0/59$) [Table 2]. Furthermore, the study of the frequency level of attitude toward fertility (low, moderate, and good) with Kruskal–Wallis test showed that three groups at the beginning of the study did not have a statistically significant difference in terms of average rank of attitude scores compared to fertility ($P = 0.43$) [Table 2].

The results of Kruskal–Wallis test showed that at the end of the study, after the interventions, the frequency of fertility attitudes (poor, moderate, and good) in the studied groups had a statistically significant difference ($P < 0.001$) [Table 3].

One-way ANOVA test showed that the mean scores of “self-assessment” counseling skills ($P = 0.90$) and the mean of listening skills scores ($P = 0.27$) did not differ significantly statistically before the interventions [Table 4].

Table 1: Demographic characteristics of participants

Variable	Groups								F, P
	Group discussion		Webinar		Control		Total		
	Mean±SD	n	Mean±SD	n	Mean±SD	n	Mean±SD	n	
Age (year)	34.4±8.4	34	35.0±7.5	36	32.9±5.4	36	34.1±7.1	106	0.08, 0.44
Work experience (month)	111.2±96.6	33	120.6±86.4	36	88.5±65.8	36	106.6±87.4	105	1.26, 0.28
Number of children	1.1±0.9	20	1.6±1.6	25	0.9±0.8	24	1.2±1.2	69	2.38, 0.10
Field of study, n (%)									
Midwifery	23 (65.7)		23 (63.9)		16 (44.4)		62 (57.9)		7.1, 0.12, Exact=0.12
Family health	3 (8.6)		0 (0)		4 (11.1)		7 (6.5)		
General hygiene	9 (25.7)		13 (36.1)		16 (44.4)		38 (35.5)		

SD=Standard deviation

Table 2: Comparison of the level of awareness and attitude toward fertility of research units in three groups of group discussion, webinar and control before performing interventions

Frequency of awareness and attitude to fertility	Reviewed groups, groups			P
	Group discussion, n (%)	Webinar, n (%)	Control, n (%)	
Level of awareness				
Weak (8 and <8)	1 (2.9)	-	-	0.59
Medium (between 8.1 and 12)	11 (31.4)	10 (27.8)	14 (38.9)	
Good (from 12.1 to 16)	22 (62.9)	26 (74.2)	22 (61.9)	
Total (16)	34 (97.1)	36 (100)	36 (100)	
Level of attitude				
Weak (117.99 and less)	-	1 (2.8)	-	0.43
Medium (between 118 and 177.99)	24 (68.6)	27 (75.0)	24 (66.7)	
Good (178 and more)	11 (31.4)	8 (22.2)	12 (33.3)	
Total (235)	35 (100)	36 (100)	36 (100)	

Table 3: Comparison of level of awareness and attitude toward fertility of research units in three groups of group discussion, webinar, and control after performing interventions

Frequency of awareness and attitude to fertility	Reviewed groups, groups			P
	Group discussion	Webinar	Control	
Level of awareness				
Weak (8 and less than 8)	-	-	-	0.001
Medium (between 8/1 and 12)	9 (25.7)	3 (8.3)	21 (53.3)	
Good (from 12/1 to 16)	26 (74.3)	33 (91.7)	15 (41.7)	
Total (16)	35 (100)	36 (100)	36 (100)	
Level of attitude				
Weak (117/99 and less)	-	-	-	0.001
Medium (between 118 and 177/99)	11 (31.4)	21 (58.3)	18 (50.0)	
Good (178 and more)	24 (68.6)	15 (41.7)	18 (50.0)	
Total (235)	35 (100)	36 (100)	36 (100)	

Table 4: Comparison of mean and standard deviation scores of self-assessment counseling skills and listening skills of research units in three groups of group discussion, webinar, and control at the beginning of the study

Variables	Groups, mean±SD			P
	Group discussion	Webinar	Control	
Self-assessment counseling skills	22.9±3.0	20.7±3.5	21.6±3.4	0.90
Listening skills	20.5±1.8	21.5±2.3	20.8±2.3	0.27

SD=Standard deviation

One-way ANOVA test showed that the mean scores of “self-assessment” counseling skills ($P = 0.001$) and the mean of listening skills scores ($P = 0.001$) were significantly statistically significant in the three groups studied at the end of the study [Table 5].

Discussion

The results of the present study showed that there was no significant relationship between the scores of the research units at the beginning of the study and none of the quantitative variables. These variables include: age, duration of graduation, duration of marriage, number of the current children, number of siblings, number of siblings, number of siblings, and number of siblings. However, before the intervention, there was a significant inverse relationship between fertility attitude and work experience, in other words, the lower the work experience, the more positive attitude toward fertility is created.

The results showed that at the beginning of the study, there was no significant statistical difference between the three groups in terms of level of awareness about healthy fertility counseling, but after the intervention in group discussion and webinar, there was a significant increase in awareness of healthy fertility counseling.

In line with the present study, we can mention the study of Seyed Emami *et al.* (2010), Rahimi Kian

et al. (2007), Saat Saz *et al.* (2009), and Ostadramimi *et al.* (2009).^[24-27]

A study by Seyed Emami *et al.* (2010) entitled the effect of training on physical activity on the awareness, attitude, and behavior of liaisons showed that the awareness scores of research units in the intervention group in the posttest stage were significantly higher than the control group.^[25] In the study of Saat Saz *et al.* (2009), which was titled “Study of two educational methods based on lecture and screening of the film on the status of awareness and performance of teachers in the field of breast cancer screening,” the average awareness score increased from 9/3% to 39/5%.^[24]

The research findings regarding the level of attitude toward fertility (weak, medium, and good) showed that there was no significant difference between the three groups at the beginning of the study. After performing the interventions, the results showed that the mean score of attitude scores to fertility and awareness of fertility was significantly different. Intragroup analysis showed that the scores of fertility attitude in webinar training groups and group discussion increased significantly compared to the beginning of the study, which shows that webinar training and group discussion had a significant effect on increasing fertility attitude. Therefore, the results of the study showed that training by method and group discussion in improving the attitude of health workers has an effect on providing healthy fertility counseling. The results of the present study are consistent with the results of Ramezani *et al.* (2012), shojazade (1997), Taheri (2018), Jalilian *et al.* (2013), Ahmadi Tabatabai *et al.* (2012), and Akbarinejad (2019).^[28-30,33-35] A study by Shukri *et al.* (2017) with the aim of investigating the effect of web-based education on students’ awareness and attitude toward reproductive health, showed that web-based education significantly increased the awareness and attitude of medical students in reproductive health.^[14]

Table 5: Comparison of mean and standard deviation scores of self-assessment counseling skills and listening skills of research units in three groups of group discussion, webinar, and control at the end of the study

Variables	Groups, mean±SD			P
	Group discussion	Webinar	Control	
Self-assessment counseling skills	32.5±2.3	30.6±1.5	30.6±1.4	0.001
Listening skills	25.7±1.5	24.4±2.6	26.2±2.7	0.001

SD=Standard deviation

Furthermore, the study of Timurpour *et al.* (2018) was conducted to investigate the effect of e-learning on the awareness, attitude, and performance of nursing students in preventing drug errors. The results showed that the attitude and performance of nursing students in preventing drug errors increased after e-learning.^[32] Therefore, the results of studies confirm the positive effect of e-learning. The results of studies show that the use of virtual learning methods increases learning in the cognitive domain. The use of e-learning is essential given the advancement of science, but it is also recommended to use traditional methods such as lecturing and group discussions to increase learning levels at higher levels.^[37] In relation to the effect of group teaching and lecture on Ramazani *et al.* (2012) showed that premarital education and counseling program significantly increases the average score of couples' attitudes toward reproductive health.^[32]

In addition, Ramazankhani's (2017) study confirms the effect of group discussion method on improving students' awareness and attitude.^[36] A study by Jalilian *et al.* (2013) showed that patients' attitude scores on preventive behaviors of hypertension increased significantly after group intervention (speech, question, and answer) and individual (face-to-face) intervention.^[30] A study by Ahmadi Tabatabai *et al.* (2012) showed that the mean scores of the attitudes of the subjects in the postintervention phase were significantly increased compared to the previous stage.^[29] The reason for the increase in attitude in these studies can be considered in using different educational methods and establishing more and more appropriate communication and interaction with people and expressing new concepts in the framework of educational intervention. Using a logical message transmission system in the curriculum can be effective in changing behavior and attitudes.^[30] There are also studies that are inconsistent with the findings of the present study, including the study of Moshki *et al.*, (2014) and Lanken *et al.* (2014).^[17,31] The study of Moshki *et al.* (2014) was conducted to evaluate and compare the effectiveness of nutrition education with two methods of group discussion and multimedia package on the areas of learning of pregnant women. The

results showed that at the end of the study, the scores of emotional domain (attitude) did not differ significantly in multimedia closed groups, group discussion and control.^[31] Perhaps the reason for this difference with the present study is due to the difference in the nature of the issue because the attitude toward nutrition is an individual attitude and is related to the individual's economy, but the attitude toward fertility is a social attitude. Lanken *et al.*'s study aimed to determine the effect of web-based education and discussion in a small group on attitudes toward patients with substance abuse disorders and the trainees' communication skills with them. The results showed that the control group residents had a more positive attitude than the intervention group students about the effectiveness of treatment and self-efficacy.^[17] Probably, the reason for this difference with the present study was that the intervention group was aware of the ineffectiveness of treatment and the high rate of treatment failure in patients with substance abuse disorders. Comparing the mean scores of "self-assessment" counseling skills and listening skills in the groups studied before performing the interventions did not show a significant difference. In this regard, after the intervention, the results showed a significant increase in the mean scores of "self-assessment" counseling skills and the average scores of listening skills. There are studies in line with the findings of the present study, including the study of Larijani *et al.* (2014).^[37] The results of the present study showed that the mean scores of listening skills in the three groups were not statistically significant. In a study by Larijani *et al.*, which examined the "use of communication skills by midwives and their relationship with client satisfaction," the mean scores of specific communication skills, including active listening in two groups of intervention and control in health workers, did not differ significantly.^[37] In the study of Larijani *et al.*, (2014), there was no significant statistical difference between before and after training in intervention and control groups in terms of active listening skills.^[37] A study by Ahmadi and Mohabbaty, which examined the effect of listening skills on improving employee performance, showed that there was a positive relationship between listening skills by preventing mistakes and improving human relationships and creating consensus and changing employee behavior.^[38] One of the most important strengths of this study is the study of the impact of face-to-face and virtual training on counseling skills through self-assessment and listening skills in service providers, which in other studies, self-assessment was not observed. Furthermore, the need for a secluded environment in health-care centers to provide training to staff was one of the weaknesses of the present study, given that most centers had limited physical space, providing such an environment sometimes made it difficult for researchers. The results

of the present study can be used in line with educational plans to empower health-care workers in line with the goals of the country's demographic policies.

Conclusion

The results showed that the awareness and attitude of health workers about healthy fertility is relatively good. In general, it can be said that training is effective in raising awareness and changing the attitude of health workers. Using group discussion methods in person as well as through webinars, which are active teaching methods in which learners think, interact, and gain experience in promoting healthy fertility counseling, can improve awareness, attitudes toward fertility, and counseling skills in providing healthy reproductive counseling.

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Conflicts of interest

There are no conflicts of interest.

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