

Effectiveness of a Psychoeducation Intervention by Midwives on childbirth fear and childbirth self-efficacy in fearful first time pregnant women: a randomized controlled trial

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Abstract

Background: Studies showed that childbirth fear is a prevalent problem among Iranian women and most women prefer caesarean section. However, there is no published study that explore effectiveness of psychoeducational intervention 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 increasing childbirth self-efficacy among fearful first pregnant women.

Methods: One-hundred-seventy-one pregnant women who referred to six governmental antenatal clinics of healthcare centers of Zanzan 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 in the 24th week and 34th week of pregnancy. Between this two counseling sessions, intervention group women 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 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: 2018-12-19.

1. Background

Increasing normal vaginal birth and decreasing caesarean section birth is one of important objects in Iran health care system (1). However, a recent meta-analysis study reported 48% of Iranian women choose caesarean section (2). Studies showed previous cesarean, fear of normal-vaginal birth and doctor's suggestion is the most important common reasons 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, and among them 48.2% experienced sever childbirth fear. Studies in other countries also indicated childbirth fear is an important factor for choosing caesarean section (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% severe 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. Also, caesarean section significantly associated with low rate of breastfeeding, muscular pain in mothers, and transient tachypnea in newborns (1, 11, 12). Thus, Iran Ministry of Health started a plan to increase normal vaginal birth (13). However, recent evaluation of the plan indicated although caesarean section decreased in public hospitals, but it simultaneously increased in private hospitals (14). This result 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 which 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 of 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 focused 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 in several studies. Toohill, Fenwick (20) reported fearful pregnant women showed lower level childbirth fear, and depressive symptom after intervention compared control group. Another study 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 Zanzan 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 block size 4, and allocation ration 1:1. 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 and child preference: Sociodemographic questionnaire included age, education level, and occupation. Also, childbirth preference was assessed through following question: "Which method do you prefer for the child birth? A: Normal vaginal birth, B: caesarean section".

2.2.2. 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 severe childbirth fear. 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.

2.2.3. 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. 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 were 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

3.1. Preliminary analysis

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 ($p = 0.17$), and their husbands' age ($p = 0.08$) (Table 1).

Table 1

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

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

The preliminary analysis showed the two groups were not different regarding their own educational status ($p = 0.80$), their husbands' educational status ($p = 0.62$), employment status ($p = 0.95$), and economic status ($p = 0.26$). Similarly, they were not different regarding pre-test scores of Childbirth Self-Efficacy Inventory ($p = 0.17$), and childbirth preference ($p = .99$) (Table 2). However, the intervention group got higher scores on Wijma Delivery Expectancy/Experience Questionnaire-A ($p = 0.02$) than control group at pre-test assessment (Table 2). 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 $>.05$), implying that attrition did not bias the results.

Table 2 Comparison of intervention group and control group on Wijma Delivery Expectancy/Experience Questionnaire-A, and Childbirth Self-Efficacy Inventory scores

	Pretest M (SD)	Posttest M (SD)	p	Effect size
<i>a Delivery expectancy/Experience Questionnaire-</i>				
intervention group	79.8 (12.73)	48.57(16.88)	.0001	.60
control group	73.48 (9.1)	77.03 (10.72)		
<i>Childbirth Self-Efficacy Inventory</i>				
intervention group	347.74 (98.57)	470 (88.65)	.0001	.46
control group	384.150 (121.33)	327.21(125.37)		

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 ($p = .0001$, 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.

3.3. 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 ($p = .0001$, 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.

3.4. 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%)), ($p = 0.02$). Thus, the BELIEF intervention was effective in increasing desire of fearful pregnant women toward normal vaginal birth (Table 1).

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 at pretest. It 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 weeks 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 reported 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 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's 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 fear (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.

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 interview 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 explore impact of the BELIEF intervention on caesarean section rate. Finally, the results of the present study could not be generalizable to women who referred to private health care clinics. Therefore, future research should investigate the effectiveness of psychoeducational interventions on childbirth fear in different populations and settings.

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. 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 Zanzan 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

Zanzan 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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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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References

1. Rafiei M, Ghare MS, Akbari M, Kiani F, Sayehmiri F, Sayehmiri K, et al. Prevalence, causes, and complications of cesarean delivery in Iran: A systematic review and meta-analysis. *International Journal of Reproductive BioMedicine*. 2018;16(4):221.

2. Azami-Aghdash S, Ghojazadeh M, Dehdilani N, Mohammadi M. Prevalence and causes of cesarean section in Iran: systematic review and meta-analysis. *Iranian journal of public health.* 2014;43(5):545.
3. Matinnia N, Faisal I, Juni MH, Herjar AR, Moeini B, Osman ZJ. Fears related to pregnancy and childbirth among primigravidae who requested caesarean versus vaginal delivery in Iran. *Maternal and child health journal.* 2015;19(5):1121-30.
4. Nieminen K, Malmquist A, Wijma B, Ryding EL, Andersson G, Wijma K. Nulliparous pregnant women's narratives of imminent childbirth before and after internet-based cognitive behavioural therapy for severe fear of childbirth: a qualitative study. *BJOG: An International Journal of Obstetrics & Gynaecology.* 2015;122(9):1259-65.
5. Ryding EL, Lukasse M, Parys ASV, Wangel AM, Karro H, Kristjansdottir H, et al. Fear of childbirth and risk of cesarean delivery: a cohort study in six European countries. *Birth.* 2015;42(1):48-55.
6. Faisal I, Matinnia N, Hejar A, Khodakarami Z. Why do primigravidae request caesarean section in a normal pregnancy? A qualitative study in Iran. *Midwifery.* 2014;30(2):227-33.
7. O'Connell MA, Leahy-Warren P, Khashan AS, Kenny LC, O'Neill SM. Worldwide prevalence of tocophobia in pregnant women: systematic review and meta-analysis. *Acta obstetrica et gynecologica Scandinavica.* 2017;96(8):907-20.
8. Haines H, Pallant JF, Karlström A, Hildingsson I. Cross-cultural comparison of levels of childbirth-related fear in an Australian and Swedish sample. *Midwifery.* 2011;27(4):560-7.
9. Mortazavi F, Agah J. Childbirth fear and associated factors in a sample of pregnant Iranian women. *Oman medical journal.* 2018;33(6):497.
10. Andaroon N, Kordi M, Kimiaei SA, Esmaeili H. Relationship between Intensity of fear of Childbirth with choosing mode of delivery in Primiparous Women. *The Iranian Journal of Obstetrics, Gynecology and Infertility.* 2017;20(5):68-75.
11. Størksen HT, Garthus-Niegel S, Adams SS, Vangen S, Eberhard-Gran M. Fear of childbirth and elective caesarean section: a population-based study. *BMC pregnancy and childbirth.* 2015;15(1):221.
12. Stoll K, Edmonds JK, Hall WA. Fear of childbirth and preference for cesarean delivery among young American women before childbirth: a survey study. *Birth.* 2015;42(3):270-6.
13. ARANI AA, Atashbar T, Antoun J, Bossert T. Iran's health reform plan: measuring changes in equity indices. *Iranian journal of public health.* 2018;47(3):390.
14. Jabbari A, Yarmohamadian MH, Hadian M. Iran's struggling health system: An increase in natural childbirth: A case study. *International journal of preventive medicine.* 2018;9.
15. Salomonsson B, Berterö C, Alehagen S. Self-efficacy in pregnant women with severe fear of childbirth. *Journal of Obstetric, Gynecologic & Neonatal Nursing.* 2013;42(2):191-202.
16. Waldenström U, Hildingsson I, Ryding E-L. Antenatal fear of childbirth and its association with subsequent caesarean section and experience of childbirth. *BJOG: An International Journal of Obstetrics & Gynaecology.* 2006;113(6):638-46.

17. Ryding EL, Persson A, Onell C, Kvist L. An evaluation of midwives' counseling of pregnant women in fear of childbirth. *Acta Obstetrica et Gynecologica Scandinavica*. 2003;82(1):10-7.
18. Halvorsen L, Nerum H, Øian P, Sørli T. Is there an association between psychological stress and request for caesarian section? *Tidsskrift for den Norske laegeforening: tidsskrift for praktisk medicin, ny raekke*. 2008;128(12):1388-91.
19. Fenwick J, Gamble J, Creedy DK, Buist A, Turkstra E, Sneddon A, et al. Study protocol for reducing childbirth fear: a midwife-led psycho-education intervention. *BMC Pregnancy and Childbirth*. 2013;13(1):190.
20. Toohill J, Fenwick J, Gamble J, Creedy DK, Buist A, Turkstra E, et al. A randomized controlled trial of a psycho-education intervention by midwives in reducing childbirth fear in pregnant women. *Birth*. 2014;41(4):384-94.
21. Fenwick J, Toohill J, Gamble J, Creedy DK, Buist A, Turkstra E, et al. Effects of a midwife psycho-education intervention to reduce childbirth fear on women's birth outcomes and postpartum psychological wellbeing. *BMC pregnancy and childbirth*. 2015;15(1):284.
22. Toohill J, Callander E, Gamble J, Creedy D, Fenwick J. A cost effectiveness analysis of midwife psycho-education for fearful pregnant women—a health system perspective for the antenatal period. *BMC pregnancy and childbirth*. 2017;17(1):217.
23. Wijma K, Wijma B, Zar M. Psychometric aspects of the W-DEQ; a new questionnaire for the measurement of fear of childbirth. *Journal of Psychosomatic Obstetrics & Gynecology*. 1998;19(2):84-97.
24. Navaee M, Abedian Z. Effect of role play education on primiparous women's fear of natural delivery and their decision on the mode of delivery. *Iranian journal of nursing and midwifery research*. 2015;20(1):40.
25. Lowe NK. Maternal confidence for labor: Development of the childbirth self-efficacy inventory. *Research in nursing & health*. 1993;16(2):141-9.
26. Takegata M, Haruna M, Matsuzaki M, Shiraishi M, Okano T, Severinsson E. Psychometric evaluation of the Japanese Wijma delivery expectancy/experience questionnaire version B. *Open Journal of Nursing*. 2017;7(1):15-27.
27. Abedi P, Hazeghi N, Afshari P, Fakhri A. The validity and reliability of Persian version of Wijma delivery expectancy/experience questionnaire (version a) among Iranian nulliparous women. *Glob J Health Sci*. 2016;9(2):269.
28. Khorsandi M, Ghofranipour F, Faghihzadeh S, Hidarnia A, Akbarzadeh Bagheban A, Aguilar-Vafaie ME. Iranian version of childbirth self-efficacy inventory. *Journal of Clinical Nursing*. 2008;17(21):2846-55.

Figures

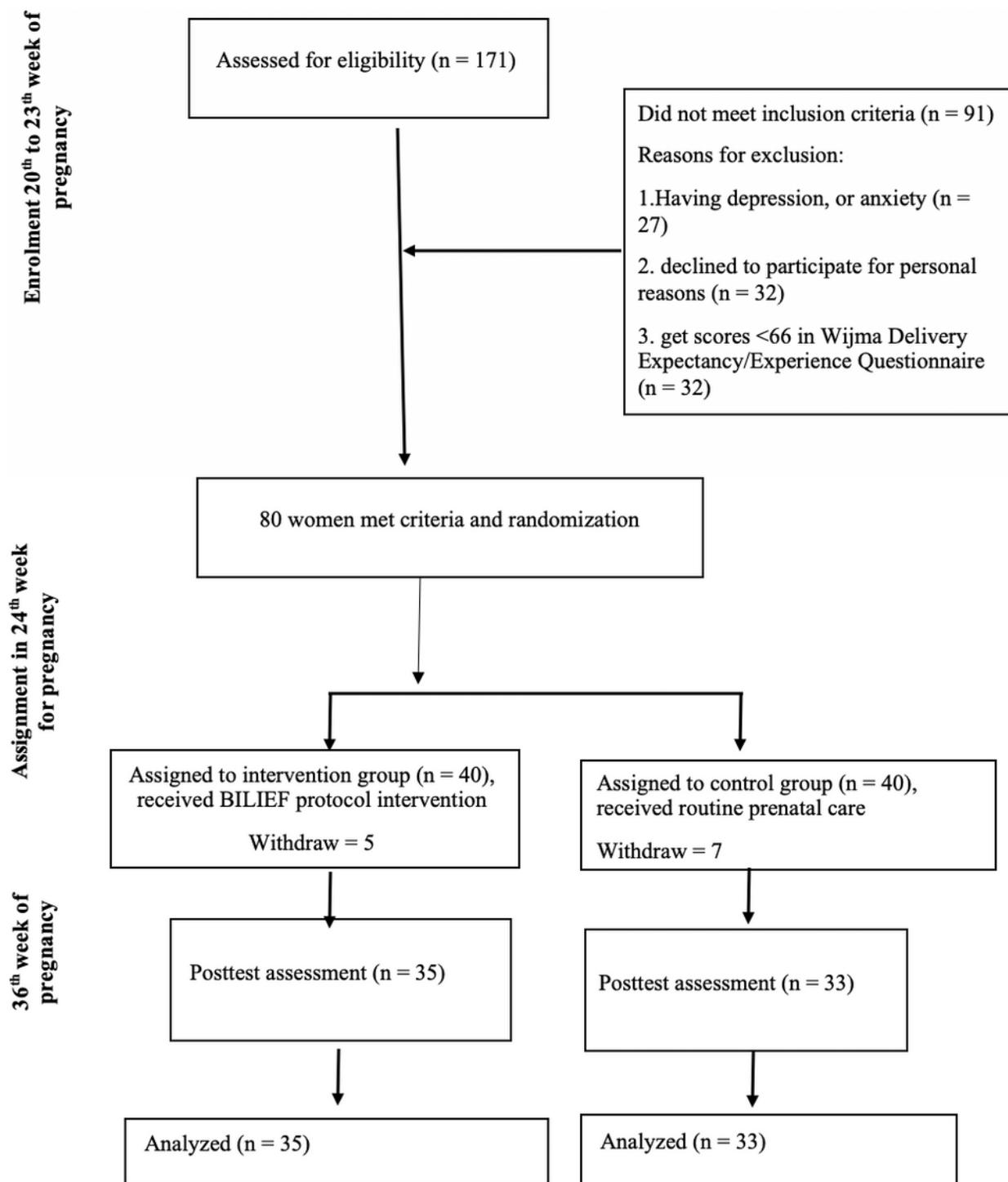


Figure 1

Flow diagram of the study

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