Effect of Emotion Regulation Training Based On the Gross Model on the Fear of Childbirth in Primigravida Women: A Randomized Field Trial

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Abstract

Background: Fear of childbirth can affect the health of the mother and the baby, which can be associated with unfavorable consequences. This study was conducted to determine effects of an emotion regulation training based on the Gross model on the fear of childbirth in primigravida women.

Methods: This randomized field trial was conducted on 62 primigravida women with a gestational age of 28-32 weeks, who were referred to comprehensive healthcare centers in Gorgan (Iran) from April to November 2019. Subjects were selected using simple random sampling. The subjects were randomly divided into a control group (n=31) and an intervention group (n=29) based on their mean score of fear of childbirth at pretest. The Gross model-based emotion regulation training was held in 8 sessions of 120 minutes, twice a week, for women in the intervention group in three groups. The control group received routine training programs. Data were collected using the Persian version of the 14-item fear of childbirth questionnaire, at baseline and one month after the intervention. Statistical analysis of data was carried out in SPSS software (version 16) and at significance level of 0.05.

Results: The demographic characteristics of the subjects did not differ significantly between the two groups. After the training intervention, the mean score of fear of childbirth in the intervention group (26.55±5.44) was significantly lower than that in the control group (34.48±7.32) (P=0.0001).

Conclusion: Based on the results, we suggest providing the Gross model-based emotion regulation training in health care centers in order to reduce the fear of childbirth in primigravida women.

Highlights:
What is current knowledge?
According to the existing literature, no study has examined effect of Gross model-based emotion regulation training on reduce the fear of childbirth in primigravida women.
What is new here?
This study show that Gross model-based emotion regulation training is an effective method to reduce the fear of childbirth in primigravida women.

Introduction

As a physiological process, natural childbirth is an important emotional event in women's lives (1, 2). Fear of childbirth (tocophobia) is a type of fear or anxiety that affects women's well-being before and after delivery (3).

In a systematic review and meta-analysis, the global prevalence of tocophobia was reported to be between 3.7% and 43% (average 14%), which has been increasing in recent years (4). The prevalence of fear of childbirth in pregnant women referred to prenatal care clinics in Arak (Iran) was reported as 55.8% (5). According to a previous study, 44.4% of primigravida women are slightly afraid of natural childbirth, while 26.3% are very afraid, and a relatively high percentage (22.3%) are extremely afraid of natural childbirth (6).

The perception of pregnant women about the pain during natural childbirth can affect the desire and preference of the type of delivery. In other words, the increase in negative perceptions of the pain associated with delivery significantly reduces the desire for natural childbirth (7). According to Ryding et al., 46% of women who request counseling for the fear of childbirth ultimately choose cesarean section (8). The most common causes of fear of childbirth are the fear of harming the fetus and the pain of childbirth, and birth defect (5, 6). Fear of natural childbirth is one of the important causes of women's desire for cesarean

section (3, 5, 6, 9, 10,11). Fear of childbirth is generally more prevalent among those who experienced unfamiliar pregnancy situations and in primigravida women (3, 5, 11).

Fear of childbirth, safety concerns related to the perceived health risk, negative experiences from previous childbirth, positive attitude towards cesarean section, access to biased information, and superstitious beliefs about auspicious dates for birth are the main reasons for women's desire for cesarean section (12). On the other hand, some pregnant women have a positive attitude towards vaginal delivery due to its naturalness, low risk, and better mother-baby bonding (13).

Fear is a basic and primary emotion (14). It seems that women with fear of childbirth are the same as people who experience anxiety and fear (15). Childbirth might manifest as a specific phobia (15); therefore, women who fear childbirth cannot manage their emotions properly and use ineffective emotion regulation strategies (16).

Ryding et al. showed that midwifery counseling on the fear of childbirth and previous traumatic childbirth experiences not only does not reduce the fear of childbirth, but also increases the fear of childbirth in pregnant women seeking counseling (8). However, another study showed that educating pregnant mothers and raising awareness can reduce fear and anxiety caused by misconceptions about the pain of natural delivery (7). A study reported that after awareness counseling, most women who had fear of natural childbirth and requested a planned cesarean section preferred natural delivery and were satisfied with their choice in the future (17). Midwife-led psycho-education training regarding the fear of childbirth could reduce incidence of uncomfortable flashbacks from childbirth, thereby creating a positive mental framework regarding childbirth, increasing self-confidence, reducing decision-making conflicts, and decreasing the fear of childbirth in the current birth and future pregnancies (18). A recent study showed that the use of psychological methods for changing or accepting thoughts related to fear of childbirth may increase psychological flexibility (reducing experiential avoidance and cognitive fusion) and help reduce the fear of childbirth in pregnant women while reducing suffering from inner experiences such as thoughts, memories, feelings, etc. (19).

In Iran, the main types of psychological interventions used for reducing fear of childbirth in pregnant women between 2008 and 2019 included cognitive behavioral therapy, relaxation techniques, psychological counseling, childbirth preparation courses, mindfulness training programs, and psychological skills training (20).

One of the methods used in psychological interventions is emotion regulation. From the perspective of cognitive science, interventions based on the Gross model of emotion regulation can provide an insight into the subject, which is applicable to people with emotional dysregulation. This model also describes the conscious and unconscious strategies that humans use in order to adjust emotional response levels, as well as to increase, maintain, or decrease one or more components of an emotional response (from situation selection to cognitive change and response modulation) (21).

Given the discrepancies regarding the effects of emotion regulation training on the fear of childbirth, Iran's policy of promoting natural delivery as the best method of childbirth, and the impact of fear of childbirth among pregnant women on the method of delivery, the present study aimed to evaluate effects of a Gross model-based emotion regulation training to primigravida women on fear of childbirth.

Methods

This randomized field trial was conducted from April to November 2019 on 62 primigravida women. The sample size was calculated as 29 based on the results of a study by Khorsandi et al. (22) and considering 3-point reduction in the mean score of fear of childbirth following the intervention at 95% confidence interval and 90% test power. However, after assuming possibility of 5% dropout rate, the final sample size of 31 people was determined for each group (intervention and control).

First, 70 people were randomly selected from three comprehensive healthcare centers in Gorgan, Iran. Inclusion criteria were age of 18 to 35 years, gestational age of 28 to 32 weeks, primigravida pregnancy, singleton pregnancy, having minimum reading and writing literacy, not having a history of participation in childbirth preparation classes, and obtaining a score of more than 28 in the fear of childbirth questionnaire at pretest. Exclusion criteria included occurrence of a severe stressful event during the study period and absence in at least two training sessions. Figure 1 shows the CONSORT flow diagram of the present study.

Written informed consent was obtained from all participants after explaining the research objectives. Next, the pregnant women completed a demographic information form and the fear of childbirth self-report questionnaire. Then, the subjects were assigned to the intervention and control groups by stratified randomization based on the pretest mean score of fear of childbirth. For this purpose, the mean scores of fear of childbirth were sorted from high to low, and subjects with close scores were placed in pairs in two groups. In the lottery, code A was assigned to the intervention group, and code B was assigned to the control group.

The emotion regulation training based on the Gross model (Table 1) (21, 23) was held in three groups (each containing 9, 10, and 10 individuals) during 8 sessions of 120 minutes, twice a week, in the form of lectures and group discussions. The training was based on experiential (feelings), behavioral (behavioral responses), and physiological (heart rate and respiration) components and with regard to four types of antecedent-focused emotion regulation strategies (situation selection, situation modification, attentional deployment, and cognitive change), and response modulation.

At the end of the 8th training session, the fear of childbirth questionnaire was completed once more by the subjects in both groups.

The data collection tools included the demographic information form and the Persian version of the 14-item fear of childbirth questionnaire, which was standardized and localized by Khorsandi et al. (2008). In this questionnaire, answer to each question was scored based on a 4-point Likert scale (not at all, very little, moderate, severe). The overall score of the questionnaire ranges between 14 and 56. A higher score indicates more fear. A score of 28 was considered as the cut-off point for fear of childbirth (5). The reliability of the questionnaire has been confirmed by obtaining a Cronbach's alpha coefficient of 0.84 (22).

The collected data were described using descriptive statistics (mean, standard deviation, frequency, and percentage). Variables such as length of marriage, age, and gestational age were compared using the Mann-Whitney test. Education level was compared using the Fisher's exact test, while differences in employment status and mother's preference for a gender of the child were assessed using the chi-square test. Satisfaction with the spouse and his relatives were also assessed using the Fisher's exact test. All analyzes were carried out in SPSS (version 16) and at 95% confidence level.

Results

At the beginning of the study, the mean age of the mothers, the mean age of the spouses, and the age of pregnancy did not differ significantly between the intervention and control groups. Most of the subjects in the intervention (49.1%) and control (50.9%) groups were of Persian ethnicity. In addition, 55.3% and 60% of the subjects in the intervention group were satisfied with their spouses and their relatives, respectively. These rates in the control group were 44.7% and 40%, respectively (Table 2).

In the intervention group, the mean score of fear of childbirth reduced from 37.66±6.4 at baseline to 26.55±5.4 after the intervention. However, the mean score of fear of childbirth in the control group did not change significantly (Table 3).

Discussion

The present study was conducted to determine the effects of Gross model-based emotion regulation training on fear of childbirth among 28-32-week pregnant women. Based on the results, the mean score of fear of childbirth in the intervention group decreased significantly (by almost 11 points) after the emotion regulation training. The decrease in the mean score of fear of childbirth in the intervention group was almost 3.5 times the score changes in the control group. The decrease in the mean score of fear of childbirth in the control group could be related to the increase in gestational age, increased familiarity with the themes of the fear of childbirth questionnaire, and discussing or trying to resolve the fear of childbirth with other pregnant women, women who have recently given birth, neighbors, and acquaintances.

In line with our results, Jamali et al. (2018) reported that the participation of spouses in childbirth preparation classes significantly reduced the mean score of fear of childbirth in the intervention group up to the cut point of the questionnaire (9). Najafi and colleagues also reported a significant decrease in the fear of childbirth score of pregnant women after childbirth preparation classes (24).

Since the fear of childbirth in primigravida teenagers is related to the health of the child, the delivery process, poor performance of the medical staff, fear of the hospital environment, and postpartum anxiety, employing strategies for increasing information about childbirth, avoiding stressful sources, improving self-care, preparation for the day of delivery, and recourse to spirituality can help to reduce the fear of childbirth (25).

In a qualitative research with content analysis, Khorsandi et al. showed that 8 sessions of relaxation training in primigravida women could significantly decrease the mean score of fear of childbirth (22). Similarly, a clinical trial by Sharifzadeh et al. also indicated the effectiveness of midwifery counseling with a solution-oriented approach on the fear of natural childbirth (26), which is in line with our findings. Haapio et al. also demonstrated that a 2-hour training before childbirth in the midwifery unit reduced the mean score of fear of childbirth (27). In the mentioned studies, educational interventions for raising awareness (7, 17, 28), improving attitude (17), emotion management, and the ability to use effective emotion regulation strategies (18) could effectively reduce the fear of childbirth. On the other hand, in a study by Rastegari et al. (2013), childbirth preparation classes did not affect pregnant women's ability to cope with childbirth as a stressful event (29). In addition, a study in Sweden also claimed that pregnant women who participated in childbirth counseling sessions had more fear compared to the control individuals (8), which is inconsistent with our results. The discrepancy between the results of the present study and the aforementioned studies may be due to the enrollment of subjects whose fear of childbirth score was 28 or more. The increase in fear of childbirth may be related to the exchange of information and incorrect beliefs among group members. In the present study, we included primigravida women with no previous experience of childbirth, interaction with delivery personnel, and traumatic childbirth.

In this study, holding educational classes in the morning interfered with the working hours of employed women and household chores of homemakers. In order to solve the mentioned problem, the training sessions were held at the end of office hours and their travel expenses were paid. It is suggested to evaluate long-term effects of educational interventions in future studies. In this study, fear of childbirth was considered from a subjective point of view. We suggest investigating fear of childbirth while considering systemic, couple, and interactive aspects of fear of childbirth.

Conclusion

Our results indicated that the emotion regulation training based on the Gross model could reduce the mean score of fear of childbirth in primigravida women. This training is based on six principles of accepting present-oriented thoughts without details or judgment, actively avoiding certain situations and experiences, conscious problem solving to change stressful events or prevent its consequences, re-evaluating situations to create positive or neutral interpretations of the situation, controlling rumination and preventing suppression defense mechanism, and reducing or preventing the expression of emotion or emotional experience. Based on the results, we suggest providing emotion regulation training in healthcare centers in order to reduce fear of childbirth in primigravida women.

Ethical statement

Written informed consent was obtained from all participants after explaining the research objectives. The study was approved by the ethics committee of Golestan University of Medical Sciences (ethics approval code: IR.GOUMS.REC.1397.150). The study has been also registered in the Iranian Registry of Clinical Trials (registration ID: IRCT20190210042672N1).

Conflict of interest

The authors declare that there is no conflict of interest regarding publication of this article.

Author contributions

All authors contributed equally to the literature review, analysis, discussion, and manuscript preparation.

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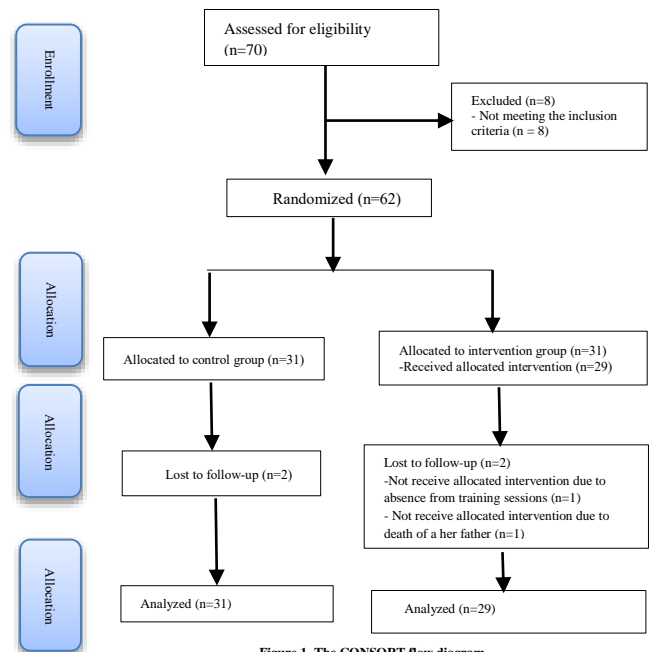
Figure 1. The CONSORT flow diagram

Table 1: The content of group training sessions on the Gross model-based emotion regulation

Session	Content
First	• Getting acquainted and communicate with other members • Explaining the primary and secondary objectives of the group • Explaining the framework and rules of participation in the group • Explaining the logic and stages of the intervention • Beginning the mutual relationship of the group leader • Holding discussion about collective and secondary goals
Second	• Choosing a situation-goal • Providing emotion regulation training
Third	• Choosing a situation-goal • Assessment of emotional vulnerability • Evaluation of emotional skills of the members
Fourth	• Modification of situation-goal • Creating a change in the stressful situation
Fifth	• Expansion of attention-goal • Training attention shifting skills
Sixth	• Cognitive-goal assessment • Changing the cognitive assessments
Seventh	• Response-goal modulation • Changing the behavioral and physiological consequences of emotion
Eighth	• Evaluation and application - goal • Re-evaluation and planning for the application of trainings

Table 2: Comparison of demographic characteristics of the subjects in the control and intervention groups

Variables		Mean ± standard deviation		P-value	Test
		Intervention	Control		
Age (years)		28.10±4.31	27.93±4.93	0.953	
Gestational age (years)		29.34 ± 1.39	29.67 ± 1.57	0.472	
Spouse's age (years)		30.72 ± 4.04	31.45 ± 4.43	0.510	Independent t-test

Variables		Number (%)		P-Value	Test
		Intervention	Control		
Level of education	High school diploma and lower	12 (60)	8 (40)	0.041	Fisher's exact test
	Undergraduate	14 (48.2)	15 (51.7)		
	Postgraduate	1 (27.3)	8 (72.7)		
Spouse's Level of education	High school diploma and lower	10 (55.5)	8 (44.4)	0.168	
	Undergraduate	17 (56.6)	13 (43.3)		
	Postgraduate	2 (16.6)	10 (83.3)		
Employment status	Homemaker	6 (37.5))	10 (62.5)	0.311	Chi-square test
	Employed	23 (52.3)	21 (47.7)		
Spouse's employment status	Unemployed	2 (100)	0 (0)	0.229	Fisher's exact test
	Employed	27 (46.6)	31 (51.7)		
Ethnicity	Persian	26 (49.1)	27 (50.9)	0.368	
	Non Persian	3 (50.9)	4 (49.1)		
Satisfaction with spouse	Excellent	21 (55.3)	17 (44.7)	0.550	
	Good	3 (20)	12 (80)		
	Moderate and lower	5 (71.4)	2 (28.6)		
Satisfaction with spouse's relatives	Excellent	15 (60)	10 (40)	0.220	
	Good	9 (39.1)	14 (60.9)		
	Moderate and lower	5 (41.7)	7 (58.3)		
Mother's preference for a certain gender of the child	Yes	7 (53.8)	6 (46.2)	0.758	Chi-square test
	No	22 (46,8)	25 (53.2)		
Father's preference for a certain gender of the child	Yes	5 (41.7)	7 (58.3)	0.750	
	No	24 (50)	24 (50)		

Table 3: Comparison of the mean scores of fear of childbirth between the intervention and the control groups before and after the emotion regulation training

Group	Before the intervention	After the intervention	P-value
	Mean± standard deviation	Mean± standard deviation	
Control	37.58±6.5	34.48±7.3	<0.0001***
Intervention	37.66±6.4	26.55±5.4	<0.0001***
P-value	0.976 *	<0.0001**	

*Mann-Whitney test; ** Independent Samples t-test; *** Paired sample t-test