



The effect of breastfeeding self-efficacy levels on maternal attachment: the mediation role of mothers' traumatic childbirth perception

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Abstract

The perception of traumatic birth can negatively affect maternal and child health by influencing breastfeeding self-efficacy and maternal attachment. This study aimed to examine the mediating role of traumatic childbirth perception in the effect of breastfeeding self-efficacy on maternal attachment among mothers. A total of 195 mothers were included in this descriptive and cross-sectional research. The research data were collected by using the Descriptive Information Form, the Traumatic Childbirth Perception Scale, the Maternal Attachment Inventory, and the Breastfeeding Self-Efficacy Scale (Short Form). As a result of the research, it was determined that the mothers' traumatic childbirth perception was at a moderate level, their maternal attachment scores were high and their breastfeeding self-efficacy scores were above average. Also, a positive correlation was identified between maternal attachment and breastfeeding self-efficacy. The research findings show that 48.7% of participant mothers had high-level or very high-level traumatic childbirth perceptions. Health professionals should support mothers about traumatic birth anxiety.

Keywords Traumatic childbirth · Maternal attachment · Breastfeeding · Nursing

Introduction

Maternal attachment is a unique love relationship that develops between the mother and the baby over time (Çalışır et al., 2021a). Mother's emotional ties with the infant constantly develop throughout pregnancy and during the postnatal period. Even if most mothers easily form a

bond with their infants, some mothers fail to bond with their infants (Suetsugu et al., 2020). Difficulties in the establishment of a bond between a mother and an infant can give rise to significant negative changes in the infant's brain and can lead to developmental, emotional, and behavioral problems in the infant (Stuijzand et al., 2020). Initiating breastfeeding within the first half hour after birth strengthens maternal bonding between the mother and baby (Tonkuş & Muslu, 2021). Sucking and breastfeeding are processes through which mothers and their babies form a closer bond and simultaneously meet each other's psychological needs (Gümüşsoy et al., 2020). Many women report that breastfeeding is critical for establishing an emotional bond with their babies (Roth et al., 2021). In Turkish culture, breastfeeding is considered sacred. Therefore, mothers are eager to breastfeed when their babies are born. Although the majority of mothers in Türkiye start breastfeeding willingly (TDHS, 2018), many of them stop breastfeeding before the periods stipulated by valid scientific recommendations (Gümüşsoy et al., 2020). One of the factors that prevent breastfeeding is the perception of traumatic birth (Türkmen et al., 2020). It was put forward that negative perceptions or

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unsatisfactory childbirth experiences were associated with difficulties in continuing sexual activity, breastfeeding, and forming a bond between the mother and infant (Chabbert et al., 2021). In a study, it was found that mothers with relatively positive childbirth perceptions breastfed their infants for a longer period (above nine months) than mothers with negative childbirth experiences (Davis & Sclafani, 2022). A study was reported that traumatic birth increases cortisol levels in mothers, decreases oxytocin levels, and negatively affects breastfeeding (Witteveen et al., 2020). In a study conducted the breastfeeding attitudes of mothers with a high perception of traumatic birth were negatively affected (Çankaya & Ocaktan, 2022). In a study, it was reported that breastfeeding positively affects mothers, enhancing their maternal role and thus alleviating the perception of traumatic birth (Tziritidou-Chatzopoulou et al., 2023).

Problems in participating in the infant's care and bonding with the infant can be observed in women perceiving birth as a traumatic event (Bay & Sayiner, 2021). In a qualitative study, women experiencing childbirth trauma stated frequently that their ties with their infants broke off and they did not trust themselves in decision-making processes (Molloy et al., 2021). In another study, a statistically significant negative association was found between the mother's traumatic childbirth perception and maternal postnatal attachment (Smorti et al., 2020). A study found that an increase in mothers' perception of traumatic birth has a reducing effect on the level of maternal bonding (Aydın et al., 2022). In the study by Şahin and Erbil (2023), a negative correlation was identified between pregnant women's maternal antenatal attachment scores and Traumatic Childbirth Perception Scale scores.

Traumatic childbirth perception is the way in which the mother perceives the birth event as an incident likely to harm herself or the newborn (Abdollahpour & Khadivzadeh, 2019). Certain women can experience childbirth as a distressing traumatic event that gives rise to post-trauma stress disorder and other psychological problems (McKelvin et al., 2021). The primary causes of this situation can be listed as the negative childbirth experience, the mode of delivery, sexual abuse, sociodemographic/obstetric factors, the negative actions and attitudes of midwives and doctors assisting with the delivery, medical interventions administered during birth, childbirth complications and conditions of the delivery room and the lack of social support (Bay & Sayiner, 2021). Experiencing intense pain during childbirth can lead to feelings of loss of control and negative emotions related to childbirth. Additionally, factors such as having a complicated pregnancy, an unplanned pregnancy, inadequate antenatal care, insufficient social support, difficulties in decision-making and management, lack of adequate support from healthcare personnel, and deficiencies in

information and communication can also cause emotional trauma (Altun & Kaplan, 2021). In connection with traumatic childbirth, women can suffer from panic attacks, the avoidance of triggers, anxiety, intense negative emotions, changing self-perception, a lack of interest in activities, isolation, depression, suicidal ideation, excessively cautious behaviors, problems in relations, and the deterioration of the bond between mother and infant as well as severe fear about prospective births in the future (Gough & Giannouli, 2020). If traumatic childbirth perception is not taken into consideration and treated, it can give rise to anxiety and stress, damage family relations, negatively affect the quality of the bond to be established with the infant in the postnatal period, and lead to a fall in the breast milk supply (Türkmen et al., 2021).

In Türkiye breastfeeding training courses are offered to mothers. However, enough emphasis is not placed on the traumatic childbirth perception which is likely to affect breastfeeding and maternal attachment negatively. Therefore, in this study, we aimed to evaluate the mediating role of the perception of traumatic birth in the effect of mothers' breastfeeding self-efficacy on maternal attachment. Two hypotheses are proposed based on the study.

H1: There is a significant relationship between breastfeeding self-efficacy, maternal attachment, and perception of traumatic birth.

H2: Perception of traumatic birth mediates the relationship between breastfeeding self-efficacy, and maternal attachment.

Methods

Study design, population and sample

The research is descriptive and cross-sectional. The population of the study consisted of mothers who had an infant aged 1–6 months and applied to pediatrics polyclinics of Balıkesir Hospital in Türkiye from 1 December 2023 to 10 March 2024. The sample size of the study was calculated based on the prevalence value obtained from a reference study conducted to identify the traumatic childbirth perception, maternal attachment, breastfeeding self-efficacy, and associated factors, the sample size for the current research was calculated as 127 mothers by using the software, OpenEpi, with a 95% prevalence for an unknown population, a 5% margin of error, and a 99% confidence interval (Çalışır et al., 2021b). The data collection process was completed with 195 mothers. The research data were collected via the face-to-face interview method from the mothers. An informed consent form was delivered to mothers, and those

agreeing to participate in the study were requested to fill in the informed consent form. The criteria for mothers to be included in the research were (1) to be aged above 18 years, (2) to have an infant aged 1–6 months, and (3) to volunteer to participate in the study. The exclusion criterion was not to fill in the survey form fully.

Measures

In this research, the research data were collected by using the Descriptive Information Form, the Traumatic Childbirth Perception Scale, the Maternal Attachment Inventory, and the Breastfeeding Self-Efficacy Scale (Short Form).

Personal information form

This form consisted of questions on mothers' sociodemographic characteristics and birth-related variables.

Traumatic childbirth perception scale (TCPS)

The TCPS was developed by Yalnız et al. (2016) to identify the traumatic childbirth perception in women aged 18–40 years. It has 13 questions, no sub-scale, and no inversely coded item. It consists of questions covering the fear, worry, emotions, and thoughts expressed by a woman while thinking of the concept of childbirth. It is a 5-point Likert-type scale, and the minimum and maximum scores to be obtained by a respondent from it range from 0 to 130 points. As the total TCPS score increases, traumatic childbirth perception also increases (0–26 points: very low level of traumatic childbirth perception, 27–52 points: low level of traumatic childbirth perception, 53–78 points: medium level of traumatic childbirth perception, 79–104 points: high level of traumatic childbirth perception, and 105–130 points: very high level of traumatic childbirth perception) (Yalnız et al., 2016). The Cronbach's alpha of the in this study of the scale was found to be 0.92.

Maternal attachment inventory (MAI)

Müller (1994) developed the MAI to evaluate maternal attachment, and Kavlak and Şirin (2009) conducted a validity and reliability study to create its Turkish form. It is administered to mothers after the first month of the postnatal period. Comprised of 26 straight-worded items, the MAI is a 4-point Likert-type scale. A high total MAI score points to high-level maternal attachment. The minimum and maximum scores to be obtained by a respondent from the MAI are respectively 26 and 104 points (Kavlak & Şirin, 2009). The Cronbach's alpha of the in this study of the scale was found to be 0.88.

Breastfeeding self-efficacy scale - short form (BSES-SF)

This scale designed firstly as a 33-item scale (Dennis & Faux, 1999), and in a subsequent study in 2003, Dennis created its 14-item short form by revising the scale. Aluş Tokat et al. (2010) conducted a validity and reliability study to create the Turkish form of the BSES-SF. Designed as a 5-point Likert-type scale, the BSES-SF is applicable in both antenatal and postnatal periods and measures how adequate women feel about breastfeeding. The minimum and maximum scores to be obtained by a respondent from the BSES-SF are successively 14 and 70 points. A low total BSES-SF score points to a low breastfeeding self-efficacy perception (Aluş Tokat et al., 2010). The Cronbach's alpha of the in this study of the scale was found to be 0.90.

Statistical analysis

The research data were analyzed by using the Statistical Package for Social Science (SPSS) 25.0. The breakdown of sociodemographic and obstetric data and scale scores were expressed as percentages, means, and standard deviations. Skewness and kurtosis values were utilized to examine whether the research data were normally distributed. A series of t-tests were conducted to verify whether the differences in traumatic birth perception, maternal attachment, and breastfeeding self-efficacy are related to women's sociodemographic characteristics (education level, employment status, economic status, mode of delivery, whether the birth occurred at the expected time, and the presence of the partner during birth). The relationship between the number of children and the scales was tested with one-way analysis of variance (ANOVA). Spearman's correlation analysis was used to determine the relationship between Traumatic Childbirth Perception, Maternal Attachment Inventory, and Breastfeeding Self-Efficacy. Mediator variable analysis was conducted using PROCESS Multiple Mediation Model 4 (Hayes, 2018). In the research, 0.05 was set as the cut-off point for statistical significance ($p < .05$).

Ethics of the research

The ethical endorsement for the research was obtained from the Non-Invasive Research Ethics Committee of Balıkesir University of Türkiye (Date: 8 November 2023, Decision No: 2023/107), permission to conduct the research was received from the hospital where the study would be carried out. Women volunteering to join the study expressed their verbal and written consent to participate in the research.

Table 1 Participant women's sociodemographic characteristics and birth-related variables

Characteristics		<i>n</i>	%
Education level	High school	104	53.3
	University	91	46.7
Employment status	Not working	83	42.6
	Working	112	57.4
Perceived income level	Medium	59	30.3
	High	136	69.7
Infant's sex	Female	98	50.3
	Male	97	49.7
Number of living children	1	97	49.7
	2	77	39.5
	3	21	10.8
Whether the mother had a term birth	Yes	178	91.3
	No	17	8.7
Mode of delivery	Cesarean section	120	61.5
	Vaginal delivery	75	38.5
How the mother defined the birth event	Pleasing	59	30.2
	Terrifying	30	15.4
	Worrying	106	54.4
Whether the mother attended the childbirth preparation class	Yes	68	34.9
	No	127	65.1
Whether the spouse was with the mother for support during birth	Yes	145	74.4
	No	50	25.6

Table 2 Descriptive statistics for mothers' TCPS, MAI, BSES-SF scores and traumatic childbirth perception level (*n* = 195)

Scales	Mean ± Standard Deviation	Min.–Max.
TCPS	75.86 ± 21.72	17–114
MAI	97.93 ± 5.62	75–104
BSES-SF	50.19 ± 8.34	22–70
Traumatic childbirth perception level	<i>n</i>	%
Very low	2	1
Low	29	14.9
Medium	69	35.4
High	76	39
Very high	19	9.7

Results

Participant mothers' sociodemographic and birth-related characteristics

Of all participant mothers, 53.3% were high school graduates, 57.4% were working, 69.7% stated that they had a high-level income, 50.3% gave birth to a female infant, 49.7% had one child, 91.3% had a term birth, 61.5% had cesarean delivery, 54.4% defined the birth event as worrying, 65.1% did not attend the childbirth preparation class,

and 74.4% had their spouses with them for support during birth (Table 1).

Participant mothers' mean TCPS, MAI, and BSES-SF scores

Table 2 shows the mean scores obtained by participant mothers from the TCPS, the MAI, and the BSES-SF. Of all mothers, 1% had very low-level traumatic childbirth perceptions, 14.9% had low-level traumatic childbirth perceptions, 35.4% had medium-level traumatic childbirth perceptions, 39% had high-level traumatic childbirth perceptions, and 9.7% had very high-level traumatic childbirth perceptions (Table 2).

Participant mothers' mean TCPS, MAI, and BSES-SF scores as per their sociodemographic and birth-related characteristics

Table 3 indicates participant mothers' mean TCPS, MAI, and BSES-SF scores as per their sociodemographic characteristics. It was discerned that non-working mothers obtained a higher mean TCPS score than working mothers ($p = .001$), mothers whose infants were male obtained a higher mean TCPS score than those whose infants were female ($p = .024$), mothers who had one child obtained a higher mean TCPS score than those who had two children and those who had three children ($p = .025$), mothers who had a preterm birth obtained a higher mean TCPS score than those who had a term birth ($p < .001$), mothers who did not have their spouses with them for support during birth obtained a higher mean TCPS score than those who had their spouses with them for support during birth ($p = .017$), and all these differences between groups were statistically significant.

Mothers who were high school graduates obtained a significantly lower mean MAI score than those who were university graduates ($p = .030$). Mothers who had two children obtained a significantly higher mean MAI score than those who had three children ($p = .015$). Mothers who had their spouses with them for support during birth obtained a significantly higher mean MAI score than those who did not have their spouses with them for support during birth ($p = .018$).

Mothers who had a medium-level income obtained a significantly higher mean BSES-SF score than those who had a high-level income ($p = .005$).

Correlations between participant mothers' TCPS, MAI, BSES-SF scores, and mother's age

There was a statistically significant negative correlation between mothers' TCPS scores and the variable of age

Table 3 Comparisons of mothers’ mean TCPS, MAI, and BSES-SF scores as per their sociodemographic and birth-related characteristics

Characteristics	TCPS	MAI	BSES-SF
	Mean±SD	Mean±SD	Mean±SD
Education level			
High school	78.50±21.29	97.12±5.58	50.04±7.79
University	72.85±21.92	98.86±5.55	50.36±8.97
t-value	1.821	-2.180	-0.262
p-value	0.070	0.030	0.794
Employment status			
Not working	81.87±21.35	97.50±5.99	49.48±7.75
Working	71.41±20.99	98.25±5.33	50.72±8.75
t-value	3.418	-0.924	-1.027
p-value	0.001	0.357	0.297
Infant’s sex			
Female	72.38±22.80	97.89±5.42	51.17±6.80
Male	79.38±20.07	97.97±5.84	49.20±9.58
t-value	-2.272	-0.101	1.653
p-value	0.024	0.920	0.100
Perceived income level			
Medium	73.10±22.13	98.13±5.76	52.71±6.72
High	77.06±21.51	97.85±5.58	49.10±8.75
t-value	-1.172	0.322	2.823
p-value	0.243	0.748	0.005
Number of living children			
1	80.08±19.83	97.87±6.01	49.10±7.96
2	71.49±23.30	98.85±4.61	50.75±9.28
3	72.42±21.25	94.85±6.23	53.19±5.18
F-value/df	3.755/2	4.328/2	2.389/2
p-value	0.025	0.015	0.094
Whether the mother had a term birth			
Yes	56.58±22.33	96.11±7.06	50.47±9.52
No	77.70±20.80	98.11±5.46	50.16±8.25
t-value	-3.974	-1.401	0.142
p-value	<0.001	0.163	0.887
Mode of delivery			
Cesarean delivery	77.66±21.62	97.77±5.85	49.64±8.57
Vaginal delivery	72.98±21.69	98.20±5.26	51.08±7.93
t-value	1.468	-0.512	-1.172
p-value	0.144	0.609	0.243
Whether the spouse was with the mother for support during birth			
No	78.03±20.55	98.49±5.07	50.02±8.37
Yes	69.58±23.92	96.32±6.78	50.70±8.31
t-value	2.402	2.388	-0.495
p-value	0.017	0.018	0.621

whereas there was a statistically significant positive correlation between mothers’ BSES-SF scores and the variable of age. Also, a statistically significant positive correlation was found between maternal attachment and breastfeeding self-efficacy (Supplementary Table 1).

Regression analysis results on the mediating role of perceived traumatic birth in the relationship between mothers’ breastfeeding self-efficacy and maternal attachment

Supplementary Table 2 presents the results of regression analyses to determine the mediating role of traumatic birth perception on mothers’ breastfeeding self-efficacy and maternal attachment. According to the analysis results, breastfeeding self-efficacy does not affect the perception of traumatic birth ($\beta = -0.2355, SE=0.1866$). Breastfeeding self-efficacy explains 1% of the variance in the perception of traumatic birth ($R^2=0.01, F(1,193)=1.5931, p=.20$) (Path a). Regression analysis showed that perception of traumatic birth did not have a significant effect on maternal attachment ($\beta=0.0310, SE=0.0185$) (Path b) (Fig. 1).

According to the analysis results, mothers’ breastfeeding self-efficacy significantly and positively affects maternal attachment ($\beta=0.0970, SE=0.0481, p=.04$) (path c).

The indirect effect of breastfeeding self-efficacy on maternal attachment through perception of traumatic childbirth was examined (a.b) with a bootstrapping method and the indirect effect of breastfeeding self-efficacy on maternal attachment was determined to be insignificant ($\beta = -0.0073, SE=0.0076$) (Supplementary Table 2). Based on these results, the perception of traumatic birth does not mediate the relationship between maternal attachment and breastfeeding self-efficacy. In light of these findings, the H2 hypothesis is not supported.

Discussion

This study, we aimed to evaluate the mediating role of the perception of traumatic birth in the effect of mothers’ breastfeeding self-efficacy on maternal attachment. In our research, it was discerned that the mean of mothers’ TCPS scores was 75.86 ± 21.72 points (high-level traumatic childbirth perception), and of all mothers, 39% had high-level traumatic childbirth perceptions and 9.7% had very high-level traumatic childbirth perceptions. In a study, it was found that the mean of women’s TCPS scores was 57.85 ± 21.73 points, and of all women, 15.7% had high-level traumatic childbirth perceptions and 1.6% had very high-level traumatic childbirth perceptions (İbici Akça et al., 2023). In a study conducted with mothers, it was reported that 47.5% of the mothers feared that they or their babies would be injured or die during labour (Kjerulff et al., 2021). In the study by Şahin and Erbil (2023), it was reported that the mean TCPS score of pregnant women was 73.21 ± 28.34 . Among all pregnant women, 29.2% had high-level traumatic childbirth perceptions, and 14.5% had very

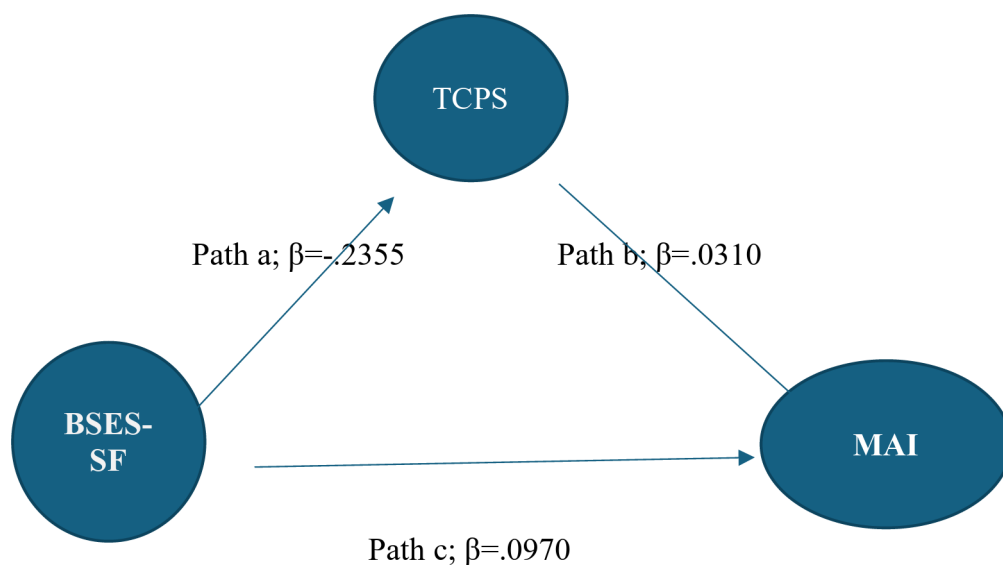


Fig. 1 Conceptual model of moderation

high-level traumatic childbirth perceptions. As per the result of our research, we recommend that practices aimed at alleviating the fear of childbirth be put in use. The perception of traumatic birth can be influenced by a woman's personality traits and the meaning that Turkish culture attributes to childbirth (Altuntuğ et al., 2024). The mother should be trained on techniques to gain power and feel relaxed during childbirth, the reinforcement of the mother's decision-making skills, the enhancement of self-confidence in the body, and the acquisition of the ability to act appropriately in critical situations. Therefore, childbirth-related courses should not be limited only to education on childbirth and childbirth physiology but also should focus on improving health behaviors during pregnancy, reducing stress, developing family relations, strengthening the mother, enhancing the mother's self-confidence, and developing the mother's infant care skills. Furthermore, increasing spousal support and social support before, during, and after childbirth will be effective in reducing the mother's perception of a traumatic birth. Healthcare professionals should provide psychosocial support to both the mother and the spouse.

In our research, the mean of mothers' MAI scores was found as 104.00 ± 97.93 points. This mean score is high considering the minimum and maximum scores to be obtained by a mother from the MAI. Similar scores were obtained in studies conducted in Türkiye (Çalışır et al., 2021b; Oruç & Kukulcu, 2022; Güler & Çevik, 2023). This suggests that the bond established with the baby may be influenced by cultural attitudes. In Türkiye, motherhood is considered sacred, and taking care of the baby is a mother's primary priority. It is believed that this may have strengthened the bond between mother and baby. Additionally, our research found that mothers have high breastfeeding self-efficacy.

Breastfeeding enhances the unique bond between mother and baby, thereby improving maternal attachment. Therefore, our research suggests that maternal attachment is high among the mothers studied.

Besides, in our study, it was discerned that the mean of mothers' BSES-SF scores was 50.19 ± 8.34 points. In a study on breastfeeding self-efficacy and its relationship with breast milk in adult women, this score was determined as 58.62 (Monteiro et al., 2020), while in another study conducted with women in the postpartum period, it was identified as 55.13 ± 8.39 points (Mercan & Selcuk, 2021). The breastfeeding attitude is a dynamic process affected by not only a woman's personal characteristics, but also numerous cultural factors present in the woman's family, social environment, or the geographic region where she lives. In the study by Güler and Çevik, the mean of mothers' BSES-SF scores was found as 63.51 ± 10.71 points (Güler & Çevik, 2023). In Türkiye, breastfeeding is a culturally supported behavior. Several types of herbal tea and food are recommended to the mother to increase the breast milk supply, and the mother is motivated to breastfeed her infant. Thus, the high mean score obtained by mothers from the BSES-SF in our study is an expected outcome. Although breastfeeding is a natural process, mothers need support both to start and to continue breastfeeding. To promote maternal and child health, healthcare professionals, particularly pediatric nurses, should support mothers by providing breastfeeding education.

Moreover, in our research, it was discerned that non-working mothers had higher levels of traumatic childbirth perceptions than working mothers. In the relevant literature, there was results similar to the one found in our study (Türkmen et al., 2020; Mucuk & Özkan, 2022). Not working and,

in a sense, not having health insurance, or having a low income may have made the mother worry about whether the care needs of herself and her infant would be met or not. In this situation, the mother can feel helpless and insecure. All these factors are variables predicting the traumatic childbirth perception. Practices such as health insurance and income support to be provided to mothers before childbirth will protect both the mother and the infant mentally and physically. Moreover, the fact that working mothers may have more individual coping mechanisms and social support factors could positively influence their perception of traumatic birth.

In our study, it was discerned that mothers who had one child obtained a higher mean TCPS score and a lower MAI score than those who had two children and those who had three children. In the literature, it was determined that the perception of traumatic birth was higher in first pregnancies (Türkmen et al., 2020; Müslüman & Apay, 2022) and in mothers with only one child (Mucuk & Özkan, 2022). In the study by Selcuki et al. (2022), a negative association was found between the number of children and maternal attachment. The past childbirth experience of women who had more than one child may have reduced these women's fears by making them feel relaxed. When viewed from this perspective, providing women with peer support during the pregnancy process can change the traumatic childbirth perception in a positive direction. Additionally, the fact that first-time mothers have not experienced childbirth before and are encountering it for the first time can also lead to a high perception of traumatic birth.

In our research, mothers who had a preterm birth had higher levels of traumatic childbirth perceptions than those who had a term birth. In a study in the literature with similar results to our findings, it was found that mothers who gave birth preterm experienced higher levels of birth trauma (Waller et al., 2022). However, there was no study conducted previously with the TCPS, which was the measurement tool used in our study. In preterm births, the possibility of mothers being separated from their babies in the early postpartum period and the uncertainty of how long this separation will last can lead to a high level of traumatic perception of birth in mothers. In addition, concerns about the baby's health problems can increase this perception. It is recommended that the TCPS be used in clinics as the routine screening test to assess women's traumatic childbirth perceptions and support them.

One of the significant factors affecting the women's childbirth experiences is the spouse's/partner's support. In our study, it was discerned that mothers who did not have their spouses with them for support during birth had a higher mean TCPS score and a lower mean MAI score than those who had their spouses with them for support during

birth. In a study, the partner's support was identified as one of the factors positively affecting the women's subjective perceptions of the birth experience (Chabbert et al., 2021). In a study on Factors affecting maternal attachment, it was determined that women who felt the support of their spouses achieved higher maternal attachment scores (Keskin & Yağmur, 2020). In a qualitative study, it was reported that, as the spouse was not allowed to be next to the pregnant woman in the delivery room, the pregnant woman felt lonely and had fear (Aktaş & Aydın, 2019). In almost all state hospitals in Türkiye, pregnant women's spouses cannot enter the delivery room due to hospital policies, concerns about the woman's privacy, and cultural reason. If conditions in the delivery room are suitable, spouses should be allowed to be next to pregnant women for support.

In our research, mothers who had relatively low-level education obtained a significantly lower mean MAI score. Although there are studies similar to our findings in the literature (Şahin & Erbil, 2023), there was also a study that found that there is no relationship between maternal attachment and education level (Selcuki et al., 2022). Education enlarged opportunities for mothers to access information. This, in turn, can enable mothers to exhibit a sounder attitude toward the infant's care by allowing mothers to have awareness of topics such as maternal attachment, breastfeeding, and infant care. Support on topics such as the infant's care, maternal attachment, and breastfeeding training can be useful for prospective mothers with low-level education.

Additionally, in our research, it was found that mothers who had medium-level income obtained a higher mean BSES-SF score than those who had high-level income. Although there were studies in the literature that did not show a statistically significant relationship between breastfeeding and income status (Monteiro et al., 2020), there was also a study that found that mothers with low income levels had higher mean scores on the Breastfeeding Attitudes Evaluation Scale (Mercan & Selcuk, 2021). Breastfeeding cannot be explained by a single factor; however, the high price of infant formulas may have enticed mothers to breast-feed their infants.

In our research, it was discerned that age and traumatic childbirth perception were negatively correlated. Similarly, a study found that the level of traumatic birth perception decreased with increasing age (Akgül et al., 2023; Koc & Ozkan, 2022). In this respect, it is considered that, as age increased, women's skills in coping with anxiety may have increased and their traumatic childbirth perception levels may have decreased. One of the roles of families is to produce and raise healthy generations. Having children at an advanced age brings the excitement of reuniting with their baby for mothers who have longed for a child for a long

time. This excitement can motivate mothers and reduce the perception of traumatic birth.

Besides, in our study, a positive correlation was identified between age and breastfeeding self-efficacy. In a study conducted with mothers in the postpartum period, it was found that breastfeeding self-efficacy increased with increasing age (Mercan & Selcuk, 2021). As mothers get older, they gain experience and become more willing and confident about breastfeeding their babies, which may have led to mothers having higher breastfeeding self-efficacy.

Our findings confirm our first hypothesis by revealing that maternal attachment was positively associated with breastfeeding self-efficacy. In the study by Keskin and Yağmur (2020), it was found that mothers with higher maternal attachment scores breastfed their newborns in the first 10 min of the postnatal period. In the study by Güler and Çevik (2023), a statistically significant positive association was identified between breastfeeding self-efficacy and maternal attachment. In a study conducted with mothers with preterm infants, a statistically significant positive relationship was found between breastfeeding self-efficacy and maternal attachment (Ağar & Yıldırım, 2023). It is considered that breastfeeding strengthens the emotional bond between the mother and infant and contributes to safe bonding with the infant. Therefore, it is recommended that breastfeeding be supported not only for the infant's physical health but also for its mental well-being. The mediating role of traumatic birth perception in the effect of breastfeeding self-efficacy on maternal attachment could not be confirmed in this study. This finding indicates that other factors affecting maternal attachment should be taken into consideration. In addition, the mothers' high maternal attachment scores and breastfeeding self-efficacy may have also affected this result.

Strengths and limitations

As the research findings are limited to a single center, they cannot be generalized. The reliability of research data is limited to the accuracy of answers given by participants. It is considered that having different sample groups and conducting longer follow-ups will be useful for prospective studies. What is experienced during birth and in its aftermath can affect the health of the mother and infant either positively or negatively. Thus, for the elimination of mothers' traumatic childbirth perceptions, a significant responsibility falls on health workers who serve during the birth process. Starting breastfeeding the infant in the aftermath of birth and continuing it later during the postnatal period is important to the development of the health of the mother and child. Maternal attachment affects breastfeeding positively by enhancing the interaction between the mother

and infant. It is considered that practices such as providing the mother with social support, promoting the interaction between the mother and infant, starting breastfeeding the newborn in the immediate aftermath of birth, administering relaxation interventions to the mother during birth, and providing the mother with necessary information during the antenatal period will contribute to the development of the health of the mother and child by preventing mothers from having traumatic childbirth perceptions.

Conclusion

The research results show that mothers' traumatic childbirth perceptions were high, and 48.7% of them had high-level or very high-level traumatic childbirth perceptions. Age, employment status, the number of living children, the status of having a preterm birth, and the status of receiving support from the spouse are among the factors affecting the traumatic childbirth perception. The TCPS should be administered to prospective mothers during pregnancy, and support should be provided to the risky group. Midwives, pediatric nurse, and consultation liaison psychiatric nurse should support women mentally during the antenatal period. Also, spouses who will support prospective mothers should be encouraged to be with prospective mothers during the birth event.

The mother's education level, the number of living children, and the spouse's support during birth were among the factors affecting maternal attachment, which was another factor that is significant to the health of the mother and infant. Besides, breastfeeding affected maternal attachment positively. It is important to plan interventions likely to affect the maternal attachment positively for the infant's healthy development (interventions such as the organization of training programs for mothers with low-level education, information sessions for the family on the spouse's support, and initiatives to alleviate the anxiety of mothers who have a large number of children). The positive effect of breastfeeding on maternal attachment increases the importance to be attributed to breastfeeding training. It is recommended that more comprehensive studies be conducted on the factors affecting maternal attachment and breastfeeding self-efficacy.

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Data availability The datasets analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Competing interests The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Conflict of interest The author(s) declare no potential conflict of interest regarding research, writing and/or the publishing of this article.

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