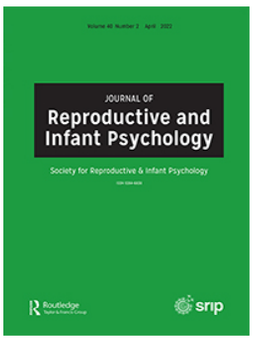

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The correlation between levels of prenatal attachment and styles coping with stress in pregnant women

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ABSTRACT

Background: Pregnancy is a very important period in the development of attachment.

Objective: To determine the correlation between prenatal attachment levels of healthy pregnant women and their styles of coping with stress and those of high-risk pregnant women.

Method: This descriptive study consisted of 76 women in their third-trimester of pregnancy hospitalised at the Obstetrics and Gynaecology service at a hospital and 210 women in their third-trimester of pregnancy who were experiencing a healthy pregnancy process and admitted to the Gynaecology Outpatient Clinic for pregnancy follow-up. The data were collected with the Personal Information Form, the Prenatal Attachment Inventory and the Stress Coping Styles Scale.

Results: There was a statistically significant difference between the prenatal attachment levels of healthy and high-risk pregnant women. There was a positive correlation between the prenatal attachment levels and the self-confident and optimistic approaches among the styles of coping with stress in the healthy and high-risk pregnant women .

Conclusion: The attachment levels of the high-risk pregnant women were higher than were those of the healthy pregnant women. As the use of the self-confident and optimistic approach styles in coping with stress increases among healthy and high-risk pregnant women, so do their prenatal attachment levels.

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Pregnancy; prenatal attachment; styles of coping with stress; high-risk pregnant women

Introduction

Prenatal attachment is an emotional bond established between parents and their unborn children (Duyan et al., 2013; Yılmaz & Beji, 2013a). The attachment between the pregnant woman and the fetus during pregnancy is the first important relationship with an infant, and it is the determinant of the relationship between the mother and the infant after birth (Abasi et al., 2012). The nature of the relationship between the parent and the infant is an important factor that affects the child's subsequent well-being.

Pregnancy could be a stress inducing period for a woman as having a baby could bring about an instability in the physical, psychological, social and economic desires and resources (Nagandla et al., 2016). A woman who has excessively stressful pregnancy is

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likely to be preoccupied with worrisome thoughts and negative mood states. These would interfere in her indulging in thoughts and behaviours (e.g. talking to the baby in the womb, visualising about caring for her baby after birth and doing activities that would enhance the unborn baby's well-being as well as her own) which form the foundation of the development of a positive attachment with the fetus (Srivastava & Bhatnagar, 2019). In a study, a statistically significant positive correlation was found between the psychosocial health status of the pregnant women and prenatal attachment (Karakoç & Özkan, 2017). Srivastava and Bhatnagar (2019) study showed that high stress during pregnancy may prevent a woman from developing a strong attachment with the baby she carries (Srivastava & Bhatnagar, 2019).

It is important to determine the styles of coping with the stress experienced during pregnancy and to initiate attachment safely. Especially risky pregnancies increase the level of stress in women (Yılmaz & Beji, 2010), and stressful events caused by illness and hospitalisation affect attachment negatively (Öztürk & Saruhan, 2013). Research on attachment disorders reveals that early diagnosis and intervention are important (Duyan et al., 2013). Risky pregnancies may also pose a high risk for the safe establishment of maternal-infant attachment. Therefore, a careful follow-up and determination of maternal-fetal attachment levels are important (Bakır et al., 2014).

The review of studies conducted on attachment in Turkey demonstrated that the attachment in healthy and risky pregnancies was generally investigated separately (Bakır et al., 2014; Elkin, 2015; Karakoç & Özkan, 2017; Yılmaz & Beji, 2010). The review also demonstrated that, in no studies, healthy and high-risk pregnancies were investigated together, and that in only one study the correlation between pregnant women's styles of coping with stress and attachment was investigated (Yılmaz & Beji, 2010). Therefore, the results of the present study expected to contribute to the determination of attachment levels and coping styles of pregnant women with their unborn babies may raise awareness in this area.

Methods

Research design

This study was a descriptive cross-sectional study which was aimed at determining the attachment levels of healthy and high-risk pregnant women and the correlations between their attachment levels and styles of coping with stress.

Target population and sample

The present study was conducted in a hospital in a city centre located in the Central Anatolia region of Turkey between July 2018 and September 2018. In the study, the sample size was determined by power analysis (3.1. G Power). The margin of error was 5% ($\alpha = 0.05$), the confidence interval of 1-β was 0.90, and the number of pregnant women was determined as 305 to reach an effect size of $d = 0.79$. However, the study was completed with 286 pregnant women. After the research, post hoc power analysis was performed. With 286 pregnant women, the margin of error was 5% ($\alpha = 0.05$), confidence interval 1-β was 0.90, and an effect size of d was 0.77. At the data collection stage of the

study, 12 pregnant women who had healthy pregnancy and 7 pregnant women who had high-risk pregnancy withdrew from the study. Of the respondents, 90% agreed to participate in the study and signed the informed consent form. The population of the study consisted of third-trimester (28 weeks of gestational age and above diagnosed with preeclampsia, gestational diabetes, preterm labour etc.) high-risk pregnant women hospitalised at the Obstetrics and Gynaecology service in a city centre and third-trimester healthy pregnant women visiting the gynaecology outpatient clinic for follow-up. After the physical examination of the pregnant woman who came to the gynaecology outpatient clinic, the physician who performed the examination was interviewed. Those who were not diagnosed with high-risk pregnancy were regarded as healthy pregnant women. The sample included 286 pregnant women who lived in the city centre, had no communication difficulties or mental disability and agreed to participate in the study. Of them, 210 had health pregnancy and 76 had high-risk pregnancy. Of the women who had high-risk pregnancy, 31 were at risk of giving premature birth, 27 had premature rupture of membranes, 10 had pregnancy induced hypertension and 8 had gestational diabetes mellitus. At the data collection stage of the study, 12 pregnant women who had healthy pregnancy and 7 pregnant women who had high-risk pregnancy withdrew from the study. After the purpose of the research was explained and their informed consent was obtained by the researchers, the data collection forms were administered to those who met the inclusion criteria. In the data collection, the face-to-face interview method was used. The forms were filled in a suitable room and in privacy. It took approximately 30 minutes to fill in the forms and the data were collected in one session (Figure 1).

Data collection tools

The data were collected using the Personal Information Form, the Prenatal Attachment Inventory and the Stress Coping Styles Scale.

Personal information form

This form prepared by the researchers included 14 items questioning the participants' socio-demographic and obstetric characteristics.

Prenatal attachment inventory (PAI)

The PAI was developed by Mary Muller in 1990. The scale, which was validated by Yılmaz and Beji by adapting into Turkish in 2013, consists of 21 items questioning the thoughts, feelings and events that women experience during pregnancy and determining their levels of attachment to the baby in the prenatal period. Each item is scored on a four-point Likert-type scale ranging between 1 and 4 points. The minimum and maximum possible scores to be obtained from the scale are 21 and 84 respectively. The higher the score is the higher the woman's level of attachment is. (Yılmaz & Beji, Yılmaz and Beji, 2013b). The Cronbach's alpha value was 0.867 in the present study.

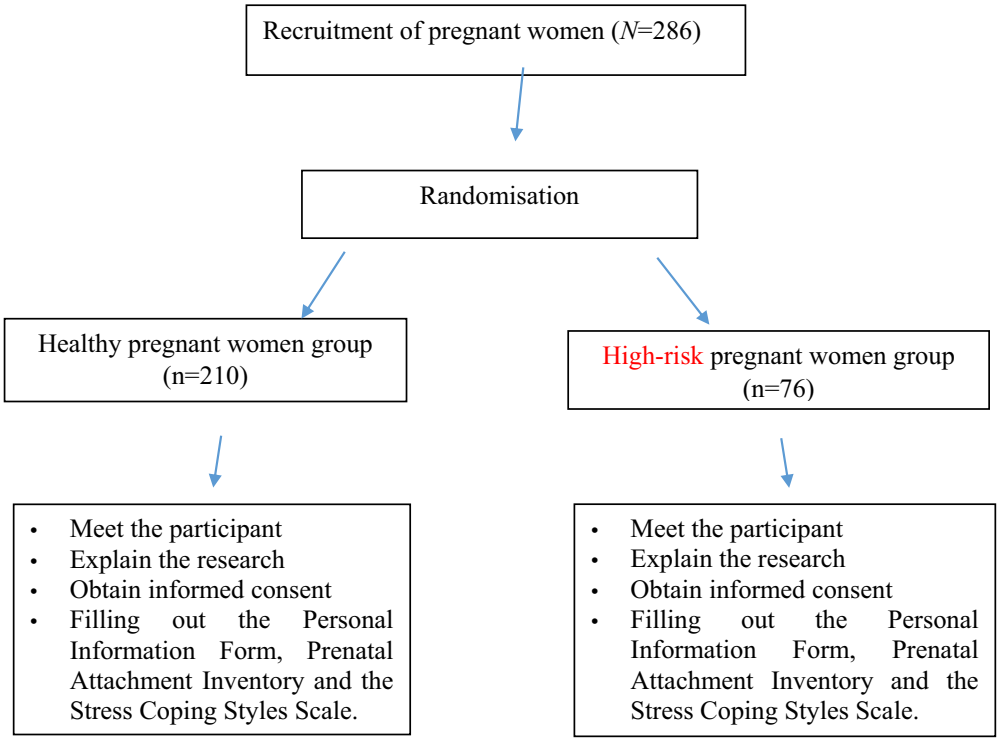

Figure 1. Flowchart of the study.

Stress coping styles scale (SCSS)

The SCSS was adapted into Turkish by Şahin and Durak. The SCSS consists of 30 items whose responses are rated on a four-point Likert scale (0–3). The scale consists of five sub-scales: 'self-confident approach', 'optimistic approach', 'helpless approach', 'submissive approach' and 'seeking social support'. The points obtained from each sub-scale are divided by the number of the items and the sub-group scores are obtained. A high score obtained from the sub-scales indicates that the individual uses the aforementioned approach more (Şahin & Durak, 1995). The Cronbach's alpha value was 0.666 in the present study.

Data analysis

The data were analysed using the Statistical Package for Social Sciences (SPSS) for Windows, Version 22.0 package program(IBM, Corp, Armonk, NY). In the analysis of the data, descriptive statistics (mean, standard deviation, minimum and maximum values and percentages), the chi-squared test and t-test were used. Pearson's correlation analysis was carried out to determine the direction and strength of the relationships between variables. The significance level was 0.05 for all the tests, and confidence intervals were calculated as 95%.

Ethical considerations

Before the study was conducted, written approval was obtained from the hospital where the study was to be conducted and ethical approval from the Non-Interventional Clinical Trials Ethics Committee (decision no: 2018–06/05). After the aim of the study was explained to the participants, informed consent was obtained from those who agreed to participate in the study. Those who accepted to participate in the study were told that participation was voluntary, that the information to be collected will be kept confidential and will be used within the scope of the research. The study was conducted in accordance with the Principles of the Helsinki Declaration.

Results

Participants' characteristics

The mean ages of the healthy and high-risk pregnant women were 27.74 (SD 5.46) and 27.23 (SD 5.90), respectively, and there was no statistically significant difference between the groups ($p > .05$). In our study, no significant difference was found between the groups in terms of age, educational status, family type, employment status and economic status ($p > .05$), while there was a significant difference between the groups in terms of having a chronic disease ($p = .002$; $p < .05$). Of the healthy pregnant women and high-risk pregnant women, 38.6% and 39.5% respectively had 3 or more previous pregnancies, more than half of the healthy pregnant women (66.2%) and about half of the high-risk pregnant women (%51.3) had a living child, and more than half of all the pregnancies (58.6% healthy; 59.2% high risk) were planned pregnancy. Nearly all of the pregnant women (93.3% healthy; 94.7% high risk) regularly went to control visits.

A statistically significant difference was found between the groups only in terms of the number of living children ($p = .022$; $p < .05$). However, there was no significant difference between the groups in terms of thinking of terminating pregnancy, pregnancy follow-up, status of liking baby's sex, her feelings when she found out she was pregnant and her feelings in the 3rd trimester of pregnancy ($p > .05$) (Table 1).

Results related to attachment levels and styles of coping with stress

The comparison of the healthy and high-risk pregnant women's mean prenatal attachment scores and styles of coping with stress revealed a statistically significant difference in terms of their prenatal attachment levels ($p = .006$; $p < .05$). The attachment levels of the high-risk pregnant women to their babies were higher than those of the healthy pregnant women. It was observed that both healthy and high-risk pregnant women mostly used the self-confident approach and social support seeking behaviour in coping with stress. However, no statistically significant difference was found between the pregnant groups in terms of coping with stress ($p > .05$) (Table 2). Healthy pregnant women reported the following as stress factors: Physical symptoms during pregnancy, parental anxiety, changes in family and social life, changes in body image, fear of birth, anxiety about

Table 1. Comparison of pregnant women's socio-demographic and obstetrics characteristics ($N = 286$).

	Healthy pregnant women (n = 210)		High-risk pregnant women (n = 76)		Test value	
Characteristics	n	%	n	%	x^2/t^*	p
Age						
< 20 years	10	4.8	3	3.9	0.222	.895
20–34 years	169	80.5	63	82.9	0.683*	.495
>34 years	31	14.8	10	13.2		
Age (years, mean, SD)	27.74 (5.46)		27.23 (5.90)			
Educational background						
Pre-secondary school	115	54.8	36	47.4	1.224	.269
High School and above	95	45.2	40	52.6		
Family type						
Nuclear family	141	67.1	53	69.7	0.172	.678
Extended family	69	32.9	23	30.3		
Employment status						
Employed	40	19.0	15	19.7	0.017	.896
Unemployed	170	81.0	61	80.3		
Perception of economic condition						
My income is less than my expenses	59	28.1	27	35.5	1.742	.419
My income and expenses are balanced	131	62.4	41	53.9		
My income is more than my expenses	20	9.5	8	10.5		
Chronic disease status						
Yes	15	7.1	15	19.7	*9.427*	*.002*
No	195	92.9	61	80.3		
Number of pregnancy						
1st pregnancy	60	28.6	29	38.2	3.701	.157
2nd pregnancy	69	32.9	17	22.4		
3 or more pregnancies	81	38.6	30	39.5		
The presence of the living child						
There are	139	66.2	39	51.3	*5.254*	*.022*
None	71	33.8	37	48.7		
Planning on getting pregnant						
Planned	123	58.6	45	59.2	0.009	.923
Unexpected	87	41.4	31	40.8		
Thinking of terminating pregnancy						
Thinking	9	4.3	5	6.6	0.234	.629
Unthinking	201	95.7	71	93.4		
Pregnancy follow-up status						
Regular	196	93.3	72	94.7	0.024	.876
Irregular	14	6.7	4	5.3		
Status of liking baby's sex						
Liking	140	66.7	50	65.8	0.019	.890
Not liking	70	33.3	26	34.2		
Her feelings when she learned about pregnancy						
Positive affection	146	69.5	47	61.8	1.501	.221
Negative affection	64	30.5	29	38.2		
Feelings in the 3rd trimester of pregnancy						
Positive affection	164	78.1	59	77.6	0.007	.933
Negative affection	46	21.9	17	22.4		

SD: Standart Deviation

baby's health. The high-risk pregnant women stated that they also had problems in their marital relationship and economic problems caused by the risky situation, insufficient social support, and leaving home and family as stress factors.

Table 2. Comparison of pregnant women's mean prenatal attachment and stress-coping style scores.

	Healthy pregnant women Mean (SD)	High-risk pregnant women Mean (SD)	Test value	
			t	p
Prenatal attachment	57.10 (11.32)	61.36 (11.73)	*−2.785*	*.006**
Styles of coping with stress				
Self-confident approach	2.00 (0.50)	2.12 (0.80)	−1.782	.076
Optimistic approach	1.84 (0.54)	1.80 (0.62)	0.542	.588
Helpless approach	1. 23 (0.52)	1.27 (0.62)	−0.543	.588
Submissive approach	1.03 (0.47)	1.00 (0.52)	0.446	.656
Seeking social support	1.88 (0.55)	2.00 (0.57)	−1.597	.111

Note: Test (t) = t test; significant findings are shown in bold.
*p < 0.05.

Table 3. Correlation between pregnant women's styles of coping with stress and prenatal attachment levels.

Prenatal attachment		
r		p
Stress-coping styles in healthy pregnant women		
Self-confident approach	*.250*	*.000*
Optimistic approach	*.215*	*.002*
Helpless approach	.035	.616
Submissive approach	−.074	.285
Seeking social support	.132	.056
Stress-coping styles in high-risk pregnant women		
Self-confident approach	*.274*	*.017*
Optimistic approach	*.282*	*.014*
Helpless approach	−.211	.067
Submissive approach	*−.240*	*.037*
Seeking social support	.122	.292

Test (t) = t test; significant findings are shown in bold.
*p < 0.05.

There was a positive and weak correlation between the stress-coping styles such as the self-confident and optimistic approaches, and the prenatal attachment levels of the healthy pregnant women and high-risk pregnant women (self-confident approach r = .250, p = .000; r = .274, p = .017; optimistic approach r = .215, p = .002; r = .282, p = .014 respectively). As the use of the self-confident and optimistic approaches to cope with stress increased in both healthy and high-risk pregnant women, so did their prenatal attachment levels. Moreover, a negative and poorly significant correlation was found between the prenatal attachment levels and the submissive approach, one of the stress-coping styles, in the high-risk pregnant women (r = – .240, p = .037) (Table 3). As the use of the submissive approach to cope with stress increased in the high-risk pregnant women, their prenatal attachment levels were reduced.

Discussion

In the present study, the correlation between healthy and high-risk pregnant women's prenatal attachment levels and styles of coping with stress was investigated. The mean prenatal attachment scores of the healthy and high-risk pregnant women were 57.10 (SD 11.32) and 61.36 (SD 11.73), respectively. In studies in which prenatal attachment levels in Turkey were investigated, the mean prenatal attachment scores were 60.71 (SD 10.12) in

Yılmaz and Beji's study, 57.32 (SD 12.32) in Elkin's study, and 56.97 (SD 11.58) in Karakoç and Özkan's study (Elkin, 2015; Karakoç & Özkan, 2017; Yılmaz & Beji, 2010). In the studies conducted with high-risk pregnant women, the mean prenatal attachment score was 60.91 (SD 9.28) in Della Vedova, Dabrassi, and Imbasciati's study and 61.96 (SD 9.24) in Bakır et al.'s study (Bakır et al., 2014; Della Vedova et al., 2008). The mean prenatal attachment scores that we obtained in the present study conducted with healthy and high-risk pregnant women were consistent with those in the literature.

In our study, the prenatal attachment levels of the high-risk pregnant women were higher than were those of the healthy pregnant women. White et al. (2008) stated that pregnancy risk is very important in the formation of motherhood perceptions and determination of the maternal and fetal attachment, especially in pregnant women hospitalised at clinics (White et al., 2008). In a study, no significant differences were determined between the prenatal attachment scores of pregnant women who had high-risk and healthy pregnancies (Hsu & Chen, 2001). It is thought that high prenatal attachment levels of the high-risk pregnant women in our study may be due to differences between the study methods, between socio-economic levels and social characteristics of the participants, and between the scales used. In addition, the anxiety and fear of loss experienced by high-risk pregnant women about the health of their babies may have increased the level of mother-infant attachment. The mother-baby attachment level of high-risk pregnant women may also have been affected by high anxiety, experienced motherhood and first pregnancies.

Stress experienced due to the mother's or the infant's problems in risky pregnancies is more pronounced and more severe than normal pregnancies (Ölçer & Oskay, 2015). Shamsaei et al. (2019) determined that there was a direct and significant correlation between the general health condition of pregnant women and their styles of coping with stress and perceived stress during pregnancy, and they found that pregnant women frequently used effective coping strategies (Shamsaei et al., 2019). Lau et al. (2016) found that pregnant women with positive stress perceptions used positive coping styles at a higher rate, and their likelihood of using negative coping styles was lower and the authors determined that pregnant women who used positive coping styles also reported the their general well-being was better (Lau et al., 2016).

In our study, the mean scores obtained from the subscales of the SCSS by the healthy and high-risk pregnant women were respectively as follows; submissive approach: 1.03 (SD 0.47); 1.00 (SD 0.52), helpless approach: 1.23 (SD 0.52); 1.27 (SD 0.62), self-confident approach: 2.0 (SD 0.50); 2.12 (SD 0.80), optimistic approach: 1.84 (SD 0.50); 1.80 (SD 0.62) and seeking social support: 1.88 (SD 0.55); 2.00 (SD 0.57). The mean scores obtained from the subscales of the SCSS by the pregnant women in Yılmaz and Beji's study (Yılmaz & Beji, 2010) were as follows; submissive approach: 1.0 (SD 0.5), helpless approach: 1.1 (SD 0.5), self-confident approach: 2.0 (SD 0.5), optimistic approach: 1.7 (SD 0.5), and seeking social support: 1.9 (SD 0.6) (Yılmaz & Beji, 2010).

In our study, the healthy and high-risk pregnant women mostly used the self-confident approach and social support seeking behaviour in coping with stress. Effective strategies of coping with stress may improve birth outcomes by preventing negative emotional reactions caused by stress during pregnancy (Lobel et al., 2008). In a study in which the correlation between the styles of coping with stress during pregnancy and pregnancy complications was investigated, it was found that the use of effective coping styles

decreased the incidence rate of pregnancy complications (Oni et al., 2015). Guardino and Schetter (2014) found a correlation between avoidant coping styles and adverse pregnancy outcomes (Guardino & Schetter, 2014). Given this information, it is an important and pleasing result that the pregnant women in our study used the self-confident approach and social support seeking behaviour which are positive and effective styles of coping with stress. In several studies conducted with healthy pregnant women, a correlation was determined between this healthy status and the adoption of the optimistic coping style as a way of dealing with stress in early and late pregnancy (Lobel et al., 2002; Yali & Lobel, 2002).

Another important result we obtained in our study was that there was no significant difference between the pregnant groups in terms of the styles of coping with stress used by the women in these groups. Faramarzi et al. (2016) did not find any significant correlation between stress-specific stress and styles of coping with stress (Faramarzi et al., 2016). According to the result of their study which supports our results, it may be stated that risky conditions during pregnancy cause stress specific to pregnancy, but high-risk pregnancy does not have an effect on the styles of coping with stress. The use of effective coping styles by the high-risk pregnant women in our study may be interpreted as that their self-confidence and social support factors were strong. In a study in which stress coping styles of pregnant women having risky pregnancy were determined, the HbA1c levels of the pregnant women using the optimistic approaches to cope with stress were lower (Sürücü et al., 2018). A study revealed that the self-esteem levels of pregnant women affected their stress levels and coping styles (Dolatian et al., 2013). Considering that individuals with a high self-respect have higher self-confidence, it may be stated that pregnant women in our study exhibited the self-confident approach to cope with their stress. The extent of the mother's confidence in herself and in fulfiling the motherhood role may affect her interaction with the baby and the mother-baby relationship.

There was a positive correlation between the healthy and high-risk pregnant women's stress-coping styles of the self-confident and optimistic approaches and their prenatal attachment levels. The use of a positive coping strategy by pregnant women contributes to the development of prenatal attachment (White et al., 2008). In previous studies, positive coping styles in pregnancy were determined to be associated with a better maternal-infant attachment (Pakenham et al., 2007; White et al., 2008). White et al. (2008) showed that positive coping has a strong positive correlation with both attachment intensity and attachment quality (White et al., 2008).

Limitations

Several limitations must be considered when interpreting the data of this study. The results obtained from this study are applicable only to the pregnant women who presented to the Obstetrics and Gynaecology service and Obstetrics and Gynaecology outpatient clinic of a hospital located in a city centre in the Central Anatolia region of Turkey, and they cannot be generalised to other pregnant women. Another limitation of this study is its descriptive type. In cross-sectional studies, information about the past is obtained with the questionnaire method. Due to the recall bias, there might be problems such as getting wrong information or not getting any information from people. In

addition, many factors (personality, stress, psychiatric disorders, etc.) may affect people's styles of coping with stress therefore it is hard to derive the cause-effect relationship in cross sectional studies.

Conclusions

The attachment levels of the high-risk pregnant women were higher than were those of the healthy pregnant women. It was observed that both healthy and high-risk pregnant women mostly used the self-confident approach and social support seeking behaviour in coping with stress. The mean prenatal attachment scores of the healthy and high-risk pregnant women were positively correlated with the styles of coping with stress. A positive correlation was found between the stress-coping styles of the self-confident and optimistic approaches and prenatal attachment levels in both the healthy and high-risk pregnant women. However, this correlation was not high. The low correlation in our study may be due to the low number of healthy pregnant women that were included in the sample. It is recommended that studies to be conducted in the future should include a larger number of pregnant women and different groups. Prenatal attachment is expected to increase as pregnant women use positive approaches to cope with stress more.

Disclosure statement

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