Original Article
2025, 15(1): 38-47
DOI: 10.22038/EBCJ.2025.81236.3021

Received: 30/07/2024
Accept & ePublished: 27/01/2025

Evidence Based Care Journal
http://ebcj.mums.ac.ir
Online ISSN: 2008-370X

The Effect of Solution-Focused Group Counseling on Pregnancy Anxiety: A Randomized Clinical Trial

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Abstract

Background: Pregnancy anxiety is associated with undesirable fetal, maternal, and neonatal outcomes. Women who do not attend childbirth preparation classes are more susceptible to this complication. Solution-focused counseling has been suggested to manage anxiety in these women.

Aim: This study was conducted with aim to determine the effect of solution-focused group counseling on the pregnancy anxiety of women who do not attend childbirth preparation classes.

Method: This randomized clinical trial was conducted on 80 pregnant women with anxiety who were randomly assigned to either intervention or control groups. These women were selected from health and medical care centers affiliated to Arak University of Medical Sciences, Arak Iran. Solution-focused counseling was implemented in the intervention group for five 90-minute sessions once a week. The tools used included a demographic characteristics questionnaire and the Pregnancy-Related Anxiety Questionnaire-Revised 2. Data were analyzed using SPSS software (version 23) and descriptive statistics, independent t-test, analysis of covariance, paired t-test, chi-square test, and Fisher's exact test. $p<0.05$ was considered significant.

Results: There was no statistically significant difference between the two groups in the mean total scores of pregnancy anxiety and its subscales before the intervention ($p\geq0.05$). After the intervention, the mean total score of pregnancy anxiety was significantly reduced in the intervention group compared to the control group ($p<0.001$). This reduction occurred in both nulliparous and multiparous participants ($p<0.001$).

Implications for Practice: Solution-focused group counseling can mitigate pregnancy anxiety regardless of having a history of childbirth. Hence, solution-focused group counseling can be employed to deal with pregnancy anxiety.

Keywords: Anxiety, Clinical trial, Counseling, Pregnancy, Psychotherapy Brief

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Introduction

Anxiety is the most prevalent mental stress during pregnancy (1). Pregnancy anxiety is associated with fear of giving birth, worries about bearing a physically or mentally handicapped child, and concern about one's own appearance (2). The prevalence of pregnancy anxiety has been reported as 25-50%, depending on different cultures (3). Pregnancy anxiety accompanies a broad spectrum of negative consequences for fetus, mother, and baby. In long-term anxiety, the stimulation of the autonomic nervous system culminates in contracted smooth muscles of the arteries and results in reduced uterine-placental circulation and the uterine oxygenation, abnormal fetal heartbeat pattern, and increased risk of fetal growth restriction and preterm delivery (4). Other complications of pregnancy anxiety include behavioral and emotional disorders in the child, such as Attention-Deficit/Hyperactivity Disorder (ADHD), cognitive problems, mood disorders, and learning problems (5). Maternal complications of pregnancy anxiety include nausea, severe vomiting in early pregnancy, pre-eclampsia (5), and postpartum depression (6).

Considering the adverse consequences of pregnancy anxiety on the health of mother and child and the complications of anti-anxiety drugs on the fetus, the psychological interventions to manage pregnancy anxiety has been taken into consideration. Numerous studies have indicated that women who are more able to solve problems experience less anxiety (7). Solution-Focused Brief Therapy (SFBT) is an approach that has recently received attention to manage anxiety. In this approach, individuals are encouraged to use their capabilities to find solutions to their problems (8). Using practical solutions to deal with pregnancy anxiety is crucial for pregnant women because numerous factors can cause anxiety for pregnant woman, and they can use their own unique solutions to overcome their pregnancy anxiety. The SFBT process consists of five stages: 1) detecting the problem and goal, 2) identifying and strengthening exceptions, 3) implementing an intervention to identify and strengthen exceptions, 4) evaluating the effectiveness of interventions, and 5) re-evaluating the problem and goal. The criterion for solving the problem in SFBT is when either the problem is entirely solved or considerable progress is achieved based on the set goals (8).

The solution-focused approach has been taken into account due to its low number of sessions, high application, and the use of easy and effective techniques (9) It is appropriate for many clients who want to achieve faster recovery in a shorter time (10). In Huang et al. (2022)'s research in China, the solution-focused model relieved postpartum anxiety and depression in depressed nulliparous women (11). Mohiti et al. (2022) also investigated the effect of implementing single-session SFBT on the overt anxiety of nulliparous women in 37-41 week of gestation in the stage of labor (cervical dilatation of 5 and 8 cm) and indicated that single-session SFBT could reduce overt anxiety (12). Although multiparous women account for a significant proportion of the pregnant population, interventions have primarily focused on nulliparous women (9, 11, 12). Research has revealed a higher prevalence of high anxiety in multigravidas compared to primigravidas on third gestational trimester (13).

Childbirth preparation classes provide an appropriate opportunity for mothers to resolve false beliefs and information related to pregnancy, childbirth, and postpartum issues that may cause anxiety. In addition, the training classes allow pregnant mothers to meet other women with the same conditions and get familiar with the childbirth stages and labor pain so that they experience less anxiety and more self-confidence (14). The impact of SFBT on pregnancy anxiety in nulliparous women who have attended childbirth preparation classes has been confirmed (9). However, a considerable number of pregnant women do not attend childbirth preparation classes. These women are at a higher risk of pregnancy anxiety compared to those attending these classes (14).

Considering the high prevalence of pregnancy anxiety and its detrimental consequences on the health of mother, fetus, and baby, the vulnerability of multiparous women and nulliparous women who do not attend childbirth preparation classes to experience this complication, the characteristics of solution-focused counseling (its simplicity and practicality), and finally, the necessity of providing scientific evidence regarding the impact of solution-focused counseling on pregnancy anxiety of women who do not attend childbirth preparation classes, this study was designed with aim to determine the effect of solution-focused group counseling on pregnancy anxiety of women who do not attend childbirth preparation classes.

Methods

This randomized clinical trial study was conducted in January 2022 on pregnant women in 29-32 weeks of gestation who were present in health and medical care centers affiliated to Arak University of Medical Sciences, Arak, Iran. Sampling was non-probability purposive sampling. The sample size was determined according to the results of Shahoie et al. (2019)'s study, considering the expected mean difference of pregnancy anxiety between the two groups (5.9), a standard deviation of 9 (15), a confidence level of 95%, a test power of 80%, α=0.05, β=0.20, μ_1=38.8, and μ_2=44.7; therefore, the sample size was calculated as 36.74 people in each group that considering 10% dropout, 40 people were considered in each group.

First, 4 health centers with the highest number of clients and 2 medical centers with high clients were selected. Then, the required number of participants was divided equally among the mentioned centers. For sampling, the first researcher visited the selected centers, and after introducing herself and explaining the research objectives to the clients, she selected the subjects who met the inclusion criteria. The participants were assigned to the intervention and control groups by block randomization method (blocks of four) (40 people in each group). The generation of the random sequence was performed using the online randomization method and using the https://www.sealedenvelope.com, and concealing the sequence was also performed using the central method (16). In this method, a sequence list for random assignment is provided to someone outside the research team. As soon as a person meets the inclusion criteria, the sampler contacts the individual who has the sequence list, and he/she assigns a code to the participant according to the sequence list in order to enter the study.

Inclusion criteria were Iranian nationality, 18-35 years of age, at least fifth-grade education, gestational age between 29 and 32 weeks based on the first day of the last menstrual period and ultrasound, obtaining a score of 18-36 of the Pregnancy-Related Anxiety Questionnaire-Revised 2 (PRAQ-R2), a singleton pregnancy, providing written informed consent, residing in the city of Arak, no history of infertility, using assisted reproductive technologies, smoking, alcohol, and substance abuse, no history of hospitalization in the psychiatric ward, not taking psychotropic drugs (anti-anxiety, anti-depressant, and anti-psychotic drugs, mood stabilizers, and stimulants) within six months before participating in the study and during the study, not taking propranolol during the study., not attending childbirth preparation classes, not having diseases or a history of diseases making pregnancy risky, and not experiencing any type of severe stressor within the last six months, such as divorce, car accident, and death of relatives. Exclusion criteria also included absence in more than one intervention session, experiencing any type of severe stressor during the study period, taking psychotropic drugs and propranolol during the study period, attending similar interventions to the current intervention during the study period, and experiencing any complication making pregnancy risky, such as gestational diabetes, pre-eclampsia, preterm delivery, bleeding, and intrauterine death.

The questionnaires for data collection were the demographic characteristics questionnaire (such as age, length of marriage, education level, occupation, economic status, history of abortion, number of births, gestational age, wanted or unwanted pregnancy, and experience of complications in pregnancy) and the PRAQ-R2. The PRAQ, designed by Van den Bergh, a questionnaire in the Dutch language contains 58 items to investigate pregnancy anxiety. Huizink et al (2004) designed the PRAQ-R1 with 10 items and 3 factors from the PRAQ (17).

Huizink et al. (2016) with aim to make PRAQ-R1 usable for identifying pregnancy anxiety in multiparous women extracted the PRAQ-R2 from the PRAQ-R1 by changing the wording of one item. The PRAQ-R2, as a brief, precise, and practical tool to identify pregnancy anxiety in nulliparous and multiparous women, has 10 items and 3 subscales, including fear of giving birth (3 items), worries about bearing a physically or mentally handicapped child (4 items), and concern about one's own appearance (3 items). The scale is scored on a five-point Likert scale: 1 (absolutely not relevant), 2 (hardly ever relevant), 3 (sometimes relevant), 4 (reasonably relevant), and 5 (very relevant). The construct validity of the PRAQ-R2 was confirmed using confirmatory factor analysis (CFA), and its reliability was reported to be over 0.8 using Cronbach's alpha coefficient in the two groups of nulliparous and multiparous women at two time periods (24 and 34 weeks of gestation) (18). In Iran, Bayrampour et al. (2019) confirmed the content validity and construct validity of the PRAQ-R2. The scale's reliability was reported to be 0.74 using Cronbach's alpha coefficient. One item was removed during evaluating the PRAQ-R2 psychometrics, and the PRAQ-R2 structure was approved with 3 factors and 9 items (19). The questionnaire's minimum and maximum scores are 9 and 45,

respectively. Individuals who scored ≥18 were regarded as anxious, those who scored >36 were referred to a psychologist, and those who scored 18-36 were entered into the study. In the current study, the PRAQ-R2 Cronbach's alpha coefficient was calculated to be 0.73 and 0.86 in pre-test and post-test, respectively.

The participants in the intervention group in addition to routine care received solution-focused therapy designed based on the de Shazer approach (8) in groups of 10 in five 90-minute sessions once a week (Table 1). The first author, who had completed the required training regarding solution-focused therapy and had a training certificate, held the sessions under the supervision of a psychologist consultant (the third author). The individuals in the control group only received routine care. Routine care involved, but was not limited to, clinical examinations (such as weight measurement, vital signs, fundal height, fetal growth, fetal heart rate, and abdominal examination), administration of supplementation, immunization care, education and counseling, and necessary laboratory tests and ultrasounds. The research implementation process is shown in Figure 1. Immediately after the end of the intervention (post-test), a trained interviewer who was unaware of the participants' placement in the intervention and control groups completed the PRAQ-R2 for all participants. The person responsible for data analysis was also unaware of the participants' codes.

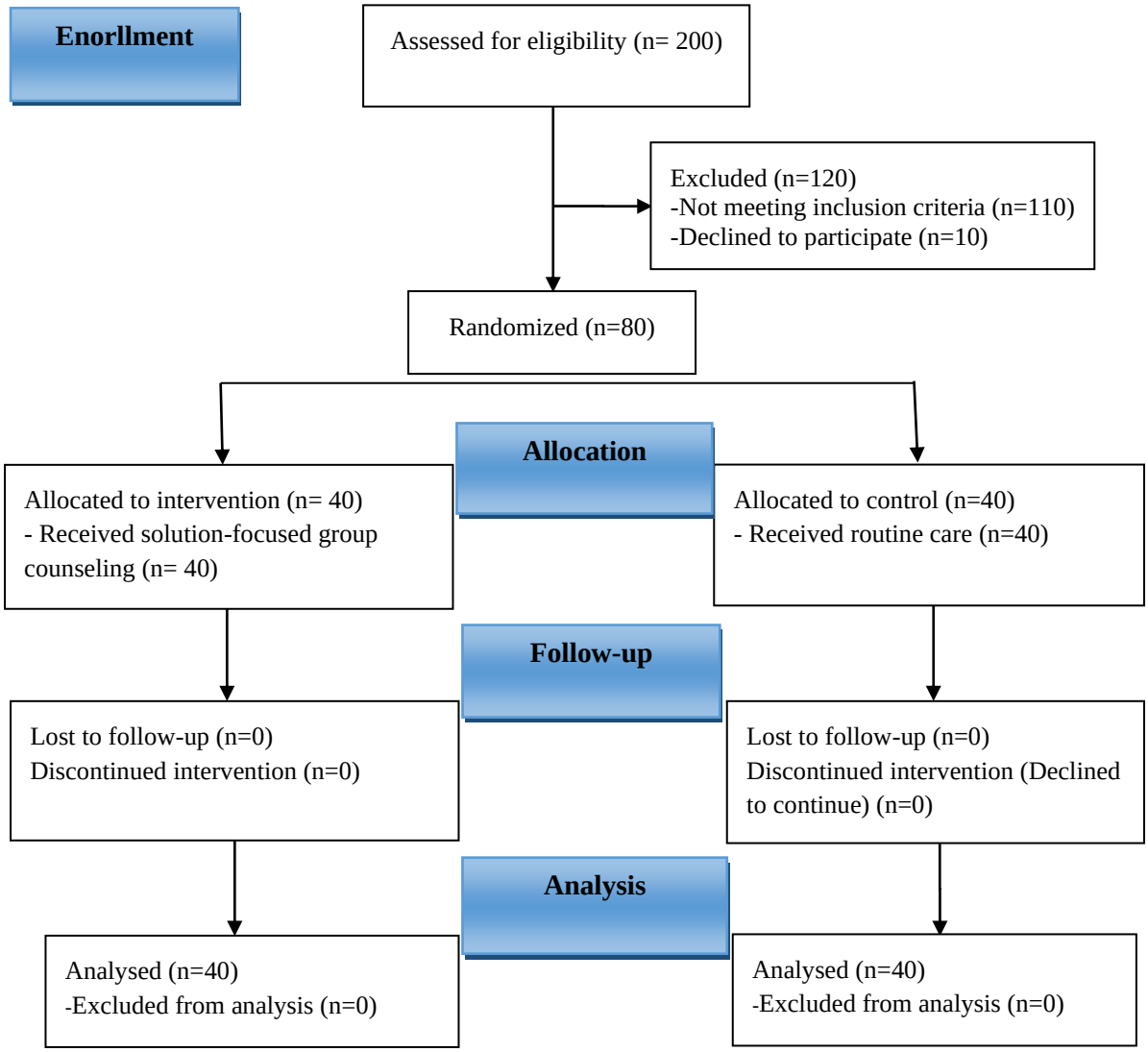

Figure 1. Flowchart of the effect of solution-focused group counseling on pregnancy anxiety

Data were analyzed using SPSS software (version 23). The normality of data was assessed using the Kolmogorov-Smirnov test. The independent t-test was used to compare continuous variables with normal distribution, and chi-square and Fisher's exact tests were employed to compare nominal variables. A comparison of the mean scores of pregnancy anxiety between the two groups before and after the intervention was performed using the independent t-test and in one group before and after the intervention using the paired t-test. Also, the mean scores of pregnancy anxiety between the two groups after the intervention was compared using the Analysis of Covariance (ANCOVA). The partial eta squared (η^2) was considered as the effect sizes. $p<0.05$ was considered statistically significant.

Table 1: Structure and content of the sessions

Sessions*	Content
First	Introducing and familiarizing the members, a general explanation about the intervention protocol and the research topic, stating the instructions for attending the group, and determining the problem. Assignment: Writing the goal based on the changes you seek to make from attending the sessions.
Second	Asking the participants to express their expectations and desires from attending the sessions, modifying and setting goals positively and objectively, using scaling questions, and asking the participants to express solutions. Assignment: Writing a list of affairs which carried out so far to relieve pregnancy anxiety and presenting them.
Third	Exploring exceptions, identifying the capabilities and successes of participants, using scaling questions and the commendation technique, and encouraging participants to increase their current helpful behaviors and not to perform current unfavorable behaviors. Assignment: Think of exceptions to your problem, and writing them down, and presenting them.
Fourth	Creating solutions and recommending their continuous use, evaluating the goal achievement, using scaling questions, the commendation technique in case of progress, evaluating the causes of lack of progress, helping the participants to find appropriate ways to think, feel, and behave instead of the current problematic thinking, feeling, and behaving, using the miracle question, using the "instead" technique and coping questions. Assignment: Listing the techniques you have used to achieve your goal and writing their impacts on pregnancy anxiety.
Fifth	Reviewing the contents of the previous sessions, summarizing and concluding, evaluating the goal achievement with scaling questions, praising the participants for performing positive behaviors and reducing negative behaviors, conducting the post-test, acknowledging and appreciating the participants for attending the sessions.

* In each session, the topics discussed in the previous session were reviewed, assignments were given, and the assignments of the previous session were reviewed.

Ethical Consideration

This research was approved by the Ethics Committee of Arak University of Medical Sciences (ethics code: IR.ARAKMU.REC.1400.277) and was registered in Iranian Registry Clinical Trial site (IRCT20220125053827N1). In order to observe the research's ethical principles, participants were provided with explanations regarding the research purpose and nature, the voluntary participation, the right to withdraw from the research at any time, and confidentiality and anonymity. Written informed consent was also obtained. Questionnaires were filled out with complete privacy for the participants. After the end of the study, solution-focused group counseling was implemented for two sessions in the control group as well.

Results

The participants in this research included 80 anxious pregnant women with mean age of 29.01±4.17 years. Most of participants were housewives, had a diploma, wanted pregnancy, and no history of abortion. The participants' mean gestational age was 30.46±1.21 weeks, and the majority of them had a favorable economic status from their own perspective. The two groups were compared in terms of personal and obstetrics characteristics, and no statistically significant difference was found between the intervention and control groups ($p>0.05$) (Table 2).

Before implementing the t-test, the assumption of normality of distribution of the mean total scores of pregnancy anxiety and its subscales in the two groups was confirmed using the Kolmogorov-Smirnov test ($p>0.05$). Independent t-test results indicated no statistically significant

difference between the two groups in the mean total scores of pregnancy anxiety and its subscales before the intervention ($p \geq 0.05$); however, after the intervention, there was a significant difference between the two groups ($p<0.001$, $p<0.001$, and $p=0.037$, respectively), except for the subscale of concern about one's own appearance ($p=0.564$).

Table 2: Demographic and obstetrics characteristics in the control and intervention groups

Variables	Intervention N=40	Control N=40	*p*-value
Age (year) (Mean±SD)	28.45±4.93	29.57±3.21	0.231*
Duration of marriage (year) (Mean±SD)	8.11±5.10	7.19±3.86	0.369*
Gestational age (week) (Mean±SD)	30.62±1.19	30.30±1.22	0.232*
Job status, N (%)			
Housewife	35 (87.5)	35 (87.5)	1
Employed	5 (12.5)	5 (12.5)	
Education, N (%)			
Lower than Diploma	9 (22.5)	13 (32.5)	
Diploma	17 (42.5)	17 (42.5)	0.498**
Higher than Diploma	14 (35)	10 (25)	
Number of births, N (%)			
0	19 (47.5)	13 (32.5)	0.175**
≥1	21 (52.5)	27 (67.5)	
History of abortion, N (%)			
No	31 (77.5)	33 (82.5)	0.577**
Yes	9 (22.5)	7 (17.5)	
Wanted pregnancy, N (%)			
No	6 (15)	6 (15)	1
Yes	34 (85)	34 (85)	
Wanted fetus gender, N (%)			
No	15 (37.5)	13 (32.5)	0.639**
Yes	25 (62.5)	27 (67.5)	
Experiences of complications (spotting and nausea) during pregnancy, N (%)			0.617**
No	30 (75)	28 (70)	
Yes	10 (25)	12 (30)	
Self-reports of economic status, N (%)			
Poor	1 (2.5)	2 (5)	
Fairly good	15 (37.5)	17 (42.5)	0.720***
Good	24 (60)	21 (52.5)	

*Independent t-test, **Chi-square test, ***Fisher's exact test

Although there were no statistically significant differences between the two groups in demographic variables, mean total scores of pregnancy anxiety, or its dimensions before the intervention, ANCOVA test was employed for a more detailed examination of the effect of SFBT on pregnancy anxiety. After verifying the assumptions, the pre-test score was regarded as a covariant. After adjusting for the pre-test scores, there was a significant difference between the two groups in the mean total scores of pregnancy anxiety and all three subscales at post-test ($p=0.001$) (Table 3). As indicated by the obtained eta values, the magnitude of the difference between the groups in mean total scores of pregnancy anxiety is very large. This large effect size denotes that the intervention had the greatest impact on the subscale of fear of giving birth and the least on the subscale of concern about one's own appearance (Table 3).

The paired t-test also showed a significant decrease in the mean total score of pregnancy anxiety and its subscales in the intervention group ($p<0.001$) and a significant increase in the control group compared to before the intervention (Table 3). Since 60% of the participants were multiparous, the

mean total score of pregnancy anxiety for both groups of nulliparous and multiparous women showed a similar trend to the mean total score of pregnancy anxiety in all participants (Table 3).

Table 3: The scores of subscales and total score of pregnancy anxiety of the participants in the intervention and control groups before and after the intervention

Subscales of pregnancy anxiety		Intervention N=40 Mean ± SD	Control N=40 Mean ± SD	Independent t-test *p*-value	Effect size η^2	ANCOVA test *p*-value
Fear of giving birth	Pre-test	9.95±2.52	11.07±2.52	0.050	0.84	0.001
	Post-test	8.05±2.09	12.92±2.30	<0.001		
Paired t-test	*p*-value	<0.001	<0.001			
Worries about bearing a physically or mentally handicapped child					0.58	0.001
	Pre-test	8.07±3.23	7.45±3.20	0.388		
	Post-test	7.02±2.93	8.57±3.57	0.037		
Paired t-test	*p*-value	<0.001	<0.001			
Concern about one's own appearance	Pre-test	4.72±2.09	4.02±1.80	0.114	0.27	0.001
	Post-test	4.05±2.01	4.30±1.84	0.564		
Paired t-test	*p*-value	<0.001	0.032			
Total score of pregnancy anxiety in all participants	Pre-test	22.75±4.51	22.55±3.90	0.833	0.93	0.001
	Post-test	19.12±4.36	25.80±3.87	<0.001		
Paired t-test	*p*-value	<0.001	<0.001			
Total score of pregnancy anxiety in nulliparous participants	Pre-test	22.47±4.76	22.38±4.09	0.957	0.95	0.001
	Post-test	18.94±4.58	25.69±4.04	<0.001		
Paired t-test	*p*-value	<0.001	<0.001			
Total score of pregnancy anxiety in multiparous participants	Pre-test	23.00±4.37	22.62±3.90	0.758	0.92	0.001
	Post-test	19.28±4.25	25.85±3.86	<0.001		
Paired t-test	*p*-value	<0.001	<0.001			

Discussion

The purpose of the present study was to determine the effect of solution-focused group counseling on pregnancy anxiety of pregnant women who do not attend childbirth preparation classes. According to the results, counseling significantly reduce the mean total score of pregnancy anxiety in the intervention group compared to the control group. This reduction occurred for both nulliparous and multiparous women. In other studies conducted only on nulliparous women, solution-focused counseling culminated in a significant reduction in the mean total score of pregnancy anxiety (9) and general anxiety (11, 12, 20).

In the current research, the mean scores of the "fear of giving birth" and "worries about bearing a physically or mentally handicapped child" subscales decreased significantly following counseling, which are consistent with the results of other studies (6, 9). Contrary to the results of Mortazavi et al.'s study in 2021 (9), in the present study, the mean score of the "concern about one's own appearance" subscale had no significant decrease after the intervention. This inconsistency could be due to that 60% of the participants in the current study were multiparous, while all the participants in their study were nulliparous. It is expected that multiparous women, compared to nulliparous women, have less worry about the changes in their appearance after childbirth, or that concern about one's own appearance, compared to the other two subscales, is less raised as a problem by participants in the present study. In solution-focused counseling, it is the client who raises the problem and seeks a solution for it.

In the present study, none of the participants had attended childbirth preparation classes. The mean total score of pregnancy anxiety and its subscales significantly increased during the post-test in the control group. This increase probably corresponds to the U-shaped pattern of pregnancy anxiety,

indicating increased anxiety in the first and third trimesters and decreased anxiety in the second trimester. Similar to the results of the present study, in FathiZadeh et al.'s study (2016), in which individuals in the control group did not attend childbirth preparation classes, a significant increase was observed in the control group in the mean total score of pregnancy anxiety and its subscales (14); however, in another study that individuals in the control group attended childbirth preparation classes, these values were almost constant and had no significant difference (9), showing that attending these classes probably prevented increasing the pregnancy anxiety score in the control group.

In the present research, holding classes in groups led pregnant mothers to realize that others experience the same fears as them and they are not alone. This made the participants support each other and solve challenges with appropriate modeling because when individuals are involved in similar issues, they feel more secure and relaxed, they are more inclined to discuss their family and personal problems, and they tend to benefit from the experiences of others in a safe environment (7), resulting in facilitating the process of coping with anxiety and adjustment to changes.

One of the strengths of the current research is that individuals with a history of abortion or unwanted pregnancy and multiparous women were also included in the study, which can have a positive impact on the generalizability of the results. The results showed that multiparous women, similar to nulliparous women, could be involved in pregnancy anxiety and benefit from anxiety reduction interventions. Therefore, it is recommended that multiparous women be also taken into account in the design of future interventions. The present study had some limitations. This research was conducted on a particular population of pregnant women, women with the characteristics of the participants (for example, women aged 18-35 years, singleton, etc.). Hence, the results are not generalizable to other populations of pregnant women who lack the characteristics of the participants in the present study. Thus, it is recommended that similar studies be conducted on pregnant women with characteristics different from the characteristics of our participants. Participation in counseling courses with content similar to the current intervention was an exclusion criterion in this study, however, participants may have also obtained intervention-related information from other sources. It is also recommended that follow-up be carried out in future studies to investigate the long-term effect of solution-focused therapy. In addition, the effect of this approach in relieving pregnancy anxiety should be compared with other interventions.

Implications for practice

As evidenced by the results of this study, solution-focused group counseling culminated in reduced pregnancy anxiety in pregnant women who did not attend childbirth preparation classes. This reduction occurred in both nulliparous and multiparous women. Therefore, this intervention can be employed to manage pregnancy anxiety. It is recommended that this approach be taught to health service providers, including midwives, so that it can be implemented for anxious pregnant women.

Acknowledgments

The authors gratefully acknowledge the Research Council of Arak University of Medical Sciences for the financial support (Grant Number: 6615) and also all the participants who shared their experiences with us and helped to conduct this study.

Conflicts of interest

The authors declared no conflict of interest.

Funding

The present study was funded by the Research Council of Arak University of Medical Sciences (Grant Number: 6615).

Authors' Contributions

Sakineh Taherkhani and Fatemeh Mazraei Farahani conceived and designed the study. Fatemeh Mazraei Farahani and Efat Noroozi performed the intervention. Efat Noroozi participated in the study design. Fatemeh Mazraei Farahani collected the data. Azam Moslemi carried out the statistical analysis and participated in study design. Sakineh Taherkhani supervised the study. Sakineh

Taherkhani and Fatemeh Mazraei Farahani drafted the manuscript. All authors reviewed and approved the final manuscript.

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