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RESEARCH ARTICLE

The effect of stress management training on perceived stress, anxiety and hopelessness levels of women with high-risk pregnancy

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ABSTRACT

The aim of this study was to investigate the effect of stress management training on the perceived stress, anxiety and hopelessness levels of women with high-risk pregnancy. The sample of this experimental study consisted of 206 high-risk pregnant women (intervention = 103; control = 103). Data were collected using a Personal Information Form, the Perceived Stress Scale, the Beck Hopelessness Scale and the State-Trait Anxiety Inventory. In the second follow-up after the training, there was a statistically significant difference amongst the Perceived Stress Scale, Beck Hopelessness Scale and State-Trait Anxiety Inventory mean scores in the intervention and control groups ($p < .05$). Perceived stress scores of the control group who did not receive training during discharge increased. The state and trait anxiety scores and hopelessness scores of the intervention group received training decreased compared with the control group.

IMPACT STATEMENT

- **What is already known on this subject?** Mental problems such as anxiety and stress are more common in high-risk pregnancies compared with healthy pregnancies.
- **What do the results of this study add?** After the training 51.4% of women in the intervention group, 75.7% of women in the control group had stress. The state and trait anxiety and hopelessness scores of the intervention group having training decreased compared to the control group.
- **What are the implications of these findings for clinical practice and/or further research?** Health professionals should provide stress management training in high-risk pregnant women to reducing perceived stress, anxiety and hopelessness levels.

KEYWORDS

Anxiety; high-risk pregnancy; hopelessness; perceived stress; stress management training

Introduction

Although pregnancy is a normal physiological process, it carries certain risks related to the health and life of both the pregnant woman and the foetus (Deshpande 2016). High-risk pregnancy can threaten the life of the foetus and the woman, increasing the mother's stress and anxiety level (Cetin et al. 2017) and causing pregnancy complications (Deshpande 2016). It is reported in the literature that mental problems such as anxiety and stress are more common in high-risk pregnancies compared with healthy pregnancies (Akbar Zadeh et al. 2012; Denis et al. 2012; Abedian et al. 2015; Gourounti et al. 2015a; Cetin et al. 2017; He et al. 2019). Thiagayson et al. (2013) reported that 12.5% of high-risk pregnant women had anxiety disorder and Byatt et al. (2014) reported 13% had anxiety disorder. Woods et al. (2010) found that pregnant women with two or more diseases experienced more psychosocial stress and had more negative pregnancy results, whilst Oskay and Coskun (2012) found that 70% of high-risk pregnant women at bed rest had tension-irritability.

High-risk pregnancy is defined as a physiological and psychosocial condition that endangers the life and health of the mother and foetus, increasing the risk of disease and death (Gourounti et al. 2015b). Bed rest is recommended at home or in hospital in cases where pregnancy is considered high-risk (Arslan and Korkmaz 2005). Bed rest includes movement restriction, confinement and isolation (Gourounti et al. 2015b) and can cause stress in pregnant women physically and psychologically (Oskay and Coskun 2012). Intense stress can consume the energy of individuals and affect their physical and mental health negatively, causing a sense of desperation and hopelessness (Sharma and Rush 2014).

Since the feelings of stress, anxiety, helplessness and hopelessness can lead to more serious diseases that may be harmful to the health of the mother and foetus, using appropriate coping with stress methods for the hospitalised high-risk pregnant women can provide better health results for the mother and baby (Arslan and Korkmaz 2005; Gourounti et al. 2015b). Some non-pharmacological methods such as breathing and relaxation exercises, massage, music therapy and stress management training can be used to reduce the stress level in pregnant women (Olcer and Oskay 2015). Stress management training is widely used in reducing mental problems such as stress, anxiety and depression, and can

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be effective in increasing emotional well-being and psychological distress (Sharma and Rush 2014).

In one study, the benefits of identifying the mental problems experienced in pregnant women in the early period and providing necessary psychological interventions have drawn attention, and it is emphasised that the mental health of the mother should be evaluated by health professionals (Porter et al. 2019). Therefore, determining the effect of stress management training on high-risk pregnant women's stress, anxiety and hopelessness levels can make a positive contribution to the better health outcomes of the mother and baby. There are studies in the literature that focus on reducing anxiety and stress in high-risk pregnant women (Green et al. 2015; Asghari et al. 2016; Deshpande 2016; Khorsandi et al. 2016; Rastin et al. 2018; Abazarnejad et al. 2019), but there are none that involve stress management to reduce anxiety, stress and hopelessness. In this context, the present study was conducted to investigate the effect of stress management training on perceived stress, anxiety and hopelessness levels of high-risk pregnant women.

Material and methods

The sample of this randomised controlled experimental research consisted of high-risk pregnant women receiving inpatient treatment in a state hospital pregnancy and gynaecology service (Sivas/Turkey) between May 1, 2018 and June 30, 2019. As a result of the power analysis, when $\alpha = 0.05$, $\beta = 0.10$, 1- $\beta = 0.90$ were accepted, the power of the test was found to be $p = .90$, and it was planned to take 110 pregnant women into the intervention and control groups for an acceptable difference of 0.02. Randomisation was made based on the order of hospitalisation and registration number of the women and using a simple random numbers table. They were divided into two groups as intervention and control groups. However, two women in the intervention group did not want to participate in the second follow-up, and two women in the control group could not be reached because they were discharged from the hospital without the knowledge of the researcher. The study was completed with a total of 206 high-risk pregnant women in the intervention and control groups (intervention = 103; control = 103).

Inclusion criteria

- Having inpatient treatment in the pregnancy and gynaecology service with the diagnosis of high-risk pregnancy
- Having no communication or perception problems
- Not being diagnosed with physical and mental illness other than high-risk pregnancy
- Voluntary participation

To collect the study data, the personal information form, the Perceived Stress Scale (PSS), the State Anxiety Inventory (SAI) - Trait Anxiety Inventory (TAI) and the Beck Hopelessness Scale (BHS) were used.

The Personal Information Form is a 23-item form prepared by researchers to determine the socio-demographic characteristics of pregnant women, such as age, education, employment status and obstetric characteristics, for instance number of pregnancies, number of living children, and gestational week.

PSS was developed by Cohen et al. (1983) and was adapted for Turkish society by Erci (2006) after a validity and reliability study had been conducted. The scale consists of 10 items, and each item is scored between 1–5. The possible scores that can be obtained from the scale range between 10–50. A score of 30 and above indicates that the individual has stress. Depending on the increase in the score, the level of stress also increases (Erci 2006).

SAI – TAI was developed by Spielberger et al. (1970). A study of this self-assessment inventory's validity and reliability was carried out in Turkey by Oner and Lecompte (1983). The 4-point scale for the SAI ranges between 'not at all' and 'very much so'. The 4-point scale for the TAI ranges between "almost never" and "almost always". Each type of anxiety consists of 20 items. The high scores obtained from the scale indicate a high level of anxiety (Oner and Lecompte 1983).

BHS was developed by Beck et al. (1974). A validity and reliability study was conducted in Turkey by Durak (1994). The scale is used to determine the negative expectations of the individual for the future. It consists of 20 items which are scored between 0–1. The possible scores that can be obtained from the scale range between 0–20. A high total score indicates that the individual has a high level of hopelessness (Durak (1994).

Procedure

Women with a high risk were divided into intervention and control groups using. It took 15–30 min to distribute the forms to both the intervention and control groups.

Intervention group: After meeting the pregnant women on the day of their hospitalisation, the purpose and duration of the research were explained and informed consent was obtained. On the first day, the high-risk pregnant women who agreed to participate in the research filled out the Personal Information Form, the PSS, the SAI-TAI and the BHS through a face-to-face interview technique. Stress management training was provided at a pre-arranged time to help the participants cope with stress, anxiety and hopelessness. Each training session lasted 20–30 min. The trainings were held three times, on the first day of hospitalisation, during hospitalisation and on the day of discharge. In addition, standard care and treatments were applied to the participants in the hospital. These standard care and treatments included bed rest in the hospital, drug treatment, monitoring the health of the baby, meeting physical needs, care at home after discharge, and nutrition and pregnancy cheques. The second follow-up was carried out on the day the participants were to be discharged. In this follow-up, the PSS, SAI-TAI and BHS forms were filled in, again during face-to-face interviews (Figure 1).

Control group: After meeting the pregnant women on the day of their hospitalisation, the purpose and duration of the research were explained and informed consent was obtained. On the day of their hospitalisation, the Personal Information Form and PSS, SAI-TAI and BHS forms were filled in during

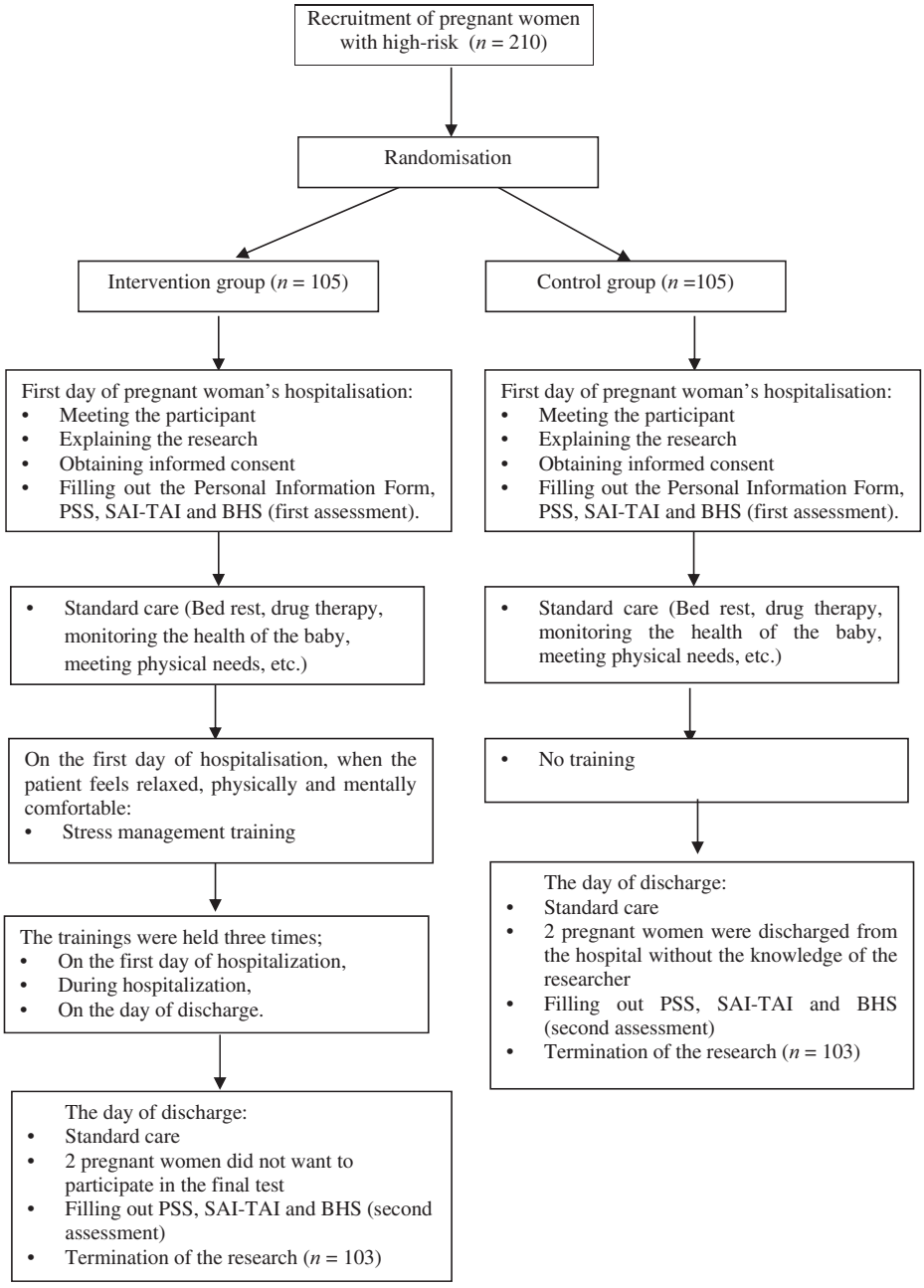

Figure 1. Flowchart of the study.

face-to-face interviews. The stress management training programme was not applied to pregnant women in this group. Standard care and treatments were followed in the clinic. PSS, SAI-TAI and BHS forms were filled in again on the day of the women's discharge by researchers (Figure 1).

Statistical analysis

The research data were evaluated using SPSS 22.0. In the analysis, percentage distribution was used for socio-demographic characteristics, a chi-square test was used for comparisons between groups in terms of the women's socio-demographic and obstetric characteristics, and a t-test was used to compare the mean scores of the groups in the follow-up. The results were evaluated at a 95% confidence interval and at a 0.05 significance level.

Results

Socio-demographic and pregnancy variables

The mean age of the pregnant women in the intervention group was 28.89 ± 6.73 (min: 18; max: 45) and 30.01 ± 5.53 (min: 19; max: 44) in the control group. Of the women included in the intervention group, 45.6% were primary school graduates and 91.3% did not smoke. Of the women in the control group, 41.7% were primary school graduates and 90.9% did not smoke.

Of the women in the intervention group, 39.8% had three or more pregnancies, 46.6% were diagnosed with hyperemesis gravidarum, 73.8% had planned their pregnancy, 90.3% went for their regular check-ups. Of the women in the control group, 56.3% had had three or more pregnancies, 46.6% were diagnosed with hyperemesis gravidarum, 70.9% had

planned their pregnancy, 79.6% went for their regular check-ups. The socio-demographic and obstetric characteristics were similar in the two groups and there was no statistically significant difference between the groups ($p > .05$).

Findings related to stress, anxiety and hopelessness

In the first follow-up, 57.2% of the pregnant women in the intervention group and 76.6% of the pregnant women in the control group, and in the second follow-up, 51.4% of the pregnant women in the intervention group and 75.7% of the pregnant women in the control group had perceived stress levels above 30 points; their stress levels were thus found to be high.

In the first follow-up, pregnant women in the intervention group were found to have significantly lower mean PSS scores than the control group ($p = .024$). In the second follow-up after the training, it was found that the perceived stress scores remained unchanged in the intervention group, but there was a significant increase in the control group in which training was not given ($p = .001$) (Table 1).

The SAI ($p = .001$) and TAI ($p = .041$) mean scores of pregnant women in the intervention group before the training (first follow-up) were found to be significantly low. In the second follow-up after the training, both the state ($p = .001$) and trait anxiety scores ($p = .001$) of the intervention group decreased significantly, while those of the control group increased (Table 2).

When the mean BHS scores of the pregnant women in the intervention and control groups were examined, there was no statistically significant difference between the two before the training (first follow-up) ($p = .419$). However, in the second follow-up after the training, the mean score of the intervention group was found to be significantly lower than that of the control group ($p = .023$) (Table 3).

Discussion

Psychological changes during pregnancy can increase complications, affect the well-being of the mother and the health of the foetus, and cause postpartum depression. For this reason, they should be recognised as important and diagnosed at an early stage (Bostanci Dastan et al. 2015). Besides, it is stated in the literature that psychological problems such as anxiety, stress, depression and anger during pregnancy can be effective in psychological problems that may develop in the postpartum period (Akbar Zadeh et al. 2012; Karamoozian et al. 2015; Bruno et al. 2018; Abazarnejad et al. 2019). For this reason, it is important to carry out stress management trainings for women with high-risk pregnancy to avoid the negative influence of the mother and baby in terms of physical and psychological aspects in the future postpartum period. In this context, the findings obtained from our research reveal the importance of the training.

In this study, the perceived stress scores of the women in the intervention and control groups at the first follow-up (a score above 30 indicates that the individual has stress) were high (intervention group = 57.2%; control group = 76.6%). The perceived stress scores after the training in the intervention group did not change much, but there was a significant increase in the perceived stress scores in the control group in which training was not given. The fact that the stress

Table 1. Perceived Stress Scale mean scores of pregnant women in the intervention and control groups.

PSS	Min–Max (10–50)*	Intervention Group X ± SS	Min–Max (10–50)*	Control Group X ± SS	Test (*t*) *p*
First follow-up	10–40**	29.58 ± 4.97	18–37**	30.92 ± 3.28	2.280 .024***
Second follow-up	19–41**	29.62 ± 3.66	13–40**	32.20 ± 4.65	4.427 .001***

*Theoretical range; **Observed range; ***$p < .05$; t = *t* test in independent groups; PSS: Perceived Stress Scale.

Table 2. State-Trait Anxiety Inventory mean scores of pregnant women in the intervention and control groups.

	Min–Max (20–80)*	Intervention Group X ± SS	Min–Max (20–80)*	Control Group X ± SS	Test (*t*) *p*
SAI					
First follow-up	20–68**	43.16 ± 10.91	37–65**	47.90 ± 5.31	3.960 .001***
Second follow-up	20–61**	39.26 ± 8.64	25–65**	49.73 ± 7.01	9.550 .001***
TAI					
First follow-up	24–63**	45.98 ± 8.37	38–60**	47.94 ± 4.86	2.055 .041***
Second follow-up	23–66**	42.71 ± 7.47	36–66**	49.40 ± 5.00	7.547 .001***

*Theoretical range; **Observed range; *** –>$p < .05$; *t* = *t* test in independent groups; SAI: State Anxiety Inventory; TAI: Trait Anxiety Inventory.

Table 3. Beck Hopelessness Scale mean scores of pregnant women in the intervention and control groups.

BHS	Min-Max (0–20)*	Intervention Group X ± SS	Min-Max (0–20)*	Control Group X ± SS	Test (*t*) *p*
First follow-up	0–19**	5.44 ± 4.16	0–15**	5.04 ± 2.74	0.810 .419
Second follow-up	0–13**	3.94 ± 2.98	0–18**	4.92 ± 3.17	2.284 .023***

*Theoretical range; **Observed range; ***$p < .05$; *t* = *t* test in independent groups; BHS: Beck Hopelessness Scale.

levels of the group trained during discharge were unchanged and the scores of the non-trained group increased showed that the training had a positive effect. One study concluded that training and counselling were effective in reducing the physical and psychological complaints and hospital stressors of high-risk pregnant women who were in full and partial bed rest in hospital (Oskay and Coskun 2012). In another, it was found that stress was reduced in awareness training aimed at reducing stress during pregnancy (Vieten et al. 2018). In Kashanian et al.'s (2019) study, the women who attended the birth training and who were having their first pregnancy had lower perceived stress scores. Another study again showed that practices targeting high-risk pregnant women reduced their stress level (Asghari et al. 2016). Finally, a study again conducted during the pandemic process showed that online training programs could be used to reduce stress and increase the quality of life in pregnant women (Biviá-Roig et al. 2020). High-risk pregnancies require hospitalisation. Since the year 2020 is in the pandemic process, the stress levels of women hospitalised under high-risk may increase even more and their pregnancy may be negatively affected physically and psychologically. Therefore, stress management training becomes even more important.

Both the state and trait anxiety scores of the intervention group decreased in the second follow-up, but the anxiety scores of the control group in the second follow-up showed an increase. State and trait anxiety scores of the intervention group that had training decreased significantly compared with the control group. In Karamoozian et al.'s (2015) study, cognitive behavioural stress management training was discovered to be effective in reducing maternal anxiety during pregnancy. In the same study, a significant decrease was found in the anxiety and depression scores of the group that had training compared with the control group. This was compatible with our results. Other studies show that there is a significant decrease amongst high-risk pregnant women's anxiety levels after training and counselling (Delaram and Soltanpour 2012; Asghari et al. 2016; Abazarnejad et al. 2019). Another study reveals a significant decrease in anxiety symptoms in pregnant women undergoing cognitive behavioural therapy (Green et al. 2015).

In the second follow-up after the training, the hopelessness scores of the pregnant women who were trained were found to be significantly lower, and the training had a positive effect in lowering their hopelessness levels. It is thought that the training reduces feelings of hopelessness by increasing the ability of the women to cope with problems and by increasing their sense of confidence. Feelings of hopelessness and guilt may be related to depressed mood. Individuals with depression experience a marked decrease in self-confidence, and they are more likely to self-harm (Karacam and Ancel 2009). One study concluded that cognitive behavioural therapy applied to pre-eclamptic pregnant women was effective in reducing depression (Asghari et al. 2016). Another argued that pregnant women who developed realistic attitudes towards labour used more self-confidence and active coping strategies (Nieminen et al. 2015). In a study with pregnant women with foetal anomalies, participants were given problem-oriented coping strategies training, and there was a significant increase in the life energies of the women afterwards (Rastin et al. 2018). This research confirms our finding that training decreased hopelessness.

This research has some strengths. The strengths of this study include the use of standard scales for which validity and reliability studies have been carried out, giving the training by the same researcher to ensure standardisation, and the presence of a control group. In addition, the fact that it is an experimental research and the application is aimed at protecting and improving mental health in high-risk pregnancies is another strength.

Several limitations must be considered when interpreting the data of this study. This study was limited to the women who agreed to participate in the study. Results obtained from this study include only the sample group in which the study was conducted, they can not be generalised (women receiving inpatient treatment the a state hospital pregnancy and gynaecology service located in the Central Anatolia region of Sivas, Turkey).

Conclusion

The perceived stress scores of the pregnant women in both the intervention and the control groups were high at the time of hospitalisation. During discharge, the stress scores of the group who did not receive training increased, and the hopelessness scores of the women who were trained decreased. The anxiety scores of the pregnant women who were trained decreased compared with pre-training, and there was an increase in the anxiety scores of the group who were not trained. In light of these results, it is recommended that high-risk pregnant women should be given training programmes, counselling and psychological support.

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Ethical approval

Ethical approval was obtained from the Ethics Board (decision no: 2018-01/01) and written permission was obtained from the hospital where the study was conducted. The study was conducted in accordance with the Principles of the Helsinki Declaration.

Disclosure statement

The authors report no conflicts of interest.

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References

Abazarnejad T, Ahmadi A, Nouhi E, Mirzaee M, Atghai M. 2019. Effectiveness of psycho-educational counseling on anxiety in preeclampsia. Trends in Psychiatry and Psychotherapy 41:276–282.

Abedian Z, Soltani N, Mokhber N, Esmaily H. 2015. Depression and anxiety in pregnancy and postpartum in women with mild and severe preeclampsia. Iranian Journal of Nursing and Midwifery Research 20: 454–459.

Akbar Zadeh M, Khajehei M, Sharif F, Hadzic M. 2012. High-risk pregnancy: effects on postpartum depression and anxiety. British Journal of Midwifery 20:104–113.

Arslan H, Korkmaz N. 2005. The physical and psychological problems of hospitalized high-risk pregnant women in partial bed rest. Perinatal Journal 13:91–100.

Asghari E, Faramarzi M, Mohamadi AK. 2016. The effect of cognitive behavioural therapy on anxiety, depression and stress in women with preeclampsia. Journal of Clinical and Diagnostic Research 10:4–7.

Beck AT, Weissman A, Lester D, Trexler L. 1974. The measurement of pessimism: the hopelessness scale. Journal of Consulting and Clinical Psychology 42:861–874.

Biviá-Roig G, La Rosa VL, Gómez-Tébar M, Serrano-Raya L, Amer-Cuenca JJ, Caruso S, et al. 2020. Analysis of the impact of the confinement resulting from Covid-19 on the lifestyle and psychological wellbeing of Spanish pregnant women: an internet-based cross-sectional survey. International Journal of Environmental Research and Public Health 17: 5933.

Bostanci Dastan N, Deniz N, Sahin B. 2015. The determination of mental status of pregnants by home visiting in Kars. Journal of Psychiatric Nursing 6:71–78.

Bruno A, Laganà AS, Leonardi V, Greco D, Merlino M, Vitale SG, et al. 2018. Inside-out: the role of anger experience and expression in the development of postpartum mood disorders. The Journal of Maternal-Fetal & Neonatal Medicine: The Official Journal of the European Association of Perinatal Medicine, the Federation of Asia and Oceania Perinatal Societies, the International Society of Perinatal Obstetricians 31:3033–3038.

Byatt N, Hicks-Courant K, Davidson A, Levesque R, Mick E, Allison J, et al. 2014. Depression and anxiety among high-risk obstetric inpatients. General Hospital Psychiatry 36:644–649.

Cetin O, Guzel Ozdemir P, Kurdoglu Z, Sahin HG. 2017. Investigation of maternal psychopathological symptoms, dream anxiety and insomnia in preeclampsia. The Journal of Maternal-Fetal & Neonatal Medicine: The Official Journal of the European Association of Perinatal Medicine, the Federation of Asia and Oceania Perinatal Societies, the International Society of Perinatal Obstetricians 30:2510–2515.

Cohen S, Kamarck T, Mermelstein R. 1983. A global measure of perceived stress. Journal of Health and Social Behavior 24:385–396.

Delaram M, Soltanpour F. 2012. The effect of counseling in third trimester on anxiety of nulliparous women at the time of admission for labor. Zahedan Journal of Research in Medical Sciences 14:61–65.

Denis A, Michaux P, Callahan S. 2012. Factors implicated in moderating the risk for depression and anxiety in high risk pregnancy. Journal of Reproductive and Infant Psychology 30:124–134.

Deshpande J. 2016. The effect of selected aspect of Garbha Sanskar on stress, coping strategies and wellbeing of antenatal mothers. International Journal of Science and Research 5:588–591.

Durak A. 1994. Validity and reliability study of beck hopelessness scale. Turkish Journal of Psychology 9:1–11.

Erci B. 2006. Reliability and validity of the Turkish version of perceived stress scale. Journal of Anatolia Nursing and Health Sciences 9:58–64.

Gourounti K, Karapanou V, Karpathiotaki N, Vaslamatzis G. 2015a. Anxiety and depression of high risk pregnant women hospitalized in two public hospital settings in Greece. International Archives of Medicine 8: 1–6.

Gourounti K, Karpathiotaki N, Vaslamatzis G. 2015b. Psychosocial stress in high risk pregnancy. International Archives of Medicine 8:1–9.

Green SM, Haber E, Frey BN, McCabe RE. 2015. Cognitive-behavioural group treatment for perinatal anxiety: a pilot study. Archives of Women's Mental Health 18:631–638.

He L, Wang T, Xu H, Chen C, Liu Z, Kang X, Zhao A. 2019. Prevalence of depression and anxiety in women with recurrent pregnancy loss and the associated risk factors. Archives of Gynecology and Obstetrics 300: 1061–1066.

Karacam Z, Ancel G. 2009. Depression, anxiety and influencing factors in pregnancy: a study in a Turkish population. Midwifery 25:344–356.

Karamoozian M, Askarizadeh G, Sanati K, Aminizadeh M. 2015. Stress management on pregnancy women. Journal of Novel Applied Sciences 4:1035–1042.

Kashanian M, Faghankhani M, YousefzadehRoshan M, EhsaniPour M, Sheikhansari N. 2019. Woman's perceived stress during pregnancy; stressors and pregnancy adverse outcomes. The Journal of Maternal Fetal & Neonatal Medicine 8:1–9.

Khorsandi M, Vakilian K, Salehi B, Goudarzi MT, Abdi M. 2016. The effects of stress inoculation training on perceived stress in pregnant women. Journal of Health Psychology 21:2977–2982.

Nieminen K, Malmquist A, Wijma B, Rydin E-L, Andersson G, Wijma K. 2015. 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 and Gynaecology 122:1259–1265.

Olcer Z, Oskay U. 2015. Stress in high-risk pregnancies and coping methods. Journal of Education and Research in Nursing 12:85–92.

Oner N, Lecompte A. 1983. State and trait anxiety inventory handbook. Istanbul: Boğaziçi University Publications.

Oskay UY, Coskun A. 2012. Effectiveness of comprehensive nursing care relieving problems of hospitalized high-risk pregnant women in bed rest. TAF Preventive Medicine Bulletin 11:163–172.

Porter E, Lewis AJ, Watson SJ, Galbally M. 2019. Perinatal maternal mental health and infant socio-emotional development: a growth curve analysis using the MPEWS cohort. Infant Behavior & Development 57: 101336.

Rastin SJ, Khoshnevis E, Bafghi SMM. 2018. The effectiveness of problem-focused coping strategies training on quality of life in pregnant women with genetic risk of fetal abnormalities. Journal of Community Health Research 7:192–199.

Sharma M, Rush SE. 2014. Mindfulness-based stress reduction as a stress management intervention for healthy individuals: a systematic review. Journal of Evidence-Based Integrative Medicine 19:271–286.

Spielberger CD, Gorsuch RC, Luschene RE. 1970. Manual for the state-trait anxiety inventory. California: Consulting Psychologists Press.

Thiagayson P, Krishnaswamy G, Lim ML, Sung SC, Haley CL, Fung DSS, et al. 2013. Depression and anxiety in Singaporean high-risk pregnancies - prevalence and screening. General Hospital Psychiatry 35: 112–116.

Vieten C, Laraia BA, Kristeller J, Adler N, Coleman-Phox K, Bush NR, et al. 2018. The mindful moms training: development of a mindfulness-based intervention to reduce stress and overeating during pregnancy. BMC Pregnancy and Childbirth 18:201.

Woods SM, Melville JL, Guo Y, Fan M-Y, Gavin A. 2010. Psychosocial stress during pregnancy. American Journal of Obstetrics and Gynecology 202:61.e1–61.e7.

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