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The Impact of Self-Care Counseling on Quality of Life in Pregnant Women with Gestational Hypertension

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ABSTRACT

Background & aim: Pregnancy with high blood pressure is one of the high-risk pregnancies and requires more healthcare to prevent maternal and fetal complications. Therefore, this study was designed to investigate the effect of self-care counseling on quality of life in pregnant women with hypertension.

Methods: This clinical trial was performed on 90 pregnant women with gestational hypertension referred to Sabzevar health centers between 2021 and 2022. Sample were selected by convenience sampling and divided into intervention and control groups by random assignment. In addition to receiving routine care sessions, the intervention group received four 45- to 60-minute sessions of self-care counseling according to the GATHER model each week. The control group received routine care. Data were collected using a quality of life questionnaire (sf-36) and analyzed by SPSS software version 25 using independent and paired t-test, Mann-Whitney and analysis of covariance.

Results: There was no significant difference in the mean quality of life score in the intervention and control group (47/33 ± 5/65 vs 49/77 ± 5/55) before intervention. However, after the intervention, there was a significant difference between the two groups (p <0/001). The mean score of quality of life in the intervention group was 76/07 ± 5/01 and in the control group was 48/73 ± 6/75.

Conclusion: Considering the effect of self-care counseling on quality of life improvement in pregnant women with hypertensive disorders, it is recommended to tailor and implement such counseling interventions to increase quality of life in these vulnerable population during pregnancy.

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Introduction

Blood pressure disorders severely affect the quality of life of pregnant women with these disorders and they are known to be one of the main causes of maternal mortality in the perinatal period. The prevalence of this disorder in the world is reported to be approximately 5 to 10% (1). Blood pressure disorders in pregnancy increased from 3.57 to 5.86 per thousand hospital births in the world from 1994 to 2016 (2). In a study in Tehran, this rate was reported at 6/5% in 1396 (1). Blood pressure disorders in pregnancy classified to preeclampsia and eclampsia, chronic hypertension of any etiology, chronic hypertension added to preeclampsia syndrome, gestational hypertension (for which there is no conclusive evidence of preeclampsia and hypertension resolves by 12 weeks

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postpartum.). High blood pressure in pregnancy means a systolic blood pressure greater than or equal to 140 mm Hg and diastolic blood pressure greater than or equal to 90 mm Hg. Hypertension in the second half of pregnancy without proteinuria is differentiated from preeclampsia syndrome. Proteinuria with the diagnosis of hypertension is an objective indicator of preeclampsia and indicates a general leakage of the endothelial system. Blood pressure disorders can lead to preterm labor, fetal growth retardation, placental abruption, thromboembolism, and maternal death and endanger the health of mother and fetus (3). Many changes occur in women's body during pregnancy, that makes them both physically and mentally vulnerable and reduce their quality of life (4). In pregnant women with chronic diseases, these changes are more important and puts their quality of life more in focus in health care (5).

Quality of life is a multidimensional and complex concept and in fact includes objective and subjective factors and often defined as a personal understanding of life satisfaction, physical health, social and family health, social etiquette, and mental health (3). These dimensions can be measured during pregnancy (6). Changes in quality of life in high-risk pregnancies, such as pregnant women with gestational hypertension, in addition to the mother, also changes the performance of her family and reduces the quality of life in other members of her family (7). Falcão et al. (2016) in a study entitled "The relationship between blood pressure and quality of life in pregnancy" showed that the quality of life in pregnant women with gestational hypertension was lower and the incidence of more pathological complications in mother and fetus is higher than pregnant women with normal pregnancies (8). Low quality of life in pregnant women leads to increased anxiety, low birth weight and increased birth mortality (3). Another study showed that low quality of life in women with high-risk pregnancies such as gestational hypertension is associated with an increased incidence of depressive symptoms during pregnancy and postpartum (9). In the study of Black KD et al. (2007), a significant relationship was observed between low quality of life and the incidence of preeclampsia with gestational hypertension (10). Numerous factors such as age, education, duration of disease, complications of hypertension, side effects of medications and comorbidities affect the quality of life of patients with hypertension (11). Libbus MK et al. (1991) in their study showed that prenatal care education, especially in high-risk pregnant women such as women with hypertension or gestational diabetes, reduces the incidence of pregnancy complications, delivery risks and subsequent issues (12).

Self-care behaviors increase client awareness and satisfaction, increase participation in health care programs and reduce the Possibility of hospitalization and related costs of patients with chronic diseases (13). Self-care is a conscious, learned, and purposeful action that a person takes to maintain own life and the health of oneself and one's family (14). Conscious self-care by the mother during pregnancy can ensure the health of her and the fetus during pregnancy, delivery and postpartum. Pregnant women need information, skills, and social support to be able to take care of themselves during pregnancy so that they can adopt the right behaviors to take care of themselves (15). In previous research, individual and group training has been able to increase the knowledge, attitude and self-care skills of people with chronic diseases such as diabetes (16). However, there are several studies that indicate a lack of proper self-care in these mothers (17). This indicates the inadequacy of existing interventions and care to correct the self-care behaviors of mothers with gestational hypertension during pregnancy.

Counseling is one of the midwifery interventions to increase women's awareness. Conscious choice helps to improve the behavior of clients to be able to meet the needs and solve problems related to their health and to examine their health problems and make the right decisions (18). Counseling can also be done in groups, group counseling is a two-way process in which a counselor and a group of people in similar situations scrutiniz problems and attitudes and it is an effort to improve the knowledge and perceptions of the individuals so that they can take better action to solve their problems. Members' reactions to each other are much greater in group counseling, and this leads

to more insight (19). Also, when counseling is done to provide information and prevent disease and problems, group counseling is more cost-effective in terms of time and cost than individual counseling (20).

In self-care counseling, the counselor helps the clients to be able to identify their needs by gaining the necessary knowledge and ability, and to reduce the problems and complications caused by their illness by modifying their self-care behaviors (21). Self-care counseling monitors the performance of pregnant women such as: rest and activity, nutrition and diet care, disease and injury care, health care follow-up and pregnancy and delivery awareness, it relies on the pregnant mother's ability to take care of herself. Self-care counseling can be done through the GATHER counseling steps (15). Mir Mohammadi et al. (2017) in a clinical trial study showed a significant relationship (p <0/05) between counseling based on GATHER counseling steps and adherence to clinical examination and breast mammography (22). Ganji et al. (2017) in a clinical trial on 45 patients with hypertension showed that the self-care education program in 4 sessions has improved the quality of life and health literacy of patients with chronic hypertension (23). In the study of Wang et al. (2019), a significant relationship (p <0/05) was observed between self-care education and quality of life in patients with breast cancer treated with chemotherapy (24).

Due to the fact that having gestational hypertension during pregnancy is in the category of high-risk pregnancies, so it requires more care to prevent complications. Also, despite the existence of routine pregnancy care in pregnancy care centers and the lack of special counseling and education for pregnant women with hypertension, many problems have remained in relation to quality of life and self-care behaviors of patients with hypertension. So, solving these issues require the use of more effective approaches (15, 17). Therefore, the present study was conducted to determine the effect of self-care counseling on the quality of life of pregnant women with gestational hypertension.

Materials and Methods

This two-group clinical trial study with pretest-posttest design was conducted in 2021-2022 on 90 pregnant women with gestational hypertension referred to Shahidan-Mobini Obstetrics and Gynecology Hospital in Sabzevar. This study was registered in the Clinical Trial Registration Center with the code (IRCT20201117049426N1) after obtaining permission from the ethics committee of Mashhad University of Medical Sciences (ethics code: IR.MUMS.NURSE.REC.1399.091). The reason for choosing this center was the high cooperation of the officials and the high number of patients in this hospital. The inclusion criteria for this study were : Satisfaction to participate in research, aged over 18 years old, gestational age betweeen 24 to 32 weeks, have the ability to communicate verbally, being Iranian and living in Sabzevar, medical diagnosis of gestational hypertension by measuring systolic blood pressure greater than or equal to 140 mm Hg or diastolic blood pressure greater than 90 mm Hg more than twice measured, diagnosis of mild preeclampsia without serious complications, no drug addiction (Psychedelics and stimulants, alcohol, cigarettes and hookah), Lack of underlying diseases that require constant medication (Heart, Respiratory, Kidney Diseases, Thyroid Disorders, Epilepsy, Hypertension, Anemia, Orthopedic Limitations, Immune Diseases), no serious problems and other medical and obstetric complications (Pregnancy poisoning, diabetes, fetal malformation and erythroblastosis, amniotic fluid disorders, abnormal bleeding, placenta previa, twin pregnancy), fetal malignancy, gestational toxicity), have a phone number to call, have a minimum literacy and a desire to participate in the study. Exclusion criteria also include: hospitalization and termination of pregnancy due to hypertension, severe preeclampsia and eclampsia, not attending counseling sessions for more than one session and unwillingness to continue the intervention. The sample size was determined by using the article of Aghajani et al. (25) with 95% confidence level and 80% statistical power. At least 41 samples were determined in each group that for more accuracy and the possibility of dropping the sample by 10%, eight people were added to it and finally the number of samples in each group was determined to be 45 people

$$n = \frac{(z_{1-\frac{\alpha}{2}} + z_{1-\beta})^2(\sigma_1^2 + \sigma_2^2)}{(\mu_1 - \mu_2)^2}$$

Sampling was done by available method and 90 pregnant women with hypertension were selected. Then the participants were divided into control and intervention groups by simple randomization method and using a table of random numbers generated by the software, Thus, in the table of random numbers, the first random number selected belonged to the intervention group and the second random number belonged to the control group. In addition to receiving routine care, the participants in the intervention group participated in 4 group counseling sessions that were held by the researcher for 45 to 60 minutes each week in health centers. Group counseling sessions were held with 4 to 6 pregnant mothers and a total of 40 group counseling sessions were held for these mothers. The mothers who were in the same group in the first counseling session were together in other sessions. In the group counseling sessions, the researcher, while introducing herself to the clients and explaining the purpose of this research and its benefits, assured the clients that this data will remain completely confidential and the results will be presented in general. Then they were asked to sign an informed consent form to participate in the study if they would like to cooperate. It was considered for quiet and private environment for counseling and counseling was done in the form of GATHER counseling steps (Greet, Ask, Tell, Help, Explain, and Return). In group counseling sessions, the counselor first explained the purpose of the forming the group and their duties. The goals of counseling included identifying mother's problems with self-care, prioritizing the problems, advantages and disadvantages of the problems, reviewing available solutions to their problems and deciding on women's free choice of self-care behaviors. The counselor's duty was to guide, encourage group participation, and facilitating. The group rules were proposed by the counselor, and the counselor sought to establish a therapeutic relationship that was accomplished through the skills of listening, empathy, companionship, understanding emotions, attention, and other techniques. The content of the counseling sessions was as follows:

Session 1: Greetings to pregnant mothers and open-ended questions, Group Q&A with mothers about their own problems and needs, identify misconceptions about physical, mental health and Self-care behaviors and encourage them to think about ways to reduce the risk to the mother and fetus. (G and A)

Session 2: Providing self-care counseling based on the needs and problems of mothers, provide information to pregnant mothers about the proper physical activity for them, proper diet of these mothers, manage stress and improve relationships of these mothers in interaction with family and Acquaintances, strengthen awareness about self-care and effective ways to reduce maternal and fetal risks (T).

Session 3: Helping to freely choose the best self-care behaviors. In this session, the counselor used group problem-solving techniques to explore possible solutions to the remaining problems of mothers, and after prioritization, the best solution for performing correct self-care behaviors was freely selected by mothers. (H)

Session 4: The counselor strengthened the awareness and reviewed the content, explained to the mother about how to use the correct self-care behaviors according to the individual needs of mothers. Also in the fourth session, follow-up times and weekly contacts with mothers were explained (E and R).

Data were collected by using demographic characteristics questionnaire and quality of life questionnaire (SF-36) in two stages, before the intervention and two weeks after the intervention in the control and intervention groups.

The standard quality of life questionnaire (SF 36: Quality of life) examines the quality of life in eight dimensions. In this questionnaire role disorder due to mental health with 3 two-choice questions, role disorder due to physical health with 4 two-choice questions, physical function with 10 three-choice questions, feeling cheerful with 4 six-choice questions, , social function

with 2 five-choice questions mental function with 5 six-choice questions, feeling of pain and helplessness with 2 five-choice questions and a sense of general health with 5 five-choice questions was measured and there is a question related to the feeling of changing health that is not included in any of the dimensions of the questionnaire and is only added to the total score. The scale of the items in this Likert questionnaire is between 1 and 5. The range of scores of this questionnaire is between 0 and 100 and the higher score shows the better score of quality of life. The validity and reliability of the Persian version of the Quality of Life Questionnaire has been confirmed in the study of Montazeri et al. (26) Internal reliability of SF-36 quality of life questionnaire was calculated by internal consistency (Cronbach's alpha) and r = 0.92 was obtained, which indicates the internal reliability of the questionnaire. Reliability was also based on test-retest (p <0.001, r = 0.92), which indicates the external reliability of the questionnaire. At first, the normality of quantitative data distribution was determined by Kolmogorov-Smirnov test and depending on the normality or abnormality of the data, parametric or non-parametric tests suitable for both control and intervention groups were used. Descriptive statistical methods were used to describe the demographic characteristics of participants and independent t-test and Mann-Whitney test were used to compare the groups and paired t-test and Wilcoxon test were used to compare before and after data in each group. Independent t-test was used for confirmation of group homogeneity for a small variable, Mann-Whitney for ranking variable and Chi-square for nominal variable. For this purpose, SPSS statistical software version 25 was used and the significance level of P value was less than 0.05.

Results

The two groups were examined for homogeneity of confounding variables by using relevant tests, which is presented in Table 1. Comparison of indices with t-test, chi-square and Fisher's exact test was performed. There is no statistically significant difference between the control and intervention groups in terms of the following variables, except for the history of hypertension in first degree relatives the two groups are homogeneous in terms of these variables. But the history of hypertension in first degree relatives was 37/8% in the control group and 64/4% in the intervention group which had a statistically significant difference between the two groups (p = 0.011) (Table 1).

Comparison of quality of life score indicators was performed using Mann-Whitney, t-test, paired t-test and Wilcoxon tests. The results of independent t-test showed that there was a significant difference in quality of life score between the control and intervention groups before counseling (p = 0/04). Also, after counseling, the quality of life score in the two groups was significantly different (p <0/001). The mean score of quality of life in the difference after counseling compared to before was -1/34 ± 4/3 in the control group and 28/74± 7/1 in the intervention group. The result of Mann-Whitney test showed that there was a significant difference between the two groups (p <0/001) (Table 2).

Due to the significant difference in quality of life score before the intervention and history of hypertension in first degree relatives and adjusting their effect on the intervention, analysis of covariance was used to assess the quality of life score after the intervention between the two groups. Also, the defaults of covariance analysis such as: continuity of quality of life variable, the confounding variable of the history of hypertension in first degree relatives was qualitative variable, independence of observations, absence of discarded data and normality of residues were examined. By controlling the history of hypertension in first degree relatives (p = 0/06) and quality of life before counseling (p <0/001), the average quality of life score in the intervention group was higher than the control 29/13 which was also statistically significant (p <0.001) (Table 3).

Table1. Demographic characteristics of control and intervention groups

Variables	Average	Control N=45	Intervention N=45	Test result
Age	30.03 ± 6.22	30.64 ± 6.32	29.42±6.13	T=0.93 P=0.354
BMI	29.08±4.61	29.57 ± 4.64	28.59 ± 4.57	T=1.006 P=0.317
Education				
High school	26(28.9)	9(20.0)	17(37.8)	
Diploma	39(43.3)	2(46.7)	18(40.0)	χ2=3.69 p=0.158
University	25(27.8)	15(33.3)	10(22.2)	
Spouse's Education				
High school	30(33.3)	17(37.8)	13(28.9)	
Diploma	34(37.8)	14(31.1)	20(44.4)	χ2=1.74 p=0.418
University	26(28.9)	14(31.1)	12(26.7)	
Female occupation				
housewife	68(75.6)	33(73.3)	35(77.8)	
Employed	22(24.4)	12(26.7)	10(22.2)	χ2=0.24 p=0.624
Male Occupation				
Unemployed	3(3.3)	1(2.2)	2(4.4)	
Employee	32(35.6)	14(31.1)	18(40.0)	χ2=1.28 p=0.529
Freelance job	55(61.1)	30(66.7)	25(55.6)	
Income				
Sufficient	53(58.9)	24(53.3)	29(64.4)	
Insufficient	5(5.6)	4(8.9)	1(2.2)	χ2=2.39 p=0.286
Almost sufficient	32(35.6)	17(37.8)	15(33.3)	
Number of Children	1(2)	1(2)	1(2)	Z=0.32 p=0.746
Gestational age	30(4)	30(3)	29(4.5)	Z=0.78 p=0.380
Type of hypertension				
Gestational hypertension	89(98.9)	45(100)	44(97.8)	χ2=1.01 p>0.99
Mild preeclampsia	1(1.1)	0(0.0)	1(2.2)	
History of hypertension in 1st degree relatives				
Positive	46(51.1)	17(37.8)	29(64.4)	χ2=6.4 p=0.011
Negative	44(48.9)	28(62.2)	16(35.6)	

Table 2. Comparison of quality of life scores in the control and intervention groups before and after counseling

Quality of Life	Control N=45	Intervention N=45	Test result
Pre-consultation	49.77 ± 5.55	47.33 ± 5.65	T=2.06 P=0.04
weeks after 2 consultation	48.73 ± 6.75	76.07 ± 5.01	T=21.47 P<0.001
The difference later than before the consultation	-1.34 ± 4.83	28.74 ±7.1	T=23.15 P<0.001

Table 3. Analysis of covariance to evaluate the quality of life score in two groups of control and intervention groups

Variable	Regression coefficient	standard error	Test result
Quality of life 2 weeks after intervention			
Intervention	29.13	1.19	T=24.36 P<0.001
Control			
History of hypertension in 1st degree relatives			
Positive	-2.18	1.18	T=1.84 P=0.06
Negative			
Quality of life before intervention	0.44	0.1	T=4.26 P<0.001

Also, in the Review of quality of life dimensions before counseling in the control group, the dimensions of emotional well-being, energy / fatigue and general health had the highest score, respectively and in the intervention group, the highest scores were reported for the dimensions of emotional well-being, general health, social function, physical function and energy / fatigue.

After counseling, all aspects of quality of life showed statistically significant changes compared to before the intervention (p <0/001). In the control group, emotional well-being, energy / fatigue and general health had the highest scores, and in the intervention group, the highest scores were reported for the dimensions of physical function, role disorder due to emotional health, social function, and pain.

Table 4. Mean and standard deviation of quality of life dimensions in the two groups of control and Intervention

Dimensions	Control N=45	Intervention N=45	Test result
Physical function			
Pre- Counseling	50(11.11)	50(9.72)	Z=0.88 P=0.377
After Counseling	44.44(16.67)	83.33(11.11)	Z=8.04 P<0.001
Role disorder due to physical health			
Pre- Counseling	50(50)	25(25)	Z=1.69 P=0.091
After Counseling	50(50)	75(0)	Z=4.82 P<0.001
Role disorder due to emotional health			
Pre- Counseling	33.33(33.33)	33.33(33.33)	Z=1.08 P=0.280
After Counseling	33.33(33.33)	66.66(33.33)	Z=6.52 P<0.001
Energy / Fatigue			
Pre- Counseling	55(15)	15(45)	Z=4.12 P<0.001
After Counseling	55(15)	70(10)	Z=5.56 P<0.001
Emotional well-being			
Pre- Counseling	60(12)	52(15)	Z=2.58 P=0.010
After Counseling	56(12)	74(4)	Z=6.85

Dimensions	Control N=45	Intervention N=45	Test result
			P<0.001
Social function			
Pre- Counseling	50(0)	50(12.5)	Z=1.19 P=0.233
After Counseling	50(12.5)	75(25)	Z=6.82 P<0.001
Pain			
Pre- Counseling	35(12.5)	45(10)	Z=3.39 P=0.001
After Counseling	35(12.5)	77.5(12.5)	Z=7.9 P<0.001
General health			
Pre- Counseling	55(15)	45(25)	Z=1.36 P=0.173
After Counseling	55(15)	75(8.75)	Z=6.72 P<0.001
Physical health			
Pre- Counseling	185(50.78)	174.16(45.42)	Z=0.25 P=0.802
After Counseling	166.94(58.61)	306.66(34.93)	Z=7.98 P<0.001
Mental health			
Pre- Counseling	212.88 ±31.54	192.34 ±32.67	Z=3.03 P=0.003
After Counseling	208.1 ±33.23	296.38 ±28.39	Z=13.33 P<0.001

Discussion

The prevalence of hypertensive disorders in pregnancy is high and increasing, and women with these disorders face many problems. The present study was conducted to determine the effect of self-care counseling on quality of life in pregnant women with high blood pressure. The findings generally showed that self-care counseling improved the average score of quality of life in pregnant women with hypertension and this indicates the effect of counseling in the study.

Ganji et al. (2017) in an interventional study titled "The effect of self-care education on quality of life and health literacy of patients with hypertension " were examined 90 patients with hypertension referred to Mashhad health centers in the control and intervention groups. The intervention group received a self-care education program in four 45 minutes' sessions as group discussion and lecture. Post-test was performed 4 weeks after the training sessions and the results showed a positive effect of self-care education program on quality of life as well as health literacy of patients with hypertension. After the intervention, a statistically significant difference was observed in the intervention group before and after the intervention (21). These findings are consistent with the results of the present study. Also, Aulia et al. (2018) in their clinical trial that was performed on 48 patients with hypertension, found that counseling sessions can have a positive effect on the quality of life of hypertensive patients and regulate their blood pressure. These results are also consistent with the findings of the present study (27).

In 2020, Zandi Nova et al. conducted a clinical trial titled" The effect of educational package on self-care behavior and quality of life in women with gestational diabetes". In this study, 92 pregnant women with gestational diabetes were investigated. The intervention group participated in four training sessions (one hour) each week in the form of lectures and question-and-answer method. Data analysis did not show a statistically significant difference in the mean score of quality of life before and after the

intervention between the control and intervention groups. These results are not consistent with the results of our study (28). In the study of Zandi Nova et al., the quality of life score was measured four weeks after self-care training and in our study the quality of life score was measured two weeks after the intervention. Considering that the quality of life score may change in the long time, so the possible reason for the inconsistency may be the lack of long-term follow-up of quality of life in our study. Also, the intervention program in our study was counseling that is different from the educational intervention program. Therefore, it seems that by conducting self-care counseling, it is possible to improve the quality of life of pregnant women with hypertension, and using this approach help to prevent the maternal and fetal complications of low quality of life in these women, Therefore, the inclusion of counseling programs to improve the quality of life of women with high-risk pregnancies such as gestational hypertension is recommended.

Explaining these findings based on the research of Rasouli et al. (17), it can be said that proper counseling about self-care helps patients to make appropriate changes in their self-care behaviors .It should be known that one of the main goals of self-care counseling is to increase patients' self-awareness and knowledge of the nature of their disease because the patient's knowledge of the disease and the factors affecting it, is very important in controlling and improving the disease. It can also be said that counseling about patients' self-care behaviors leads to increased knowledge and awareness, improved quality of life, reduced anxiety, increased client satisfaction, reduced morbidity, and increased patient participation in health care programs and patient independence in daily activities.

One of the limitations of this study is the individual differences in the effectiveness of the training provided in counseling sessions. Also, ensuring the accuracy of the answers given by the participants was another limitation of this study. To control this limitation, it was tried to be ensured of the honesty of the participants in answering to the questions and reflecting the facts by providing explanations and gaining subjects' confidence.

It is suggested that future studies examine the educational and counseling needs of women with high-risk pregnancies in terms of quality of life and self-care measures, explaining the barriers and facilitators of self-care activities in women with high-risk pregnancies and patients with chronic diseases through qualitative research and also compare other counseling methods with the method used in this study on the quality of life of pregnant women with hypertension.

Conclusion

The results showed that the quality of life of pregnant women with hypertension will be improved by education and counseling programs. The results of this study can be used in planning to raise awareness and knowledge of pregnant women with hypertension in the field of self-care measures to control the disease. Also, it provides a new way of providing self-care counseling services to health care providers and midwives, and leads to more patient satisfaction in making the right decision about self-care behaviors in high-risk pregnancies such as hypertension. The results of this study showed that by improving the quality of life, pregnant mothers will feel better about their pregnancy and will be able to take better care of their health and that of their fetus. Having a high-risk pregnancy is often associated with unpleasant experiences and the decision to not to be pregnant in the future. But with proper control of pregnancy and providing healthy and satisfactory conditions for mothers and improving their quality of life, the possibility of making decision for more childbearing and spending it in healthy conditions will be increased.

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Conflicts of interest

Authors declared no conflicts of interest.

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