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Traumatic childbirth perception as a mediator between antenatal anxiety and prenatal attachment: A cross-sectional study*

Antenatal anksiyete ve prenatal bağlanma arasındaki ilişkide travmatik doğum algısının aracı rolü: Kesitsel bir araştırma

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Key Words: Antenatal Anxiety; Maternal–Fetal Attachment; Mediation Analysis; Pregnancy; Traumatic Childbirth

Anahtar Kelimeler: Antenatal Anksiyete; Anne-Bebek Bağlanması; Aracılık Analizi; Gebelik; Travmatik Doğum

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ABSTRACT

Background and Aim: Antenatal anxiety has been associated with adverse obstetric outcomes such as preterm birth, low birth weight, and impaired maternal–fetal bonding. Emerging evidence suggests that women's perception of childbirth as traumatic may influence this relationship; however, the mediating role of traumatic birth perception remains understudied. This study aimed to investigate the effect of antenatal anxiety on prenatal attachment and to investigate the mediating role of traumatic childbirth perception in this association. **Methods:** The cross-sectional and correlational study was conducted with 233 pregnant women attending routine antenatal care at a hospital Istanbul, Türkiye between August - November 2024. Data was collected using a Personal Information Form, Stirling Antenatal Anxiety Scale, Traumatic Childbirth Perception Scale, and Prenatal Attachment Inventory. Mediation analysis was conducted using PROCESS Macro (Model 4) with 5000 bootstrap resamples to estimate indirect effects. **Results and Conclusion:** Antenatal anxiety was positively correlated with traumatic childbirth perception ($\beta = 1.83$, $p < .01$), and both were negatively associated with prenatal attachment ($\beta = -0.75$ and $\beta = -0.11$, respectively; $p < .01$). Mediation analysis confirmed that traumatic childbirth perception partially mediated the relationship between antenatal anxiety and prenatal attachment (indirect effect: $\beta = -0.194$, SE = 0.067, 95% CI [-0.335, -0.072]). Traumatic birth perception plays a significant mediating role in the negative impact of antenatal anxiety on maternal–fetal attachment. These findings highlight the importance of early screening for anxiety and trauma-related beliefs in antenatal care settings to promote psychological preparedness and emotional bonding.

ÖZ

Giriş ve Amaç: Antenatal anksiyete, erken doğum, düşük doğum ağırlığı ve zayıflamış anne-fetus bağlanması gibi olumsuz obstetrik sonuçlarla ilişkilendirilmiştir. Son dönemdeki bulgular, kadınların doğumu travmatik olarak algılamasının bu ilişkiyi etkileyebileceğini göstermektedir; ancak travmatik doğum algısının aracılık rolü üzerine yeterli çalışma bulunmamaktadır. Bu çalışmanın amacı, antenatal anksiyetenin prenatal bağlanma üzerindeki etkisini ve bu ilişkide travmatik doğum algısının aracı rolünü incelemektir. **Gereç ve Yöntem:** Kesitsel ve ilişkisel tipte olan bu çalışma, Ağustos - Kasım 2024 tarihleri arasında İstanbul, Türkiye'deki bir hastanede rutin antenatal bakım alan 233 gebe kadın ile yürütüldü. Veri toplama araçları olarak Kişisel Bilgi Formu, Stirling Antenatal Anksiyete Ölçeği, Travmatik Doğum Algısı Ölçeği ve Prenatal Bağlanma Envanteri kullanıldı. Aracılık analizi, dolaylı etkilerin tahmini için PROCESS Makro (Model 4) kullanılarak 5000 bootstrap örnekleme ile gerçekleştirildi. **Bulgular ve Sonuç**: Antenatal anksiyete, travmatik doğum algısı ile pozitif yönde ($\beta = 1.83$, $p < .01$), prenatal bağlanma ile ise negatif yönde ilişkili bulundu ($\beta = -0.75$, $p < .01$). Travmatik doğum algısı da prenatal bağlanma ile negatif yönde ilişkilidir ($\beta = -0.11$, $p < .01$). Aracılık analizi, travmatik doğum algısının antenatal anksiyete ile prenatal bağlanma arasındaki ilişkide kısmi aracılık etkisine sahip olduğunu gösterdi(dolaylı etki: $\gamma = -0.194$, SH = 0.067, %95 GA [-0.335, -0.072]). Bulgular, travmatik doğum algısının antenatal anksiyetenin anne-fetus bağlanması üzerindeki negatif etkisinde anlamlı bir aracı rol üstlendiğini göstermektedir. Bu sonuçlar, antenatal bakım hizmetlerinde anksiyete ve travmaya ilişkin inançların erken dönemde taranmasının, psikolojik hazırlığı ve duygusal bağlanmayı desteklemek açısından önemli olduğunu vurgulamaktadır.

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INTRODUCTION

Pregnancy represents a critical transition in a woman's life, bringing physical, mental, and social changes. Failure to adapt to these changes or to effectively manage stressors can result in mental health problems, particularly anxiety and depression (Kırca and Gül 2020; Topaç Tuncel and Kahyaoğlu Süt, 2019). In routine prenatal care, health professionals primarily focus on maternal and fetal physical health. However, prenatal mental health problems can affect not only the mother and fetus but also the entire family (Yeşilçınar et al., 2022). The most common mental problems during pregnancy include anxiety and depression (Topaç Tuncel and Kahyaoğlu Süt, 2019). Anxiety, often marked by fear, worry, and restlessness, may go unrecognized in pregnancy due to overlapping physiological symptoms (Doğan Merih et al., 2020; Kurt and Aslan, 2020). It has been reported that the prevalence of anxiety during pregnancy ranges from 1% to 26% in low- and middle-income countries (Jha et al., 2018). In a systematic review of 104 studies on maternal anxiety during the antenatal and postnatal period, the prevalence of antenatal anxiety was found to be 15%, with higher in low- and middle-income countries (Dennis et al., 2017). In Türkiye, recent studies have reported prevalence rates as high as 32% (Tunç et al., 2012), underscoring the need for increased attention to maternal psychological well-being.

A key psychological determinant of antenatal anxiety is the woman's perception or prior experience of childbirth as traumatic. Traumatic childbirth involves a perceived threat of death or serious harm to the mother or infant (Beck and Watson, 2008). his perception can arise from direct experience (primary tokophobia) or from indirect sources such as narratives shared by others or media exposure (secondary tokophobia). Uncertainty surrounding labor and delivery may intensify anxiety, shaping cognitive appraisals of birth as fearful or uncontrollable (Murat and Ata, 2023). When anxiety during pregnancy is left unaddressed, it can result in adverse obstetric and neonatal outcomes, including preterm birth, low birth weight, premature rupture of membranes, prolonged labor, postpartum depression, and unplanned cesarean delivery (Grigidorias et al., 2018; Pavlov et al., 2014; Grigidorias et al., 2019; Madhavanprabhakaran et al., 2013). Moreover, elevated maternal anxiety has been associated with neurodevelopmental and behavioral problems in children, including increased emotional symptoms and social difficulties (Acosta et al., 2019).

Women who perceive childbirth as traumatic often report emotional detachment, avoidance of birth-related memories, and a profound sense of loss of control and personal violation (Ayers, 2007; Elmir et al., 2010; Goldbort, 1981). These issues can have a negative impact on mother-infant bonding. Because these mental health challenges can undermine mother-infant bonding, it is crucial to explore how women connect with their babies during pregnancy.

Prenatal attachment—defined as a mother's emotional bond with her unborn child—includes recognizing the fetus as a distinct being, communicating with it, and embracing maternal identity (Cranley, 1981). Prenatal bonding is often conceptualized in three dimensions: ensuring the baby's safe transition to the outside world, ensuring the baby's acceptance by others, and maternal self-devoting (Rubin, 1976). Literature suggests that prenatal attachment is shaped by numerous factors, including maternal education, employment status, parity, gestational week, planned pregnancy, awareness of fetal movements, body image perception, emotional intelligence, coping style, and perceived social support (Erkan Aksoy et al., 2016; Ossa et alç, 2012; Dereli Yılmaz and Kızılkaya Beji, 2010; Chang et al., 2015; Höber Akarsy and Oskay, 2017).

Despite growing recognition of the adverse effects of antenatal anxiety and traumatic childbirth perception, few studies have explored how these two constructs interact to influence prenatal attachment. Specifically, the mediating role of traumatic birth perception in the relationship between antenatal anxiety and maternal–fetal bonding remains underexplored. This study is grounded in the Cognitive Appraisal Theory of Stress proposed by Lazarus and Folkman (1984), which posits that individuals' emotional and behavioral responses are shaped not only by external stressors but by how these stressors are cognitively evaluated (Ali et al., 2022). Understanding this mechanism has critical implications for antenatal care. Interventions aimed at improving prenatal attachment may be more effective if they address both anxiety symptoms and trauma-related cognitive appraisals. Identifying and managing traumatic birth perceptions during pregnancy may thus serve as a preventive strategy to strengthen maternal–fetal relationships. Accordingly, the study aims to assess the mediating role of traumatic birth perception in the relationship between antenatal anxiety and prenatal attachment (Figure 1).

Hypotheses:

H1: Antenatal anxiety is positively correlation with traumatic childbirth perception.

H2: Antenatal anxiety and traumatic childbirth perception are both negatively correlated with prenatal attachment.

H3: Traumatic birth perception mediates the effect of antenatal anxiety on prenatal attachment.

Methods

Design: This study presents a cross-sectional, correlational design and adhered to the STROBE guidelines for observational studies.

Setting and Participants: The study was conducted between August and November 2024 at the pregnancy outpatient clinic of a tertiary education and research hospital in Istanbul, Türkiye. Women who were between 6 and 38 weeks of gestation, visited the hospital's pregnancy outpatient clinic for routine check-ups, aged 18 years or older and agreed to participate were included in the study. A total of 233 women included in the final analysis after the exclusion of 8 women (3 due to incomplete data, 4 with diagnosed psychiatric disorders, and 1 with a history of fetal loss).

Post-hoc analysis was performed using G*Power (v.3.1.9.4) and it indicated that the sample size provided over 95% statistical power to detect medium effect sizes in mediation models.

Data Collection Tools: In the study, four instruments were used:

Personal Information Form: The form consists of seven questions regarding the participants' sociodemographic information and obstetric-gynaecological history, including age, education, employment, parity, gestational week, and pregnancy planning.

Stirling Antenatal Anxiety Scale (SAAS): The scale developed by Sinesi et al. (2022) to screen for anxiety during pregnancy. The Turkish validity and reliability study was conducted by Çelebi et al. (2024). This five-point Likert-type scale consists of nine items. Each item is scored between "never" = 0, and "always" = 4. The scale scores range from 0 to 36, with higher scores indicating greater antenatal anxiety. The Cronbach's alpha coefficient is 0.88 in the original study and 0.87 in the Turkish validity and reliability study (Sinesi et al., 2022; Çelebi et al., 2024).

Traumatic Childbirth Perception Scale: The scale developed by Yalnız et al. in 2016, this one-dimensional scale uses an 11-point Likert format (from 0 to 10). The total score can range from 0 to 130. The score between 0-26 indicates a "very low" level of perception, 27 to 52 "low", 53 to 78 "moderate", 79-104 "high" and 105-130 "very high". The Cronbach's alpha coefficient of the scale is 0.89 (Yalnız et al., 2016).

Prenatal Attachment Inventory: Developed by Muller and Ferketich in 1993, this scale aims to assess the thoughts, feelings, and experiences of pregnant women and to determine the attachment level to the baby during the prenatal period. The Turkish validity and reliability study was conducted by Yılmaz and Kızılkaya Beji. The scale consists of 21 items, each rated on a four-point Likert scale (1 to 4). The minimum possible score is 21 and the maximum possible score is 84. An increase in the pregnant woman's score indicates a stronger level of attachment. The Cronbach alpha value of the scale was found to be 0.84 (Muller and Ferketich, 1993; Yılmaz and Beji, 2013.

Permissions for all scales were obtained from the corresponding authors.

Statistical Analysis: Data were analyzed using SPSS version 29.0 and the PROCESS Macro (v.4.3). Descriptive statistical methods (frequency, mean, and SD) were used to evaluate the socio-demographic data of pregnant women. The relationships among the study variables were examined using Pearson Correlation Analysis, and Cronbach's alpha values were assessed to determine the reliability of the scales.

Hayes' PROCESS Macro (Model 4) (Hayes, 2013) was used to test the mediation hypothesis. Bootstrapping with 5,000 resamples generated 95% bias-corrected confidence intervals (CI) for indirect effects. If the CI did not include zero, the mediating effect was considered statistically significant. Accordingly, Hayes's (2013) Model 4 was applied in the study, with antenatal anxiety (X) as the independent variable, prenatal attachment (Y) as the dependent variable, and traumatic birth perception (M) as the mediator variable. The level of statistical significance was set at 0.05.

RESULTS

Descriptive Statistics of Participants and Scales

A total of 233 pregnant women participated in the study. The mean age was 29.17 (SD: 4.78, range: 19-44). Nearly half (48.1%) had an associate degree or bachelor's degree; 31.3% were employed; and 60.5% stated that their income was equal to their expenses. When examining their pregnancy status, 78.5% were in the third trimester (mean gestational week: 31.08, SD: 7.88, range: 7 - 38); 74.2% planned their current pregnancy; and 51.9% were nulliparous (Table 1).

Participants reported low levels of antenatal anxiety (Mean: 9.56, SD: 7.51), moderate levels of traumatic childbirth perception (Mean: 54.36, SD: 29.27), and high levels of prenatal attachment (Mean: 64.11, SD: 13.62) (Table 2).

Pearson Correlation analysis revealed a significant positive correlation between the antenatal anxiety and the traumatic childbirth perception. In contrast, there were moderately negative correlations between the

Table 1. Sociodemographic Characteristics of Participants (N: 233)

Variables	n	%
Educational Status		
Primary & Elementary School	31	13.3
High school	75	32.2
Associate & Undergraduate Degree	112	48.1
Postgraduate Degree	15	6.4
Employment Status		
Employed	73	31.3
Not Employed	160	68.7
Income Status		
Income < Expenses	45	19.3
Income = Expenses	141	60.5
Income > Expenses	47	20.2
Is this pregnancy planned?		
Yes	173	74.2
No	60	25.8
Pregnancy Trimester		
First Trimester	12	5.2
Second Trimester	38	16.3
Third Trimester	183	78.5
Number of Pregnancies		
1 pregnancy	121	51.9
2 pregnancies	61	26.2
3 pregnancies	29	12.4
4 and above pregnancies	22	9.4
Number of children		
No children	121	51.9
1 child	81	34.8
2 children	25	10.7
3and above children	6	2.6

n: frequency, %: percentage

Table 2. Descriptive statistics of Stirling Antenatal Anxiety Scale, Traumatic Childbirth Perception Scale, and Prenatal Attachment Inventory (N: 233)

Scales	Mean	SD	Min.	Max.	Number of Items	Cronbach's Alfa
Stirling Antenatal Anxiety Scale	9.56	7.51	0.00	34.00	9	0.90
Traumatic Childbirth Perception Scale	54.36	29.27	10.00	129.00	13	0.92
Prenatal Attachment Inventory	64.11	13.62	21.00	84.00	21	0.88

SD: Standard deviation, Min.: Minimum values, Max.: Maximum Values

SD: Standard deviation, Min.: Minimum values, Max.: Maximum Values

antenatal anxiety and the prenatal attachment, as well as between the traumatic childbirth perception and prenatal attachment ($p<0.05$) (Table 3).

After conducting the correlation analyses between the independent and dependent variables, the effects of the independent variables on the dependent variable were presented in Table 4. In line with the proposed model, three different sub-models were created. In Model 1, the effect of traumatic birth perception on antenatal anxiety was examined, revealing a positive effect ($\beta = 1.834$, $p < 0.01$). In Model 2, the effect of antenatal anxiety on prenatal attachment was analysed, showing a negative effect ($\beta = -0.941$, $p < 0.01$). Finally, in Model 3, the effects of both traumatic childbirth perception and antenatal anxiety on prenatal attachment were analysed; antenatal anxiety had a negative effect on prenatal attachment ($\beta = -0.746$, $p < 0.01$), and traumatic childbirth perception also had a negative effect on prenatal attachment ($\beta = -0.106$, $p < 0.01$) (Table 4).

Table 3. Correlation test results of the relationship between the Stirling Antenatal Anxiety Scale, Traumatic Childbirth Perception Scale, and Prenatal Attachment Inventory

Correlations		Stirling Antenatal Anxiety Scale	Traumatic Childbirth Perception Scale	Prenatal Attachment Inventory
Stirling Antenatal Anxiety Scale	r*	1		
	95%CI**			
	p	-		
Traumatic Childbirth Perception Scale	r*	.471	1	
	p	0.000	-	
	95%CI**	[0.364, 0.565]	-	
Prenatal Attachment Inventory	r*	-.519	-.422	1
	p	0.000	0.000	-
	95%CI**	[-0.607, -0.418]	[-0.522, -0.310]	-

*r: Pearson Correlation, **95% Confidence Intervals (2-tailed), [Lower, Upper]

Table 4. Summary of output from Hayes' Process macro

Model 1 Summary Outcome: Traumatic Childbirth Perception Scale	**R**	**R^2**	**F**	**p**
	.471	.222	65.744	**0**.000
Model	**Coeff.**	**SE**	**t**	**p**
(Constant)	36.833	2.748	13.405	0.000
Stirling Antenatal Anxiety Scale	1.834	0.226	8.108	0.000
Model 2 Summary Outcome: Prenatal Attachment Inventory	**R**	**R^2**	**F**	**p**
	.519	.269	85.181	.000
Model	**Coeff.**	**SE**	**t**	**p**
(Constant)	73.100	1.238	59.036	.000
Stirling Antenatal Anxiety Scale	-.941	.102	-9.229	.000
Model 3 Summary Outcome: Prenatal Attachment Inventory	**R**	**R^2**	**F**	**p**
	.557	.310	51.626	0. .000
Model	**Coeff.**	**SE**	**t**	**p**
(Constant)	77.005	1.608	47.882	0.000
Stirling Antenatal Anxiety Scale	-.746	0.113	-6.632	0.000
Traumatic Childbirth Perception Scale	-.106	.029	-3.670	0.000
SE: Standard error				

Bootstrapping analysis (5,000 samples) showed a significant indirect effect of antenatal anxiety on prenatal attachment via traumatic childbirth perception (indirect effect γ = –0.194, SE = 0.067, 95% CI [–0.335, –0.072]), supporting partial mediation (see Table 5).

DISCUSSION

This study investigated the relationship between antenatal anxiety and prenatal attachment, with a specific focus on the mediating role of traumatic childbirth perception. The findings indicated that higher levels of antenatal anxiety were associated with increased perceptions of childbirth as traumatic, and both variables were inversely related to prenatal attachment. The mediation analysis confirmed that traumatic childbirth perception partially explained the negative impact of anxiety on maternal–fetal bonding, consistent with the Cognitive Appraisal Theory, which emphasizes how subjective interpretations of stressors shape emotional outcomes.

Our results are consistent with earlier studies reporting that heightened antenatal anxiety contributes to negative

Table 5. Mediation Analysis Summary

	Total effect			Direct effect			Indirect Effect		95% Confidence Intervals		Conclusion
Antenatal Anxiety-> Traumatic Childbirth Perception >Prenatal Attachment	**Effect**	**SE**	**t**	**Effect**	**SE**	**t**	**Effect**	**SE**	**LLCI**	**ULCI**	Partial Competitive mediation
	-0.941	0.102	9.229	-0.746	0.113	-6.632	-0.194	0.067	-0.335	-0.072	

SE: Standard Error, LLCI: Lower Limit Confidence Interval; ULCI: Upper Limit Confidence Interval

cognitive appraisals of childbirth and undermines maternal–fetal bonding (Yıldırım and Bilgin, 2021; Dilcen et al., 2022). Prior studies by Dilcen et al. (2022), Unutkan et al. (2024) and Yazıcı Topçu et al. (2022) also reported moderate levels of traumatic birth perception among pregnant women. The results in the literature suggest that a moderate level of traumatic childbirth perception is beneficial as extremely low levels of traumatic childbirth perception can lead to emotional problems for the mother, potentially affecting her ability to form a secure attachment with her newborn (Yıldırım and Bilgin, 2021).

The negative association observed between antenatal anxiety and prenatal attachment is further supported by existing evidence linking anxiety with reduced emotional bonding and maternal responsiveness (Napoli et al., 2020; Özdemir et al., 2020; Göbel et al., 2018). A study conducted during the COVID-19 pandemic highlighted that global stressors could intensify anxiety and negatively impact maternal antenatal attachment (Filipetti et al., 2022). Additionally, antenatal anxiety, traumatic childbirth perception and prenatal attachment influenced by multiple factors such as prenatal distress, depression level, planned pregnancy, social support, personal characteristics and experiences (Dilcen et al., 2022; Henricks et al., 2023; Şehirli Kıncı et al., 2023).

The mediation finding in this study provides important theoretical insight into how antenatal anxiety disrupts prenatal attachment. Consistent with the Cognitive Appraisal Theory of Stress, it appears that anxiety may impair attachment not directly, but through the expectant mother's perception of childbirth as threatening or uncontrollable. This suggests that cognitive appraisals serve as an intermediary mechanism that shapes emotional outcomes during pregnancy. Although no prior studies have tested this exact mediation model, this aligns with broader evidence suggesting that negative birth expectations, trauma-related cognitive schemas, and perceived loss of control contribute to weakened prenatal bonding [(Dilcen et al., 2022; Napoli et al., 2020; Şahin and Erbil, 2024; Barut et al., 2022).

The findings underscore the critical role of cognitive perceptions of childbirth in shaping maternal–fetal bonding. Women's interpretations of birth are influenced not only by personal experiences but also by broader sociocultural narratives, emotional regulation capacity, and psychological vulnerability (Ford and Ayers, 2009). Although childbirth is a physiological event, when appraised as traumatic, it can become a source of chronic distress that undermines maternal emotional engagement (Junge et al., 2018).

Taken together, these findings underscore the clinical importance of integrating routine psychological screening into antenatal care. Addressing antenatal anxiety and trauma-related appraisals can strengthen maternal–fetal attachment and may positively influence both maternal and child developmental outcomes. There is an urgent need to incorporate trauma-informed and cognitive appraisal–based interventions into standard prenatal care guidelines.

Implications for Policy and Practice

The findings underscore the need for routine antenatal screening not only for anxiety symptoms but also for childbirth-related trauma perceptions. Healthcare professionals should consider implementing routine anxiety assessments during prenatal visits and providing targeted psychological interventions for at-risk women. Cognitive-behavioural therapy (Alhusen et al., 2021), mindfulness-based stress reduction (Gheibi et al., 2020), and relaxation techniques (Mokaberian et al., 2021) may help reduce antenatal anxiety, improve childbirth perceptions and maternal-fetal attachment. Additionally, prenatal education programs (Bilgin et al., 2020) addressing realistic childbirth expectations and coping strategies could help minimize the impact of traumatic childbirth perception on prenatal attachment. Midwives, nurses, and perinatal mental health professionals can play a central role in identifying and addressing these cognitive-emotional risk factors during antenatal visits.

Limitations and Strength

First, due to the cross-sectional design, causality cannot be inferred; thus, longitudinal studies are needed. Second, findings from a single urban hospital in Türkiye

may not generalize to all pregnant women. Lastly, as this specific model has not been previously studied, direct comparisons in the literature are limited. Future research should examine potential moderators, such as social support, coping strategies, and resilience.

Despite limitations, this study has key strengths: it addresses a literature gap by exploring traumatic childbirth perception as a mediator between antenatal anxiety and prenatal attachment, uses validated tools grounded in cognitive stress appraisal theory, and employs robust statistical analyses. Findings emphasize the importance of birth preparation training and routine anxiety screening, providing valuable insights for clinicians and policymakers to improve maternal-infant outcomes.

CONCLUSION

This study provides evidence that traumatic childbirth perception partially mediates the relationship between antenatal anxiety and prenatal attachment. The findings suggest that how pregnant women cognitively appraise the childbirth experience plays a pivotal role in shaping their emotional connection with the fetus. By integrating psychological screening tools and cognitive-focused interventions into antenatal care, healthcare professionals may be better equipped to support maternal mental health and enhance prenatal bonding. This study provides a foundation for future longitudinal and intervention-based research aimed at improving maternal mental health and prenatal bonding through targeted cognitive interventions in antenatal settings

REFERENCES

Acosta, H., Tuulari, J. J., Scheinin, N. M., Hashempour, N., Rajasilta, O., Lavonius, T. I., Pelto, J., Saunavaara, J., Parkkola, R., Lähdesmäki, T., Karlsson, L., & Karlsson, H. (2019). Maternal pregnancy-related anxiety is associated with sexually dimorphic alterations in amygdala volume in 4-year-old children. Frontiers in Behavioral Neuroscience, 13, Article 175. https://doi.org/10.3389/fnbeh.2019.00175

Ali, A., Khan, A. A., Abbas, S., Khan, A. S., & Ullah, E. (2022). Cognitive appraisal, coping, stress and fear contracting COVID-19 in working people in Pakistan. Journal of Rational-Emotive & Cognitive-Behavior Therapy, 40(4), 663–682. https://doi.org/10.1007/s10942-021-00433-z

Alhusen, J. L., Hayat, M. J., & Borg, L. (2021). A pilot study of a group-based perinatal depression intervention on reducing depressive symptoms and improving maternal-fetal attachment and maternal sensitivity. Archives of Women's Mental Health, 24(1), 145–154.

Ayers, S. (2007). Thoughts and emotions during traumatic birth: A qualitative study. Birth, 34(3), 253–263. https://doi.org/10.1111/j.1523-536X.2007.00178.x.

Barut, S., Uçar, T., & Yılmaz, A. N. (2022). Comparison of pregnant women's anxiety, depression, and birth satisfaction based on their traumatic childbirth perceptions. Journal of Obstetrics and Gynaecology, 42(7), 2729–2737.

Beck, T. C., & Watson, S. (2008). Impact of birth trauma on breastfeeding: A tale of two pathways. Nursing Research, 57(4), 22–36.

Bilgin, N. Ç., Ak, B., Ayhan, F., Koçyiğit, F. Ö., Yorgun, S., & Topçuoğlu, M. A. (2020). Effects of childbirth education on prenatal adaptation, prenatal and maternal attachment. Anatolian Journal of Family Medicine, 3(2), 128–134. https://doi.org/10.5505/anatoljfm.2020.50757

Chang, H.-C., Yu, C.-H., Chen, S.-Y., & Chen, C.-H. (2015). The effects of music listening on psychosocial stress and maternal–fetal attachment during pregnancy. Complementary Therapies in Medicine, 23(4), 509–515.

Cranley, M. S. (1981). Development of a tool for the measurement of maternal attachment during pregnancy. Nursing Research, 30(5), 281–284. https://doi.org/10.1097/00006199-198109000-00008.

Çelebi, E. Z., Tozkır, E., Çayır, G., Özdemir, R., Dağlar, G., & Avşar, A. F. (2024). The Stirling Antenatal Anxiety Scale (SAAS): Turkish validity and reliability study. Midwifery, 136, Article 104073.

Dennis, C. L., Falah-Hassani, K., & Shiri, R. (2017). Prevalence of antenatal and postnatal anxiety: Systematic review and meta-analysis. The British Journal of Psychiatry, 210(5), 315–323.

Dereli Yılmaz, S., & Kızılkaya Beji, N. (2010). Levels of coping with stress, depression and prenatal attachment and affecting factors of pregnant women. Genel Tıp Dergisi, 20(3), 99–108.

Dilcen, H. Y., Akin, B., & Türkmen, H. (2022). The relationship of prenatal attachment level to traumatic childbirth perception and posttraumatic stress in pregnancy. Perspectives in Psychiatric Care, 58(1), 221–228.

Doğan Merih, Y., Karabulut, Ö., & Sezer, A. (2020). Is online pregnant school training effective in reducing the anxiety of pregnant women and their partners during the COVID-19 pandemic? Bezmialem Science, 9(1), 13–24.

Elmir, R., Schmied, V., Wilkes, L., & Jackson, D. (2010). Women's perceptions and experiences of a traumatic birth: A meta-ethnography. Journal of Advanced Nursing, 66(10), 2142–2153.

Erkal Aksoy, Y., Yılmaz, S., & Aslantekin, F. (2016). Prenatal attachment and social support in high-risk pregnancies. Türkiye Klinikleri Journal of Health Sciences, 1(3), 163–169.

Filippetti, M. L., Clarke, A. D. F., & Rigato, S. (2022). The mental health crisis of expectant women in the UK: Effects of the COVID-19 pandemic on prenatal mental health, antenatal attachment, and social support. BMC Pregnancy and Childbirth, 22(1), Article 68.

Ford, E., & Ayers, S. (2009). Stressful events and support during birth: The effect on anxiety, mood, and perceived control. Journal of Anxiety Disorders, 23(2), 260–268. https://doi.org/10.1016/j.janxdis.2008.07.009.

Gheibi, Z., Abbaspour, Z., Haghighyzadeh, M. H., & Javadifar, N. (2020). Effects of a mindfulness-based childbirth and parenting program on maternal-fetal attachment: A randomized controlled trial among Iranian pregnant women. Complementary Therapies in Clinical Practice, 41, Article 101226.

Goldbort, J. G. (2009). Women's lived experience of their unexpected birthing process. MCN: The American Journal of Maternal/Child Nursing, 34(1), 57–62.

Göbel, A., Stuhrmann, L. Y., Harder, S., Schulte-Markwort, M., & Mudra, S. (2018). The association between maternal-fetal bonding and prenatal anxiety: An explanatory analysis and systematic review. Journal of Affective Disorders, 239, 313–327.

Grigoriadis, S., Graves, L., Peer, M., Mamisashvili, L., Tomlinson, G., Vigod, S. N., Dennis, C. L., Steiner, M., Brown, C., Cheung, A., Dawson, H., Rector, N. A., Guenette, M., & Richter, M. (2018). Maternal anxiety during pregnancy and the association with adverse perinatal outcomes: Systematic review and meta-analysis. The Journal of Clinical Psychiatry, 79(5), Article 17r12011.

Grigoriadis, S., Graves, L., Peer, M., Mamisashvili, L., Tomlinson, G., Vigod, S. N., Dennis, C. L., Steiner, M., Brown, C., Rector, N. A., Guenette, M., & Richter, M. (2019). A systematic review and meta-analysis of the effects of antenatal anxiety on postpartum outcomes. Archives of Women's Mental Health, 22(5), 543–556. https://doi.org/10.1007/s00737-018-0930-2

Hayes, A. F. (2013). SPSS PROCESS documentation. Retrieved from http://www.afhayes.com

Henrichs, J., de Kroon, M., Walker, A., von Brachel, R., & Möhler, E. (2023). Maternal prenatal distress, maternal pre- and postnatal bonding and behavioral and emotional problems in toddlers: A secondary analysis of the IRIS study. Journal of Child and Family Studies. Advance online publication.

Höbek Akarsu, R., & Oskay, Ü. (2017). Determine the level of information about danger signs and prenatal attachment in high-risk pregnant women. Ege Üniversitesi Hemşirelik Fakültesi Dergisi, 33(2), 16–26.

Jha, S., Salve, H. R., Goswami, K., Sagar, R., & Kant, S. (2018). Burden of common mental disorders among pregnant women: A systematic review. Asian Journal of Psychiatry, 36, 46–53.

Junge, C., von Soest, T., Weidner, K., Seidler, A., & Eberhard-Gran, M. (2018). Labor pain in women with and without severe fear of childbirth: A population-based, longitudinal study. Birth, 45(4), 469–477.

Kırca, A. S., & Gül, D. K. (2020). Pregnancy-related Anxiety Scale (The PrAS): Validity and reliability study of its Turkish version. Celal Bayar University Journal of Health Sciences Institute, 7(4), 529–537.

Kurt, G., & Arslan, H. (2020). Turkish version of the Pregnancy Related Anxiety Scale: A psychometric study. Perspectives in Psychiatric Care, 57(1), 157–166.

Madhavanprabhakaran, G. K., Kumar, K. A., Ramasubramaniam, S., & Akintola, A. A. (2013). Effects of pregnancy-related anxiety on labour outcomes: A prospective cohort study. Journal of Research in Nursing and Midwifery, 2(7), 96–103.

Mokaberian, M., Dehghanpouri, H., Faez, N., & Vosadi, E. (2021). The effect of progressive muscle relaxation with imagery-based relaxation on the mental health and maternal-fetal attachment in women with a first unwanted pregnancy. International Journal of Health Studies, 7(1), 11–16.

Muller, M. E., & Ferketich, S. (1993). Factor analysis of the Maternal Fetal Attachment Scale. Nursing Research, 42(3), 144–147.

Murat, M., & Ata, E. E. (2023). Doğum korkusu. F. B. Bayrı & S. Karaca (Ed.), Anne ruh sağlığında psikososyal bakım içinde (ss. 23-34). Nobel Akademik Yayıncılık Eğitim Danışmanlık.

Napoli, A., Lamis, D. A., Berardelli, I., Canzonetta, V., Sarubbi, S., Rogante, E., Napoli, P. L., Serafini, G., Erbuto, D., Amore, M., & Pompili, M. (2020). Anxiety, prenatal attachment, and depressive symptoms in women with diabetes in pregnancy. International Journal of Environmental Research and Public Health, 17(2), Article 425.

Ossa, X., Bustos, L., & Fernandez, L. (2012). Prenatal attachment and associated factors during the third trimester of pregnancy in Temuco, Chile. Midwifery, 28(5), 689–696. https://doi.org/10.1016/j.midw.2011.08.015.

Özdemir, K., Çetinkaya, S., & Karakulak, A. (2020). Anxiety and prenatal attachment levels in pregnancy and influencing factors. Cukurova Medical Journal, 45(2), 502–510.

Pavlov, M., Steiner, N., Kessous, R., Weintraub, A. Y., & Sheiner, E. (2014). Obstetric and neonatal outcome in patients with anxiety disorders. The Journal of Maternal-Fetal & Neonatal Medicine, 27(13), 1339–1342.

Rubin, R. (1976). Maternal tasks in pregnancy. Journal of Advanced Nursing, 1(5), 367–376. https://doi.org/10.1111/j.1365-2648.1976.tb00921.x

Sinesi, A., Cheyne, H., Maxwell, M., & O'Carroll, R. (2022). The Stirling Antenatal Anxiety Scale (SAAS): Development and initial psychometric validation. Journal of Affective Disorders Reports, 8, Article 100333.

Şahin, M., & Erbil, N. (2024). Relationship between maternal antenatal attachment and traumatic childbirth perception among pregnant women. International Journal of Gynecology & Obstetrics, 165(1), 288–297.

Şehirli Kıncı, Ö., Koparal, B., Kıncı, M. F., & Arslaner, M. O. (2023). Determination of prenatal attachment and anxiety levels in postterm pregnancy. Sağlık Akademisyenleri Dergisi, 10(4), 543–548.

Topaç Tunçel, N., & Kahyaoğlu Süt, H. (2019). The effect of anxiety, depression and prenatal distress levels in pregnancy on prenatal attachment. Journal of Gynecology Obstetrics and Neonatology, 16(1), 9–17.

Tunç, S., Yenicesu, O., Çakar, E., Özcan, H., Pekçetin, S., & Danışman, N. (2012). Anxiety and depression frequency and related factors during pregnancy. Journal of Gynecology Obstetrics and Neonatology, 9(35), 1431–1435.

Unutkan, A., Mansuroğlu, S., & Karabulut, K. (2024). Factors affecting the perception of traumatic childbirth: A cross-sectional study in pregnant women. Ebelik ve Sağlık Bilimleri Dergisi, 7(2), 217–227.

Yalnız, H., Canan, F., Genç, R., & Kuloğlu, M. M. (2016). Development of the Traumatic Birth Perception Scale. Turkish Journal of Medical Sciences, 8(3), 81–88.

Yazıcı Topçu, T., & Aktaş, S. (2022). An investigation of the relationship between health literacy levels of pregnant women and their perceptions of traumatic childbirth. Social Work in Public Health, 37(2), 195–207.

Yeşilçınar, İ., Acavut, G., & Güvenç, G. (2022). Anxiety during pregnancy and affecting factors: A cross-sectional study. Archives of Gynecology and Obstetrics. Advance online publication. https://doi.org/10.1007/s00404-022-06590-5.

Yıldırım, G., & Bilgin, Z. (2021). Risk status and traumatic birth perception in pregnancy. Perspectives in Psychiatric Care, 57(4), 1897–1904Yılmaz, S. D., & Beji, N. K. (2013). Turkish version of prenatal attachment inventory: A study of reliability and validity. Anadolu Hemşirelik ve Sağlık Bilimleri Dergisi, 16(2), 103–109.