The Effect of Counseling on the Pregnant Women's Stress of Covid-19: A Clinical Trial Study

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Abstract
Objective: Due to the Covid-19 pandemic crisis, which causes stress and threatens health, especially in vulnerable groups including pregnant women, the present study was conducted to determine the effect of individual counseling on the pregnant women's stress of Covid-19.
Materials and methods: In this randomized controlled clinical trial, 66 pregnant women in 24 to 28 weeks were randomly divided into two groups of intervention (33 participants) and control (33 participants). At the beginning of the study, both groups completed the questionnaires of demographic information and pandemic related pregnancy test. Then, the intervention was performed in 3 sessions with the interval of one week, in the form of individual counseling by BELIFE method for the experimental group. The control group received only the routine services of the centers. The post-test was performed two weeks after the last consultation session for both groups. Data were analyzed using Stata-13 software. Significance level was considered 0.05.
Results: The experimental and control groups were almost homogeneous in terms of quantitative and qualitative demographic variables. Total mean and standard deviation of stress score, before and after the intervention in the experimental group, were 40.27 ± 12.65 and 41.71 ± 1.74, respectively. These numbers in the control group were 33.84 ± 13.08 and 43.84 ± 1.69. Comparing the two groups in terms of stress score which was done after the intervention showed that although the stress score in the experimental group was lower than that in the control group, this difference was not statistically significant ($p = 0.39$).
Conclusion: The results of this study show that although individual counseling for pregnant women was able to reduce the mean scores of stress of Covid-19 in the experimental group, this difference was not statistically significant. Therefore, although the BELIFE individual counseling method for pregnant women, who naturally suffer from pregnancy stress, is an acceptable way to reduce their stress, it is recommended to plan and implement early and more effective interventions for these women because the course of stress is severe in them and has an upward trend during Covid-19 pandemic.

Keywords: Pregnant Women; Covid-19; Stress; Individual Counseling

Introduction

Stress or tension is a non-specific response of the body to any pressure that it is subjected to and this response can be expressed against any internal, cognitive or external and environmental stimuli. In general, stress is applied to describe many negative emotions and reactions that exist in challenging and

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threatening situations (1). Many women experience mild stress during pregnancy, but in some women the stress may be so severe that we may need to consider it from pathological perspective (2). Pregnancy and childbirth are generally a physiological event, however it has been considered as a crisis in terms of anxiety and psychological stress for women (3). Understanding maternal responsibilities and duties, conflicting feelings of excitement on the one hand, and worry and panic and anxiety on the other hand, create instability in pregnant women (4). In late December 2019, a new coronavirus spread pneumonia from Wuhan in China to other parts of the world, which has already posed a major health threat to global public health (5) and (6). Not only did it cause public health concerns, it also caused a number of psychological illnesses, including anxiety, fear, depression, stigma, irritability, sleep disturbance, and post-traumatic stress disorder. In these circumstances, maintaining the health of individuals is essential (7). During the outbreak of infectious diseases, pregnant women and their fetuses constitute a high-risk population. With the outbreak of coronavirus, the incidence of the disease in pregnant women is also increasing (8). Due to physiological changes and immune system function in pregnant women, these people are more susceptible to this disease. Little information is available about the effect of this disease on pregnancy and its complications. According to reports, the symptoms of this disease in pregnant women are similar to that in non-pregnant women. There is no evidence of intrauterine transmission of the virus to the fetus. The presence of the virus was not also improved to be in amniotic fluid, placenta, umbilical cord, pharyngeal secretions and affected mother's breast milk (9). However, complications of the disease have been reported in pregnant women, including an increased risk of miscarriage, preterm birth, fetal tachycardia and distress, bladder rupture, cesarean, and death at birth (10). Limited studies, which were conducted in the pandemic, show that stress and anxiety during pregnancy are 63-68% in pandemic; especially women in the third trimester of pregnancy reported more anxiety to their doctor (11). It should be noted that methods to reduce corona emissions, including quarantine and staying at home, as well as job closures, can lead to problems such as poverty, unemployment, domestic violence, and changes in the daily lives of pregnant women, and possibly increased stress and anxiety in pregnant women (12).

A study conducted at Babol University of Medical Sciences on pregnant women infected with Covid-19 showed that morbidity and mortality increased in pregnant women compared to non-pregnant women, and complications of pregnancy included increased preterm delivery and cesarean. It is vital that life-saving interventions for infectious diseases be performed for pregnant women (13). In another study conducted at the University of Tehran, it was found that the condition of those pregnant women who became infected in late pregnancy seems appropriate; these results are obtained by understanding the condition of the mother and fetus and also by active management. Therefore, it is recommended to pay special attention to the implementation of care and support protocols for pregnant women (14). Since stress and anxiety of pregnant mothers is a process to deal with stress during different stages of pregnancy, paying attention to the mental health of mother and fetus has been considered by many mental health researchers. Research findings show the effectiveness of using stress management methods on the reduction of the symptoms of psychological stress caused by tension in pregnant women (15). There has been little research on methods to reduce stress in pregnant women during the Covid 19 pandemic. Shahrbanoo et al. 2020 investigated the effect of empowerment family transformation on reducing stress in pregnant women during the Covid 19 pandemic and showed that this method can reduce stress to a great extent (16). Individual counseling by a midwife accompanied by providing psychological support for the mother can be very effective in reducing the stress of pregnant mothers. In fact, since a wide range of psychosocial variables may affect the mental state of pregnant women, the midwife can be an effective person in antenatal care through identifying these variables and supporting pregnant women (17). Considering the psychological destructive effects of Covid-19 during pregnancy and the importance of maintaining the psychological balance of pregnant women during this period, it seems that intervention in this regard is necessary. On the other hand, the stress of getting infected by the coronavirus in pregnant women has more dimensions. It is clear that midwives, as the front line provider of care services for pregnant women, can be effective in this regard. The midwives can play a role through appropriate interaction and providing information on safety measures for coronavirus infection during pregnancy and at childbirth and after childbirth. Accordingly,

the present study was conducted to determine the effect of individual counseling on the pregnant women's stress of Covid-19.

Materials and methods

This clinical trial study was performed in Isfahan in 2021. After obtaining a license with the code: IR.UMSHA.REC.1399.995 from the Ethics Committee in Medical Research, the study units included 66 primiparous women were randomly selected. They were the women who referred to 2 health centers in Isfahan. They were divided into two groups. 33 of them were placed in the control group and 33 in the intervention group. Inclusion criteria included: primiparous women with low-risk pregnancies at 24-28 weeks of gestation who are willing to participate in the study. Exclusion criteria included: unwillingness to continue collaborating in the study, not attending even in one counseling session, or getting infected by the coronavirus during the study. Subjects entered the study after completing the informed consent form and announcing their readiness to enter the research and after obtaining a score of 75-60 in the PREPS questionnaire. Then, the demographic questionnaire, which included 19 questions about personal information, health status and factors related to Covid-19, was completed by the research units. Corrective comments were made by 10 faculty members of the School of Nursing and Midwifery to ensure content validity. PREPS questionnaire was used to assess the stress and strain of Covid-19. This questionnaire has 15 questions in 2 specific contents of the pandemic (prenatal stress factors), including stress of unpreparedness for childbirth (7 questions) and stress of self or fetal infection with Covid-19 during childbirth (5 questions). 3 question of this questionnaire also measured the positive evaluation of the pregnant woman from the pandemic.

The questions of the questionnaire were answered according to the 5-point Likert scale with the option of very low, low, to some extent, high, very high, with a score of 1 to 5. The minimum score was 15 and the maximum score was 75. Judging was made based on the obtained score. In order to use the questionnaire, translation, re-translation and approval steps were performed by the respected designer. Qualitative and quantitative content validity was used for the validity of this questionnaire. In order to validate the qualitative content, the items were studied by the professors and corrective comments

were applied. For quantitative content, the questionnaire was given to the professors and CVR, CVI were calculated and no item was removed from the questionnaire. For the reliability of the questionnaire, 30 pregnant women completed the questionnaire with a two-week interval and ICC was calculated to be 0.89 which confirms the proper reliability of the instrument.

The intervention was designed to be in the form of BELIFE individual counseling that deals with the current expectations of women and their feelings about pregnancy tensions. Midwifery care is designed based on the framework of the purpose. The content of this counseling is based on the counseling model in Gamble's study. The content of midwifery care included information on Covid-19, the effects of the disease on pregnancy, and emphasis on the implementation of pandemic health protocols by pregnant women. The consultation was held in three 60- minute sessions, each with one-week interval. The first session was in the experimental group immediately after the pre-test. 2 weeks after the last counseling session, post-test was performed using a questionnaire and interviews with individuals in both experimental and control groups. During the sessions, the researcher made it possible for the experimental group to make a phone call to continue the counseling process. It is obvious that no consultation was provided to be control group in the time interval between pre-test and post-test and only educational materials were prepared in the form of an educational pamphlet and provided to them so that ethical issues would be considered. Data were analyzed using Stata-13 software. Central tendency and dispersion were used to describe quantitative variables. Qualitative variables were described using frequency, percentage, tables and graphs. Kolmogorov-Smirnov test was used to evaluate the normality of quantitative data distribution. The comparison of the two groups in terms of demographic and contextual variables was performed by independent t-test or Mann-Whitney test. The comparison was done by chi-square test in case the data were quantitative. ANCOVA test was used to evaluate the differences between the two groups in terms of pregnancy anxiety score (in case the outcome variable distribution is normal). In-group comparisons were performed using paired t-test or Wilcoxon test and the comparison between groups was done with independent t-test or Mann-Whitney test. Significant level in all statistical tests was considered less than 0.05.

Results

Based on the analysis of data on the characteristics of pregnant women, it was shown that the two experimental and control groups were almost homogeneous in terms of quantitative and qualitative demographic variables. The mean age of pregnant women in the experimental and control groups was 26.09 ± 5.43 and 28.36 ± 4.96 years, respectively, and the mean gestational age in the experimental and control groups was 25.97 ± 1.55 and 26.15 ± 1.77 weeks, respectively. Most women in both groups had higher than average income level (60.6% and 57.6% of them).

Gestational age in the experimental and control groups was 25.97% and 26.15%, respectively. The sex of male and female fetuses in both experimental and control groups were 42.4% and 57.6%,

respectively (Table 1).

The results showed that in the pre-intervention stage, the mean stress score in the intervention group was 40.27 (12.65) and in the control group was 33.84 (13.08). Also in the post-intervention stage, by controlling the effect of the score before the intervention, the mean scores of stress in the two groups were 41.71 (1.74) and 43.84 (1.69), respectively. Comparison of the mean score of stress in the post-intervention stage compared to the pre-intervention stage showed that both in the intervention group and in the control group this score increased which was statistically significant in the control group (p = 0.001), However, comparing the mean scores of stress in the two groups after the intervention showed no statistically significant difference between the two groups (P = 0.39) (Table 2).

Table 1: Description of individual characteristics of pregnant women in the experimental and control groups

Individual characteristics		Experimental Mean ± SD	Control Mean ± SD	P
Mother's age (years)		26.09±5.43	28.36±4.96	0.08*
Gestational age (weeks)		25.97±1.55	26.15±1.77	0.66*
		Number (%)	Number (%)	
Planned pregnancy	Yes	25 (75.8)	30(90.9)	0.09**
	No	8 (24.2)	3 (9.1)	
Fetal sex	Male	14 (42.4)	14 (42.4)	1.0**
	Female	19 (57.6)	19 (57.6)	
Mother's job	Employed	10 (30.3)	10 (30.3)	1.0**
	Housewife	23 (69.7)	23 (69.7)	
Spouse's job	Employed	32 (97.0)	33 (100)	1.0**
	Unemployed	1 (3.0)	0 (0.0)	
Mother's education	High school	5 (15.2)	6 (18.9)	0.94**
	Diploma	17 (51.5)	16 (48.5)	
	University degree	11 (33.3)	11 (33.3)	
Spouse's education	High school	9 (27.3)	9(27.3)	0.84**
	Diploma	11 (33.3)	9(27.3)	
	University degree	13 (39.4)	15(45.5)	
Economic problems caused by Covid-19	Yes	18 (51.5)	18(54.5)	0.80**
	No	16 (48.5)	15(45.5)	
Household income	Weak	5 (15.2)	6(18.2)	0.94**
	Average	20 (60.6)	19(57.6)	
	Good	8 (24.2)	8(24.2)	
Covid-19 test	Yes	8(24.2)	6(18.2)	0.54**
	No	25 (75.8)	27(81.8)	
History of a positive Covid test result in a pregnant woman or her relatives	Yes	14(42.4)	9(27.3)	0.19**
	No	19(57.6)	24(72.7)	
Death caused by Covid in relatives	Yes	3(9.1)	2(6.1)	1.0**
	No	30(90.9)	31(93.9)	
Performing pregnancy care	Complete	32(97.0)	32(97.0)	1.0**
	Incomplete	1(3.0)	1(3.0)	
Information about Covid	Yes	11(33.3)	14(42.4)	0.44**
	No	22(67.7)	19(57.6)	

*Independent t-test, **Chi-square test

Table 2: Mean stress scores of pregnant women in experimental and control groups

Name of the variable	Before intervention	Adjusted mean (sd) Stage after intervention	F*	p*
Experimental group	40.27±12.65	41.71±1.74	0.75	0.39
Control group	33.84±13.08	43.84±1.69		

*ANCOVA test

Discussion

The results of this study showed that the mean score of stress in pregnant women after the intervention, in both experimental and control groups, increased compared to that before the intervention. Meanwhile, the mean score of stress in the control group before and after the intervention showed a significant difference, while the difference in the mean score of stress in the experimental group was not statistically significant. This means that the increase in the mean score of stress in pregnant women was statistically significant after the intervention in the control group compared to that in the experimental group. Comparing the experimental and control groups in terms of mean score of stress showed that although the mean score of stress in the experimental group after the intervention was lower than that in the control group, this difference is not statistically significant. The study was concomitant with outbreak of coronavirus delta which could be the reason for the increase in mean score of stress in the studied pregnant women. In a descriptive study by Katherine Label et al. (2020) in Canada that examined the stress of pregnant women during the coronavirus pandemic, primiparous women were more stressed than multiparous women. The results of the present study also showed that primiparous women experienced more stress in the pandemic period than women who had multiple childbirths. In the present study, it was also shown that the primiparous women showed a high level of stress during the study, therefore it was consistent with their study in this regard (18). Ayaz et al. (2020) in their study on stress before and after coronavirus pandemic, examined 63 pregnant women, 32.5 weeks, and found that in these women the average stress is from 20 to 25 and severe stress increased from 2 to 8. In the present study, pregnant women in the control group showed an increase in the mean score of stress during the study (33.84 to 43.84), which is consistent with their study (19). In a cross-sectional study by Xanthi and Susanti (2020) in Nigeria on the prevalence of stress in pregnant women in coronavirus pandemic, the results showed that 44.3% of the studied women had significant stress and strain, which is consistent with the level of stress in pregnant women in the control group of the present study (43.84) (20). Hormonal changes during pregnancy can cause emotional changes and mood swings. According to statistics provided by the World Health Organization, this level of stress appears at about 15.6% of pregnant women (adultery). According to the above information, it seems that higher stress in pregnant women in the adultery study and the present study compared to the stress reported by WHO statistics can correctly explain the effect of coronavirus pandemic on common stress in pregnant women. In a study which evaluated the effectiveness of a seven-session training program, Swanson et al. found that effectiveness of training using problem-solving training methods, active involvement and experiential learning for reducing maternal anxiety was no different from the routine training group (21). Nanjundaswamy et al. (2020) also acknowledged in their study that pregnancy-related anxiety caused by Covid-19 increased in the third trimester of pregnancy and included 63 to 69% of women (11). The results of the present study also showed that stress in pregnant women, because of Covid-19, had an upward trend during the second trimester (43%) and the intervention could not have a reducing effect on it and only moderated the upward trend of stress. Stress management during the SARS epidemic in Hong Kong showed that midwives played an important role in providing care, health education, and consultation in order to help pregnant women during and after the crisis (22).

One of the limitations of the present study was that sampling and intervention for participants coincided with the outbreak of the fifth peak of the coronavirus pandemic. Accordingly, the attendance of participants for counseling sessions in the clinic was accompanied by some difficulties due to the pandemic limitations. The researcher tried to overcome these difficulties by continuing the counseling sessions with participants via telephone and social media such as WhatsApp.

Conclusion

The results of the present study showed that the level of stress in pregnant women due to coronavirus

pandemic during the second trimester of pregnancy had an upward trend and its intensity increased with the emergence of new strains of coronavirus including delta. Therefore, the designed intervention was only effective in modulating the stress of pregnant women and did not significantly reduce stress. According to the results available in this study, it seems that there is need for early detection of stress in pregnant women, especially in pandemics, in early pregnancy and more effective and continuous interventions must be done during pregnancy by obstetric care providers and these measures should be considered an essential component of prenatal care.

Conflict of Interests

Authors have no conflict of interests.

Acknowledgments

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