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Effectiveness of a Psychoeducation Intervention by Midwives on Childbirth Fear and Childbirth Self-efficacy in Fearful First Time Pregnant Women: A Randomized Controlled Trial

Laya Firouzan
Zanjan University of Medical Sciences
Roghieh Kharaghani
Zanjan University of Medical Sciences
Saeedeh Zenoozian
Zanjan University of Medical Sciences
Reza Moloodi
University of Social Welfare and Rehabilitation Sciences, Tehran, Iran
Elham Jafari (elhamdjafari@gmail.com)
Department of midwifery, School of nursing and midwifery, Zanjan University of Medical Sciences, Zanjan, Iran

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Abstract

Background: Studies showed that childbirth fear is a prevalent problem among Iranian women and therefore most Iranian women prefer caesarean section as method of birth. However, there is no published study that explore effectiveness of psychoeducational interventions on childbirth fear among Iranian women. Thus, present study investigated the effectiveness of a Psychoeducation Intervention by Midwives (Birth Emotions- Looking to Improve Expectant Fear (BELIEF)) in decreasing childbirth fear and childbirth self-efficacy among fearful first pregnant women in Iran.

Methods: One-hundred-seventy-one pregnant women who referred to six governmental antenatal clinics of healthcare centers of Zanjan city screened to participate in the study. Among them, 80 women who got score ≥ 66 on the Wijma Delivery Expectancy/Experience Questionnaire were recruited. They were randomly assigned into two groups: intervention (n = 40) and control group (n = 40). The intervention group received two face-to-face counseling sessions based on the BELEF protocol in the 24th week and 34th week of pregnancy. Between this two counseling sessions, intervention group had 8 weekly telephone counseling sessions. The control group only received the prenatal routine care. The outcome measures were childbirth fear, childbirth self-efficacy, and childbirth preference.

Results: At the post-test, the intervention group showed significantly higher reduction in childbirth fear and higher increase in childbirth self-efficacy compared to the control group. Also, at post-test more women in the intervention group reported that they preferred to give birth via normal vaginal birth than women in the control group.

Conclusions: The BELIEF protocol could be effective approach to improve childbirth fear and childbirth self-efficacy in fearful first pregnant women.

Trial registration number: IRCT20101219005417N3, Date of Registration: 19-12-2018.

1. Background

Increasing normal vaginal birth and decreasing caesarean section birth is one of important objects in every health care system as well as Iran (1). However, a recent meta-analysis study in Iran reported 48% of women choose caesarean section (2). Studies showed fear of giving birth is the most common reason for caesarean section among Iranian women (1, 2). Childbirth fear is even more sever in first time pregnant women. For example, Matinnia et al., (3) reported that 62.6% of first time pregnant women preferred caesarean section for giving birth and among them 48.2% experienced sever childbirth fear. These findings are in line with studies in other countries which indicated childbirth fear is an important factor for choosing caesarean section as method of giving birth (4-6).

It seems that childbirth fear has increased in recent years (7). Prevalence of childbirth fear is estimated 30% in Italian and Swedish women (8). Evidence demonstrated high prevalence of childbirth fear in Iranian women too. For example, Mortazavi et al. (9) found that 20% of Iranian women reported

moderate fear and 6% sever fear of giving birth. Andaroon et al. (10) reported 50.90% of pregnant women experienced childbirth fear.

Association of childbirth fear and caesarean section is well demonstrated in several studies (11, 12). Childbirth fear results in reduction of mothers' self-efficacy about pregnancy and childbirth. Thus, Iran Ministry of Health started a plan to increase normal vaginal birth (13). However, a recent evaluation of the plan indicated although caesarean section decreased in public hospitals, but it simultaneously increased in private hospitals (14). This results implied that women who preferred caesarean section referred to private hospitals than public hospitals since the plan has been run. Therefore, it seems psychological interventions that reduce childbirth fear and increase childbirth self-efficacy in mothers should be a principal component of such plans (15).

A number of approaches have been tested to assist women with childbirth fear. For example, in Sweden, obstetric departments developed expert teams to help women with high level of childbirth fear. Intervention includes 2 to 4 visits with spouse, relaxation training, a visit to the labour ward and development an individualized birth plan (16). After counselling sessions, fearful pregnant women who initially wished to be delivered by caesarean section were less desired to do so (17, 18). In 2013, a group of Australian researchers developed a midwife led psychoeducation approach called BELIEF in order to target childbirth fear (19). The BELIEF is a telephone psychoeducation counseling approach that offered by midwives. This intervention emphasized on the women's expectations and emotions about childbirth fear, expression of feelings, and providing a structure for women to identify and work through distressing components of childbirth. Effectiveness of BELIEF in reduction of childbirth fear has been approved is several studies. Toohill, Fenwick (20) reported fearful pregnant women showed lower level childbirth fear, and depressive symptom after intervention compared control group. Another study on women with high level of childbirth fear indicated that after implementing BELIEF, fearful women show clinically significant reduction in overall caesarean section rates than control group women (21). In addition, cost-effectiveness of the BELIEF has been established (22).

However, we do not aware of any published study that explore effectiveness of psychoeducational intervention on childbirth fear among Iranian women. Thus, in the present study, we tried to investigate effectiveness of the BELIEF intervention in first time pregnant women with high level of childbirth fear in Zanjan, Iran.

2. Method

This randomized control trial was done on first time pregnant women attending six governmental antenatal clinics of healthcare centers of Zanjan city, Iran. In order to select antenatal clinics, the antenatal clinics of healthcare centers of the Zanjan divided into three regions based socio-economic variables. Then, 2 clinics were randomly selected from each region. To collect data from a homogeneous group of first time pregnant women, a number of inclusion and exclusion criteria were considered.

The inclusion criteria were being: 1) 18 to 35 years old, 2) able to speak and read Persian (since some women were from the less privileged parts of Zanjan province in which all people do not speak Persian and did not have enough reading and speaking language skills), 3) having a single fetus, 4) scoring ≥ 66 on the Wijma Delivery Expectancy/Experience Questionnaire (23), and 5) first time pregnancy. Women were excluded if they had any history of infertility, and mental or physical chronic diseases.

2.1. Sample size

Based on the mean and standard deviation of scores on the childbirth fear reported for the intervention (36. 3± 8) and control groups (30.6±8.6) in the previous study (24), power = .80, and error of type 1 = .05, the sample size of 34 was calculated for each group. Considering the 20% attrition rate, sample size of 40 was estimated for each group.

2.2. Data collection

A number 171 first time pregnant women who were in 20th to 23th week of pregnancy and consecutively attended the antenatal clinics were recruited in this study between February to September of 2019. They were informed by the midwives of the clinics about this research. Those who signed a written consent were recruited. At first, they were asked to complete Wijma Delivery Expectancy/Experience Questionnaire (WDEQ) (23). Among them, 91 women were excluded (32 women did not report childbirth fear, and 59 women did not meet inclusion criteria). Thus, 80 first time pregnant women with childbirth fear were recruited in the study.

They were randomly assigned into two groups: the intervention (n = 40) or control groups (n = 40) via block randomization method using 4-way blocks. The randomization code was generated by a web-based randomization system. The assessors and data analyzer were blinded to the group allocation. Five participants in the intervention group and 7 participants in the control group dropped out from the study because immigration, preterm childbirth, death of the fetus, and Incidence of diabetes (Figure 1). Both groups answered demographic information questionnaire, Wijma Delivery Expectancy/Experience Questionnaire (23), and Childbirth Self Efficacy Inventory (25) at pretest and post-test.

2.2.1. Sociodemographic questionnaire: This included age, education level, and occupation.

2.2.2. childbirth preference was assessed trough following question:" Which method do you prefer for the child birth? A: Normal vaginal birth, B: caesarean section".

2.2.3. Wijma Delivery Expectancy/Experience Questionnaire-A (WDEQ-A): The questionnaire assesses the intensity of emotions related to the expectations of the childbirth. It consists of 33 items on a 6-point Likert scale (0 = do not agree; 5 = totally agree) (23). The total score ranges from 0 to 165 and higher scores reflect greater level of childbirth fear. A score ≥ 66 reflects sever childbirth fear. Women are asked to answer items while imagining how labor and delivery are going to be, and how they expect to feel. Items 2, 3, 6, 7, 8, 11, 12, 15, 19, 20, 24, 25, 27, and 31 are reverse-scored. Reliability and validity of WDEQ-

A have been demonstrated in different populations (23, 26), as well as Iranians (27). In the current study, internal consistency of the WDEQ-A was .86.

2.2.4. Childbirth Self-Efficacy Inventory (CBSEI): This 62-item questionnaire was developed to assess maternal confidence in coping abilities during labour (25). Women were asked to answer the questions based on a ten-point Likert scale. It has four subscales: (1) Items 1-15 measure Outcome Expectancy Active Labor (Outcome-AL); (2) Items 16-30 assess Self-Efficacy Expectancy Active Labor (Efficacy-AL); (3) Items 31-46 measure Expectancy Second Stage (Outcome-SS); (4) Self-Efficacy Expectancy Second Stage (Efficacy-SS): items 47–62. The two total scores are: (i) the total child birth outcome expectancy score (outcome total), which is computed by summing the Outcome AL and Outcome SS scale scores and (ii) the total self-efficacy expectancy score (efficacy total), which is computed by summing the Efficacy AL and Efficacy SS scale scores. The higher scores reflect greater level of childbirth self-efficacy. Validity and reliability of the Persian version (28) of the CBSEI was established. In the current study, internal consistency of the scale was .98.

2.3. Procedure

The intervention group received two face-to-face counseling sessions by the first author (she is a midwife) in the 24th week and 34th week of pregnancy. Between this two counseling sessions, intervention group had 8 weekly telephone counseling sessions. The intervention approach was based on the BELIEF approach. The BELIEF is a telephone psychoeducation counseling approach that offered by midwives. The intervention emphasized on the women's expectations and emotions about childbirth fear, expression of feelings, providing a structure for women to identify and work through distressing components of childbirth (19). The intervention helps women to develop individualized supports for the present and near future, affirming that negative events can be coped with simple problem solving skills. Third and fourth authors, who are professors of clinical psychology, trained and supervised the first author on how to do the intervention. The Persian version of the protocol can be accessed from the corresponding author. The sessions were randomly recorded and listened by the fourth author to make sure that the intervention is in accordance with the principles of the BELIEF protocol. The control group only received routine prenatal care. A midwife who was blinded to group assignment did the pre-test and post-test assessments (Figure 1).

2.4. Data analysis

The statistical analysis was done with the statistical package for social sciences (SPSS) software version 24. The probability value's significance level was 0.05. The demographic characteristics of the participants were estimated with descriptive statistics. Independent t-test and Chi-square test was used to compare the two groups regarding the socio-demographic characteristics. Shapiro-Wilk test showed that the dependent variables have a normal distribution among the groups (p value ranged from 0.12 to 0.34). Preliminary checks were conducted to ensure that there was no violation of the assumptions of normality, linearity, homogeneity of variances, homogeneity of regression slopes, and reliable measurement of the

covariate. Thus, one-way between-groups analysis of covariance was used to determine the differences between the 2 groups on the child birth fear, childbirth self-efficacy, childbirth preference.

2.5. Ethical considerations

The study was registered in the registry for clinical trials (IRCT20101219005417N3). The ethics committee of Zanjan University of Medical Sciences approved the procedure of the research (IR.ZUMS.REC.1397.025). Participants signed a written consent before participating in the study and they could exit at any stage of the research.

3. Results

The participants' means of age were 26.27 ± 4.48 and 25.87 ± 4.58 years old for the intervention and control groups, respectively. The means of their husbands' ages were 30.87 ± 4.46 and 29.15± 3.69 years old for the intervention and control groups, respectively. The two groups were not different in terms of their own age (t (66) = 1.38, p = 0.17), and their husbands' age (t (66) = 1.42, p = 0.08).

The preliminary analysis showed the two groups were not different regarding their own educational status (x^2 (2, N = 68) = 0.058, p = 0.80), their husbands' educational status (x^2 (2, N = 68) = 0.23, p = 0.62), employment status (x^2 (2, N = 68) = 0.098, p = 0.95), and economic status ((x^2 (2, N = 68) = 0.80, p = 0.26). Similarly, they were not different regarding pre-test scores of Childbirth Self-Efficacy Inventory (t (66) = 1.37, p = 0.17), and childbirth preference (x^2 (2, N = 68) = 0.000, p = .99) (Table 1). However, the intervention group got higher scores on Wijma Delivery Expectancy/Experience Questionnaire-A (t (66) = 2.33, p = 0.02) than control group at pre-test assessment (Table 1). Twelve (15%) participants dropped from the study before providing post-test data. Those who dropped did not differ from those who provided complete data on baseline variables (all p-values > .24–.81), implying that attrition did not bias the results.

3.2. Intervention effects on childbirth fear

To investigate effect of BELIEF protocol on childbirth fear, a one-way between-groups analysis of covariance was conducted to test whether intervention group showed a significant decrease in childbirth fear (measured by Wijma Delivery Expectancy/Experience Questionnaire-A) compared with the control group (Table 2). After adjusting for pretest scores, there was significant difference between the intervention and control groups on post-test scores of Wijma Delivery Expectancy/Experience Questionnaire-A (F (1, 65) = 100.42, p = .0001, partial eta squared = .60). In other words, the intervention group got lower scores on Wijma Delivery Expectancy/Experience Questionnaire-A at post-test than control group (table 2), indicating the BELIEF protocol was effective in decreasing childbirth fear.

3.2. Intervention effects on childbirth self-efficacy

To investigate effect of BELIEF protocol on childbirth self-efficacy, a one-way between-groups analysis of covariance was conducted to test whether intervention group showed a significant increase in childbirth self-efficacy (measured by Childbirth Self-Efficacy Inventory) compared with the control group (Table 2). After adjusting for pre-test scores, there was significant difference between the intervention and control groups on post-test scores on Childbirth Self-Efficacy Inventory (F (1, 65) = 57.23, p = .0001, partial eta squared = .46). In other words, the intervention group got higher scores on Childbirth Self-Efficacy Inventory at post-test than control group (Table 2), suggesting the BELIEF intervention effectively improved childbirth self-efficacy of fearful pregnant women.

3.2. Intervention effects on childbirth preference

After intervention, more women in the intervention group (n = 29 (82.85%)) reported that they preferred to give birth via normal vaginal birth than women in the control group (n = 19 (57.57%)), (x^2 (2, N = 68) = 7.63, p = 0.02). Thus, the BELIEF intervention was effective in increasing desire of fearful pregnant women toward normal vaginal birth (Table 2).

4. Discussion

Childbirth fear is a prevalent problem among pregnant women. In our study, 80 of 171 first time pregnant women (46.78%) experienced sever childbirth fear, and one third of the fearful women preferred caesarean section as method of giving birth at pretest. This reflects the necessity of implementing psychoeducational interventions to reduce childbirth fear among fearful pregnant women.

Results of the current study showed a brief psychoeducation telephone counseling intervention (BELIEF protocol) which was provided by midwives during 24th to 34th week of pregnancy was significantly effective in reducing women's childbirth fear and improving childbirth self-confidence. Also, results showed after BELIEF intervention more women preferred normal vaginal birth. However, women in the control group report greater level of childbirth fear and lower level of child-birth self-efficacy at the post-test than pre-test. These results implied that without any psychoeducational intervention, childbirth fear would even extenuate in the weeks leading up to pregnancy.

Findings of the current study are in line with previous studies which showed that BELIEF intervention effectively decrease childbirth fear, depression symptoms, and caesarean section rate, and improve women self-confidence about labor (20, 21). Also, the present results are consistent with researches that demonstrated other psychological interventions are fruitful in reduction of childbirth birth fear among fearful pregnant women (16-18). It seems that the BELIEF protocol improves women's attitudes about

their ability to cope with normal physiological and emotional difficulties of labor and thereby reduce childbirth fear. Also, this intervention helps women to understand and accept unpredictable and painful nature of childbirth. However, this is the first study in Iran and third research- after previous two studies in Australia (20, 21), in the world that explores effectiveness of BELIEF protocol on childbirth fear. Thus, further research is needed to investigate the effectiveness of the BELIEF intervention on childbirth fear in different populations.

A positive aspect of the present research was that we assessed effectiveness of BELIEF protocol on Iranian fearful pregnant women. This protocol focuses on the counseling role of midwives in the prenatal care. Since providing specialized psychological and psychiatric services for all needy pregnant women is not possible, providing such psychoeducational approaches by midwives would be logical and cost-effective strategy. In the BELIEF protocol, midwife helps woman to explore the origin of her childbirth fear, and neutralize impacts of negative events of previous childbirth experience. Also the midwife informs pregnant woman of her birth options and assist her to develop strategies for a positive birth experience.

These results should be interpreted with the limitations of the study in mind. First, we only used self-report questionnaires to assess the outcome variables. Using face to face deep interviews helps researchers to measure childbirth fear and child birth self-confidence more precisely. Second, at post-test we just assessed childbirth preference and we do not aware of impact of the intervention on reduction of caesarean section rate. Thus, future research should also explore impact of the BELIEF intervention on caesarean section rate.

5. Conclusion

The results of the present study showed that a psychoeducational counseling intervention which offered by midwives could be effective in reducing childbirth fear. This results suggest it is important to include brief psychoeducational programs in the training of midwifery courses. In addition, screening of fearful pregnant women is recommended to identify those who suffer childbirth fear and preferred caesarean section because of this fear. Finally, further researches is needed to explore effectiveness of BELIEF protocol on reduction of caesarean section rate in Iranian women.

List Of Abbreviations

SPSS= Statistical Package for the Social Sciences, RCT = Randomized control Trail, Wijma Delivery Expectancy/Experience Questionnaire = WDEQ, Childbirth Self-Efficacy Inventory = CBSEI.

Declarations

Ethics approval and consent to participate

All participants signed a written consent. The research procedure was approved by the ethics committee of Zanjan University of Medical Sciences (IR.ZUMS.REC.1397.025). Also, the study was registered in the

registry for clinical trials (IRCT20101219005417N3).

Consent for publication

Identifiable demographic information has been removed from this manuscript to ensure anonymity. Thus, the consent to publish is not applicable.

Availability of the data

Zanjan University of Medical Sciences which approved and supported the study has given permission that only researches of the manuscript will have access to the dataset, so the data used in this study is not available for public view. Requests should be written to the university.

Competing Interest

The authors have no actual or potential conflicts of interest including any financial, personal or other relationships with other people or organizations within three years of beginning the work submitted that could inappropriately influence their work.

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This research is supported by the Zanjan University of Medical Sciences. The university had no role in designing, gathering and analyzing the data, and preparing the manuscript.

Authors' Contribution

EJ, RK, SZ, and RM designed and supervised the research. LF conducted the study. RM analyzed the data and wrote the manuscript. All authors have read and approved the manuscript.

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Tables

Table 1

Demographic characteristic and childbirth preference at pre-test and post-test assessment of intervention group (n = 35) and control group (n = 33)

	Intervention group	Control group	*p*
	N (%)	N (%)	
Education			
Diploma	24 (68.5%)	23 (69.7%)	.8
Bachelor or higher	11 (31.5%)	10 (30.3%)	
Husbands' education			
Diploma	24 (68.5%)	25 (75.75%)	.62
Bachelor or higher	11 (31.5%)	11(24.25%)	
Employment status			
Housewife	31 (88.57%)	29 (87.87%)	.95
employee	4 (11.43%)	4 (12.12%)	
Economic status			
Low income	7 (20%)	10 (30.30%)	.26
Moderate income	22 (62.85%)	17 (51.51%)	
High income	6 (17.15%)	6 (18.18%)	
Childbirth preference at pre-test			
Normal vaginal birth	22 (62.85%)	21 (63.63%)	.99
Ceasarion Section	13 (37.15%)	12 (36.36%)	
Childbirth preference at post-test			
Normal vaginal birth	29 (82.85%)	19 (57.57%)	.02
Ceasarion Section	3 (8.57%)	12 (36.36%)	
Have not decided yet	3 (8.57%)	2 (6.06%)	

Table 2

Comparison of intervention group and control group on Wijma Delivery Expectancy/Experience Questionnaire-A, and Childbirth Self-Efficacy Inventory scores

	Pre-test *M (SD)*	Post-test *M (SD)*	*p*	Effect size
na Delivery expectancy/Experience stionnaire-A				
rvention group	79.8 (12.73)	48.57(16.88)	.0001	.60
trol group	73.48 (9.1)	77.03 (10.72)		
dbirth Self-Efficacy Inventory			.0001	.46
rvention group	347.74 (98.57)	470 (88.65)		
trol group	384.150 (121.33)	327.21(125.37)		

Figures

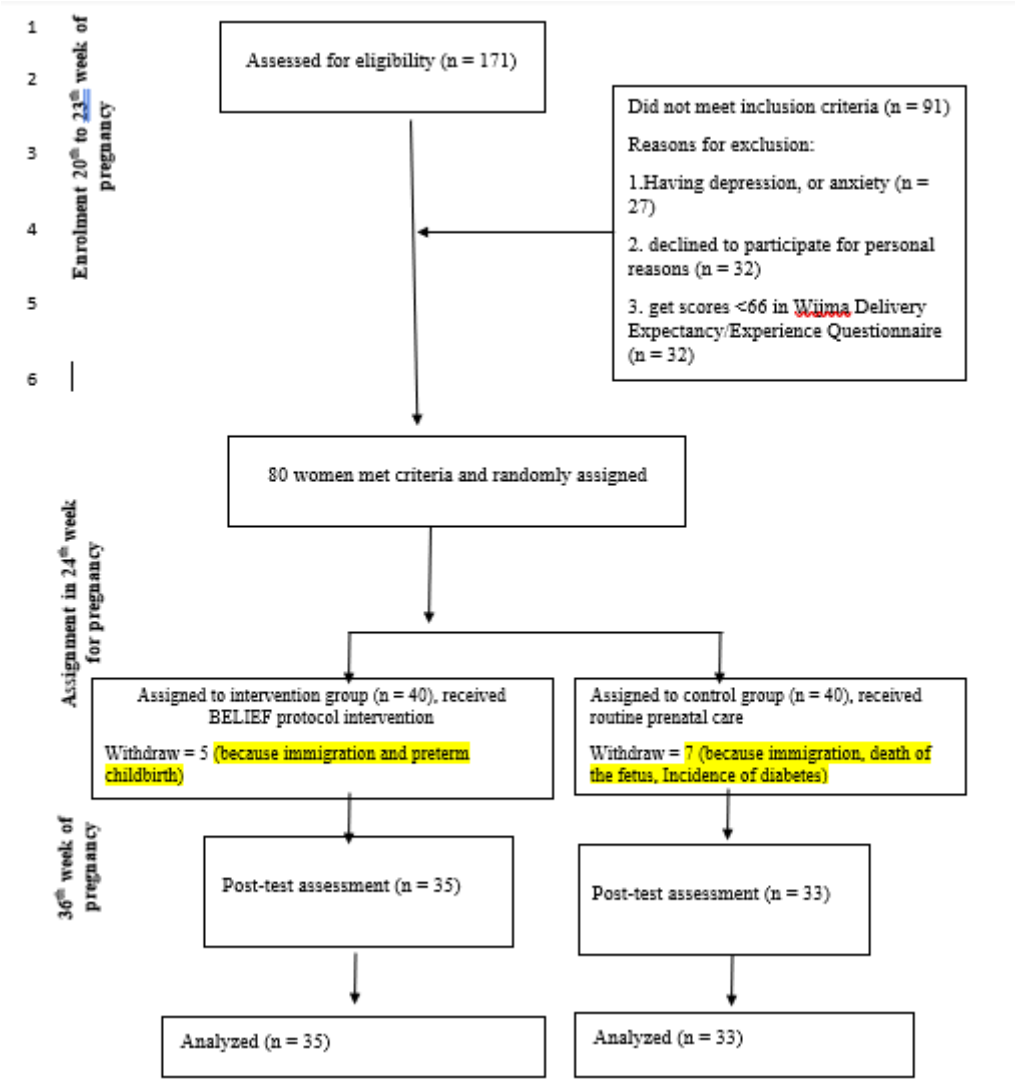

Figure 1

Flow diagram of the study

Supplementary Files

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- consortchecklist.docx