



## ARAŞTIRMA / RESEARCH

# Effect of birth type on parenting behavior, infant perception and maternal attachment

Doğum şeklinin ebeveynlik davranışı, yenidoğanı algılama ve maternal bağlanma üzerindeki etkisi

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### Abstract

**Purpose:** The aim of this study was to investigate and compare the effect of birth type on parenting behaviors, infant perception and maternal attachment.

**Materials and Methods:** This descriptive and comparative study was conducted with 77 primipara mothers (vaginal birth: 48, cesarean section: 29). The data were collected in three follow-ups using the Individual Presentation Form, Postpartum Parenting Behavior Scale (PPBS), Neonatal Perception Scale (NPS) and Maternal Attachment Scale (MAS). The first follow-up was performed by observation in the birth room/operating room, and the second follow-up was carried out by face to face interview in the obstetrics clinic 24 hours after the birth and the third follow-up was conducted as reaching by telephone one month after the birth.

**Results:** In the study, no statistically meaningful difference was found between the mean scores of PPBS, MAS and infant perception regarding the birth type. No correlation was found between the PPBS and MAS mean scores in both groups, and no difference between the mean scores of PPBS and MAS was found regarding their infant perception.

**Conclusion:** As the cesarean delivery rates increases, nursing care given to women that give cesarean section increases. Some mothers may be anxious and upset about maternal attachment, parenting, and newborn because of cesarean delivery. Therefore, nurses should support these mothers by expressing that there is no difference between parental behavior, maternal attachment levels and newborn perception according to the type of delivery in addition to standard care.

**Keywords:** attachment, parenting, nursing, newborn, perception

### Öz

**Amaç:** Bu çalışmanın amacı, doğum şeklinin ebeveynlik davranışı, yenidoğanı algılama ve maternal bağlanma üzerindeki etkisini araştırmak ve karşılaştırmaktır.

**Gereç ve Yöntem:** Tanımlayıcı ve karşılaştırmalı türdeki bu araştırma 77 primipar anne (vajinal doğum: 48, sezaryen doğum: 29) ile yürütülmüştür. Veriler Birey Tanıtım Formu, Doğum Sonrası Ebeveynlik Davranışı Ölçeği (DSEDÖ), Yenidoğanı Algılama Ölçeği (YAÖ) ve Maternal Bağlanma Ölçeği (MBÖ) kullanılarak üç izlemde toplanmıştır. İlk izlem, doğumhane/ameliyathanede gözlem yolu ile, ikinci izlem doğumdan 24 saat sonra kadın doğum kliniğinde yüz yüze görüşülerek, üçüncü izlem ise doğumdan bir ay sonra annelere telefonla ulaşılarak yapılmıştır.

**Bulgular:** Doğum şekline göre DSEDÖ, MBÖ puan ortalamaları ve yenidoğanı algılama durumları arasında fark yoktur. Her iki gruptaki annelerin DSEDÖ, MBÖ puan ortalamaları arasında ilişki bulunmazken, yenidoğanı algılama durumlarına göre de DSEDÖ ve MBÖ puan ortalamaları arasında fark yoktur.

**Sonuç:** Sezaryen doğum oranlarındaki artış göz önüne alındığında, hemşirelerin sezaryen ile doğumu gerçekleştirecek gebelerle tanışma ve bakım verme olasılığı artmaktadır. Bazı anneler sezaryen doğum nedeniyle maternal bağlanma, ebeveynlik ve yenidoğan konusunda endişeli ve üzgün olabilir. Bu nedenle standart bakıma ek olarak, hemşireler bu annelere doğum türüne göre ebeveyn davranışı, anneye bağlanma düzeyleri ve yenidoğan algısı arasında fark olmadığını ifade ederek destek olmalıdır.

**Anahtar kelimeler:** Bağlanma, ebeveynlik, hemşirelik, yenidoğan, algılama

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## INTRODUCTION

Vaginal delivery is a form of delivery suitable for women physiology. Cesarean delivery is another life-saving form of birth for both mother and baby when vaginal birth is not possible. However, nowadays cesarean rates are increasing<sup>1-3</sup>. The World Health Organization states that the ideal cesarean rates should be 10-15% of all births since 1985<sup>4</sup>. According to the 2020 data of the Organization for Economic Co-operation and Development (OECD) and 2019 data of the Turkey Health Statistics Yearbook, cesarean rates are % 38.9 in Poland, % 33.2 in Italy, % 29.6 in Germany, % 15.7 in Netherlands and % 54.4 in Turkey<sup>5</sup>.

It was stated in the literature that cesarean deliveries without any indication have many negative effects on both mother and infant health<sup>6,7</sup>. When intrapartum periods were compared according to the type of birth, vaginal birth was more positive in terms of parenting behavior, positive perception of infant and maternal attachment due to reasons such as dominance of oxytone hormone, not using anesthesia, earlier recovery, more comfortable breastfeeding position, early skin-to-skin contact and early breastfeeding. There are different studies stating this in the literature<sup>6,8-13</sup>.

The behavior of mother or father towards to infant during the first encounter after birth is considered as the first parenting behavior<sup>14,15</sup>. In the first encounter after the birth, the mother's parenting behavior towards her infant is an important indicator of attachment as well as playing a key role in the healthy development of and positive perception of the infant<sup>13</sup>.

Parenting behaviors, such as mother's sniffing of infant, touching, meeting infant's needs after birth, increases the positive perception of infant. The infant should be within 15-30 cm of the mother's face within the first 45 minutes after birth to ensure perception<sup>6,8,16</sup>. The positive perception of infant by mother provides continuation of mother-infant attachment process and forms basis of mother-infant relationship that will occur in the following days / months and years<sup>17</sup>. In a study conducted by Yılmaz-Servet and Kostak-Akgün (2021)<sup>18</sup>, it was reported that the longer the mothers' time to hold their babies in their arms for the first time, the lower the MAS scores. Coktay and Turk (2020)<sup>15</sup> found that mothers who started kangaroo care within 10 hours after birth

had better mother-infant bonding than mothers who started kangaroo care after 11 hours postpartum.

Attachment develops between six months and twenty-four months. The first 60-90 minutes postpartum period is the most convenient time to initiate a positive mother-infant relationship due to being the most intense period of attachment. During this time, sensual contact and initiation of breastfeeding are the most effective methods for both positive perception of the infant and mother-infant attachment<sup>7,9</sup>.

Nurses are key players in increasing the interaction between parents and their infants. Nurses should be aware of which women are in the risk group in process of planning and implementing the necessary interventions and how the type of birth affects parenting behavior, infant perception and maternal attachment.

There are many studies in the literature emphasizing that vaginal delivery is healthier for mother and baby in terms of attachment<sup>19-21</sup>. Thus, mothers with cesarean indication may feel anxious and sad about issues such as parenting and attachment. However, there is not much information in the literature regarding the effect of cesarean section on maternal attachment, parental behavior and newborn perception concepts, while cesarean rates have increased so much in nowadays. There are various studies on these three concepts in the literature. However, there was no study that evaluates these three concepts together regarding their effect to each other. The aim of this study was to investigate and compare the effect of birth type on parenting behaviors, infant perception and maternal attachment.

## MATERIALS AND METHODS

### Sample

The population of the study was built up by mothers who came to the maternity clinic of a Training and Research Hospital in Izmir between December 2017 and May 2019 for postpartum follow-up. The sample size was calculated with the prior power analysis GPower3.1 package program<sup>22</sup>. Hergüner et al. (2014)<sup>20</sup> compared the maternal attachment levels of mothers according to the type of birth and according to that study the effect size (d) was calculated as 0,56. When Type I error was taken as 0,05 and Type II error as 0,20 with minimum 80% power, it was

calculated that a total of 86 individuals including 43 individuals in both groups should be included in the study.

The sample set of the study built up with mothers who delivered by vaginal or cesarean section which met the inclusion criteria using purposeful sampling method which is one of the unlikely sampling methods. The acceptance criteria of the study for both groups were: over 18 years of age, to be able to read and write in Turkish, primiparous, birth weight of 2500 grams or more, giving birth at 37–42<sup>th</sup> weeks of gestation, healthy infants, no postnatal complications, no psychological treatment and

mothers who volunteered to participate in the study. In addition, there was a criterion for cesarean delivery by epidural / spinal anesthesia for cesarean delivery group. The presence of a health problem resulted in separation of infant or mother, the presence of a condition in the mother or the infant that prevents breastfeeding, a history of risky pregnancy (multiple pregnancy, gestational diabetes, preeclampsia, etc.), pregnant women after In Vitro Fertilization (IVF), cesarean section under general anesthesia and mothers who did not want to participate in the study were excluded in the study. The study was completed with 77 mothers, 48 in vaginal birth group and 29 in cesarean birth group. (Figure 1).

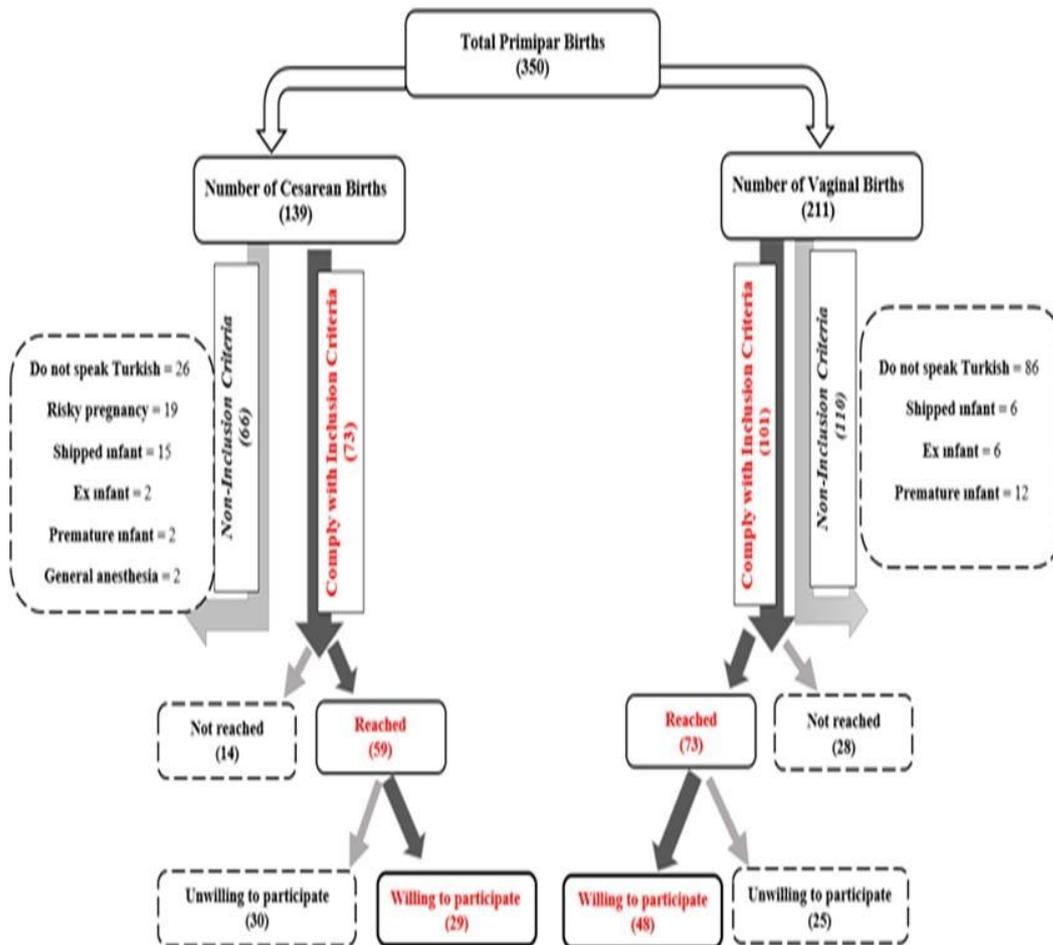


Figure 1. Flow chart of research

## Measures

The Individual Identification Form, Postpartum Parenting Behavior Scale, Neonatal Perception Scale and Maternal Attachment Scale were used to collect the data.

### Individual Information Form

The form, which was prepared by the researcher in order to collect information about the sociodemographic (age, education status etc.) and obstetric characteristics (week of pregnancy, baby's gender etc.), perinatal (eosiotomy, type of birth, time to start breastfeeding etc.) and postpartum periods (breastfeeding frequency, time to hold baby for the first time etc.) of the mothers included in the study. It consists of 26 questions<sup>23-26</sup>.

### Postpartum Parenting Behavior Scale (PPBS)

It was developed by Britton et al. (2001)<sup>14</sup> in order to evaluate the parenting behavior of the mother during the first encounter with infant after birth. Validity and reliability of the scale in Turkish were made by Çalışır et al. (2009)<sup>8</sup>. The scale, which is applied only to parents in the first minutes after birth, consists of six items such as close contact, touching with love, examining the infant, speaking with love, positive comments and happiness. Each item is evaluated as one (1) point if the behavior exists, and as zero (0) points if there is none. The total score that can be obtained from the scale varies between 0-6. A higher total score indicates that the parent has more positive parenting behavior towards the infant. Cronbach's alpha value was 0,78 in the Turkish validity and reliability study (Çalışır et al., 2009)<sup>8</sup> and 0,68 in this study.

### Neonatal Perception Scale (NPS)

The scale, which was developed by Broussard and Hartner<sup>27</sup> in 1970 to measure the perception of mothers' babies, consists of two parts; namely, NPS-I applied in the first days after birth and NPS-II administered one month after birth. There are 'Any Baby' and 'Your Baby' forms that contain six items (behaviors such as crying, feeding, sleeping, vomiting / dribbling, pooping, eating and sleeping habits) in both NPS-I and NPS-II sections and consist of 24 items in total. The scale is a five-point Likert-type scale and the scores were calculated by the researcher to obtain score of mother's infant's perception. If the total score is 0 or less, it means a negative perception. If the total score is above 0 points it means a positive

perception. The reliability and validity study of the Turkish version of the scale was conducted by Balcı and Savaşır<sup>28</sup> (1998). Cronbach's alpha internal consistency coefficients were 0,66 for NPS-I, 0,77 for NPS-II; in this study it was 0,73 for NPS-I and 0,69 for NPS-II.

### Maternal Attachment Scale (MAS)

The scale was developed by Muller<sup>29</sup> in 1994 to measure attachment with maternal love, it is a self-administered scale that can be applied by women who are literate and can understand what they are reading. It is a four-point Likert-type scale with each item ranging from "always" to "never". The lowest score to be obtained from the scale consisting of 26 items is 26 and the highest score is 104. The higher score means the higher maternal attachment. The validity and reliability study of the Turkish version of the scale was performed by Kavlak and Şirin<sup>23</sup> in 2004 and the Cronbach alpha value of the scale was found to be 0,77 and it was 0,85 in this study.

## Procedure

The data were collected from the participants by asking written consent after getting the permission of the institution where the research was conducted from the Non-Interventional Clinical Research Ethics Committee (Dated 29.11.2017, Decision number 269) and the hospital that the research was conducted. For scales used in the study, the authors who obtained the Turkish validity reliability gave permission to use the scales via electronic mail. In order to observe natural parenting behaviors when the mother first encounters her infant, while informing the mother about the research, observation was made at any time after birth.

The data were collected by the researcher in the obstetric clinic of a training and research hospital in Izmir, with three follow-ups with mothers in both groups. When the pregnant woman was hospitalized for childbirth, first the purpose of the study was explained in the obstetrics service and asked whether they would like to participate in the study. The pregnant women in the vaginal birth group who wanted to be participated filled in the Informed Consent Form and the Individual Identification Form in the birth room. In the cesarean birth group, the Informed Consent Form and the Individual Introduction Form were filled by participants in the birth service. In the first follow-up, Postpartum Parenting Behavior Scale was applied by the

researcher in the birth room/operating room after the birth. In the second follow-up, the mothers in both groups were administered the Neonatal Perception Scale-I 24 hours after birth and in the third follow-up, Maternal Attachment Scale and Neonatal Perception Scale-II were administered to mothers in both groups one month after birth via telephone (Figure 2).

IBM Corp.) statistical package program was used to analyze the data obtained from the study. Sociodemographic and obstetric characteristics of mothers that participated in the study were given as number and percentage distributions. In the study, correlation analysis was used to examine the relationship between the mean scores of PPBS and MAS and Mann Whitney U test was used to examine the difference between the mean scores of PPBS and MAS according to the infant perception status. All statistical analyzes were based on  $p < 0,05$  significance level.

**Statistical analysis**

SPSS 25.0 (IBM Corp. Released in 2017. IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY:

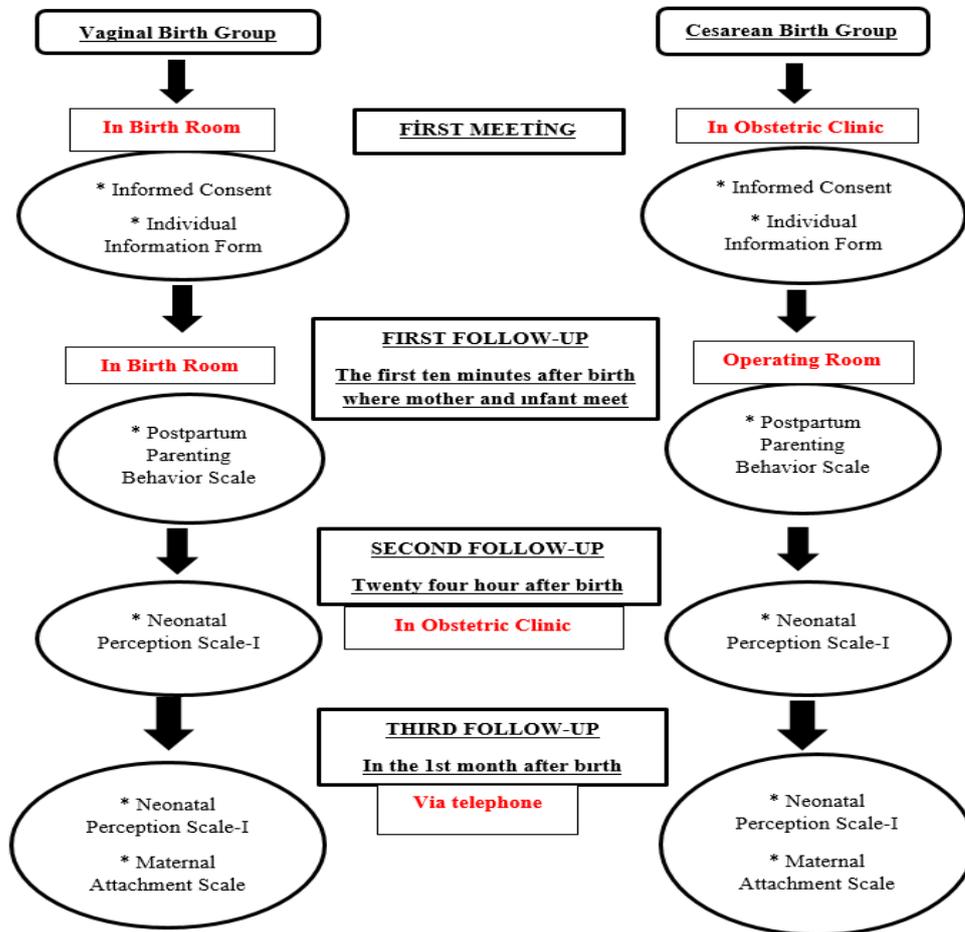


Figure 2. Procedure chart

**RESULTS**

Sociodemographic, Obstetric, Postpartum Period Characteristics of Mothers According to Birth Type There was statistically no difference between the mothers' age, working status, socioeconomic status, family type, spouses' educational status and working status according to the type of birth ( $p>0,05$ ). While 60,4% of the mothers in the vaginal birth group graduated from primary school, 69% of the mothers in the cesarean birth group graduated from secondary

education and above, and the difference between education levels was statistically significant. ( $\chi^2= 6,244$ ;  $p= 0,012$ ) (Table 1). There was no difference in terms of the planning status of the pregnancy, the status of having the desired infant gender, the period in which mothers are considering breastfeeding and the status of getting information about infantcare according to the birth type of the mothers ( $p>0,05$ ) (Table 2). The majority of mothers who participated in the study stated that they received information from their relatives about infant care.

**Table 1. Demographic characteristics of mothers**

Demographic Characteristics	VB (n=48)		CS (n=29)		Statistical Analysis
	Mean±SD	Min-Max	Mean±SD	Min-Max	
Mean age (years)	22.79±3.55	18-31	24.20±3.99	19-34	U= 553.000 p= 0.131
	n	%	n	%	
Educational Status					$\chi^2= 6.244$ p= 0.012
Primary education and lower	29	60.4	9	31.0	
Secondary education and above	19	39.6	20	69.0	
Working Status					p= 0.722*
Working	5	10.4	4	13.8	
Not Working	43	89.6	25	86.2	
Income status					$\chi^2= 0.069$ p= 0.792
Income less than expense	23	47.9	13	44.8	
Income equal to expense	25	52.1	16	55.2	
Family Type					$\chi^2= 2.964$ p= 0.085
Nuclear family	33	68.8	25	86.2	
Extended family	15	31.2	4	13.8	
TOTAL	48	100	29	100	

VB: Vaginal Birth, CS: Cesarean Section SD: Standard Deviation  
\* Statistical analysis was performed using Fisher Chi-square Analysis.

**Table 2. Obstetric characteristics of mothers**

Obstetric Characteristics	VB (n=48)		CS (n=29)		Statistical Analysis
	n	%	n	%	
Pregnancy Planning					$\chi^2= 0.052$ p= 0.819
Planned	37	77.1	23	79.3	
Unplanned	11	22.9	6	20.7	
Status of having desired infant gender*					$\chi^2= 1.088$ p= 0.297
Same	22	59.5	11	45.8	
Different	15	40.5	13	54.2	
The time she wants to breastfeed					$\chi^2= 3.077$ p= 0.079
6-12 months	13	27.1	3	10.3	
13-24 months	35	72.9	26	89.7	
Getting Information about Infant Care					$\chi^2= 0.155$ p= 0.694
Yes	31	64.6	20	69.0	
No	17	35.4	9	31.0	
TOTAL	48	100	29	100	

VB: Vaginal Birth, CS: Cesarean Section ; \*Since 11 people in the vaginal birth group gave five or no response in cesarean section, those who gave this answer were not included in the analysis.

There was a statistically significant difference between the mothers' time to take their infants into their first arms, first breastfeeding time and start time of unsupported breastfeeding according to the type of birth. ( $\chi^2=23,753$ ,  $p=0,000$ ;  $\chi^2= 44,451$ ,  $p= 0,000$ ;  $\chi^2= 9,693$ ,  $p=0,008$ ). While 50% of the mothers who participated in the study and delivered vaginally, managed to breastfeed their infants without support within the first 12 hours, 51,7% of the mothers who

delivered by cesarean section failed to support breastfeeding within 24 hours after birth. There was no difference between the frequency of breastfeeding and the duration of breastfeeding they planned in the postpartum period according to the type of birth ( $p>0,05$ ) (Table 3). In addition, 97,9% of the mothers who delivered vaginally in the first postpartum month and 96,6% of the mothers who delivered by cesarean section continued to breastfeeding.

**Table 3. Postpartum characteristics of mothers**

Postpartum Characteristics	VB (n=48)		CS (n=29)		p
	n	%	n	%	
Time to Hold Your Infant					
15-30 minutes	42	87.5	13	44.8	p= 0.000*
30 minutes - 1 hour	6	12.5	5	17.3	
Over 1 hour	-	-	11	37.9	
First Breastfeeding Time					
First 30 minutes	35	72.9	2	6.9	$\chi^2=44.451$ p= 0.000
31-60 minutes	12	25.0	8	27.6	
Over 60 minutes	1	2.1	19	65.5	
Time to start breastfeeding without support					
Non-breastfeeding	11	22.9	15	51.7	$\chi^2= 9.693$ p= 0.008
First 12 hours	24	50.0	5	17.2	
13-24 hours	13	27.1	9	31.1	
Breastfeeding Frequency					
Every hour	35	72.9	22	75.9	$\chi^2= 0.082$ p= 0.775
Every 2-3 hours	13	27.1	7	24.1	
How long is she planning to breastfeed?					
6-12 months	12	25.0	4	13.8	$\chi^2=1.511$ p=0.500
13-24 months	34	70.8	24	82.8	
Over 24 months	2	4.2	1	3.4	
Successful Breastfeeding					
Yes	44	93.6	28	96.6	p= 1.000*
No	3	6.4	1	3.4	
Total	48	100	29	100	

VB: Vaginal Birth, CS: Cesarean Section

\* Statistical analysis was performed using Fisher Chi-square Analysis.

Postpartum Parenting Behavior, Maternal Attachment Level and Infant Perception According to Type of Birth In this study, there was no difference between the mean scores of PPBS and MAS according to the type of birth ( $p>0,05$ ). 45,8% of mothers in the vaginal birth group and 44,8% of the mothers who delivered cesarean section perceived the infant as positive and there was no difference

between the type of birth and infant perception. In the study, there was no relation between the mean score of PPBS and the mean score of MAS in both vaginal and cesarean birth groups. (Table 4). In the study, there was no difference between the mean scores of MAS and PPBS according to the infant perception of mothers in both groups ( $p>0,05$ ) (Table 5).

**Table 4. Maternal Attachment Scale and Postnatal Parenting Behavior Scale scores according to the type of birth of mothers and infant perception**

	VB (n=48)		CS (n=29)		Statistical Analysis
	Mean±SD		Mean±SD		
PPBS Mean Score	4.83±1.01		4.48±1.37		U= 617.00 p= 0.389
Min-Max	3-6		2-6		
MAS Mean Score	96.87±6.13		95.58±7.64		U= 629.00 p= 0.480
Min-Max	82-104		76-104		
PPBS-MAS Mean Score	r= -0.157 p= 0.288		r= 0.077 p= 0.691		
Infant Perception Status	n	%	n	%	
Negative Perception	26	54.2	16	55.2	$\chi^2= 0.007$ p= 0.932
Positive Perception	22	45.8	13	44.8	

VB: Vaginal Birth, CS: Cesarean Section SD: Standard Deviation  
PPBS: Postpartum Parenting Behavior Scale, MAS: Maternal Attachment Scale

**Table 5. Maternal Attachment and Postnatal Parenting Behavior Scale scores according to mothers' infant perception status**

Infant Perception Status	MAS Mean Score		PPBS Mean Score	
	VB (n=48)	CS (n=29)	VB (n=48)	CS (n=29)
	Mean±SD	Mean±SD	Mean±SD	Mean±SD
Negative Perception	95,30±6,42	97,56±5,56	4,88±0,99	4,31±1,40
Positive Perception U	98,72±5,34	93,15±9,28	4,77±1,06	4,69±1,37
p	196,00 0,061	72,00 0,159	270,50 0,738	86,00 0,416

VB: Vaginal Birth, CS: Cesarean Section SD: Standard Deviation  
PPBS: Postpartum Parenting Behavior Scale, MAS: Maternal Attachment Scale

**DISCUSSION**

Mothers in both groups had good parenting behaviors in the study. Contrary to the results obtained from this study, Koç et al.<sup>30</sup> (2016) found that parenting behaviors of mothers who had cesarean section were better than vaginal mothers. It was expected that mothers who give vaginal birth will have higher parenting behaviors because of the predominance of oxytocin hormone in vaginal birth, mothers can see their infants immediately, hold them in their arms and start breastfeeding. The fact that the study was conducted with primiparous mothers in both the Mother and Baby-friendly training and research hospital, sampling epidural / spinal anesthesia for cesarean section mothers were considered to be the reason that there was no difference between the mothers' parenting behaviors according to the type of birth. It is thought that there is no difference since the evidence-based practices in the mother and baby-friendly hospital are applied equally for the vaginal and cesarean delivery groups.

In this study, maternal attachment levels of mothers in both vaginal birth and cesarean birth group were

similarly good. The study conducted by Şolt-Kırca and Şavaşer<sup>31</sup> (2017) supports this finding and it was stated that maternal attachment did not change according to the type of birth. In the studies of Mutlu et al.<sup>32</sup> (2015) and Kokanalı et al.<sup>33</sup> (2018), it was declared that maternal attachment was not changed according to the type of birth. In contrast to the results of this study, Egelioglu-Cetişli et al.<sup>21</sup> (2018) and Hergüner et al.<sup>20</sup> (2014) found that maternal attachment levels of mothers who delivered vaginally were better than those who delivered by cesarean section. Maternal attachment levels were expected to be higher in mothers who have vaginal birth compared to mothers who have cesarean section due to the advantages such as the fact that their contact with the infant starts earlier and can continue for a long time and that they can undertake infantcare earlier. However, breastfeeding was one of the most important factor affecting maternal attachment. In this study, it was thought that almost all mothers continue to breastfeeding in the first postpartum month and that they feel successful about breastfeeding as the reason for similar maternal attachment levels of mothers. In addition, evidence-based practices were carried out in the mother-baby-

friendly hospital where the study was conducted, in order to initiate the mother-infant relationship in the early period during birth and postpartum period. These practices are applied equally for vaginal and cesarean delivery groups.

No relationship was found between maternal attachment levels and parenting behaviors of mothers in both groups. Since mothers' postnatal parenting behavior is a clue about maternal attachment, it is expected that there will be a relationship between them. Since the study was conducted with primiparous mothers and most of the pregnancies were planned and desired, the postpartum parenting behaviours and maternal attachment of the mothers were good and similar. Therefore, no relationship was found between these two variables. There was not any study comparing these two variables in the literature.

In this study, the infant perception status of mothers in both groups were similar and it was determined that there was no relationship between infant perception status of the mothers according to the type of birth. In the study of Çakır and Alparslan<sup>12</sup> (2018), which was conducted to investigate the effect of the mother on the perception of the infant, it was stated that the perception of the infant did not change according to the type of birth. Touching is also important for mother's perception of her infant in addition to eye-to-eye communication<sup>20</sup>. It was thought that there was no difference in the study because the study was carried out in both the Mother and Baby Friendly hospitals and as a result of this, the skin and skin contact of the mother and the infant, eye communication and breastfeeding were provided as soon as possible after birth.

In this study, no difference was found between the maternal attachment and parenting behavior of the mothers in both groups. In the study of Çalışır and Karaçam<sup>34</sup> (2011), it was found that there was no difference between the perception of the infant and the parenting behavior. In some studies in the literature<sup>24</sup>, it has been reported that increased maternal attachment level of mothers leads to positive perception of infant. Positive parenting behaviors such as kissing, touching, and calling out infant in postpartum period, will help mother to develop positive feelings for her infant and perceive her infant more positively. The mother who perceives the infant positively will experience a stronger attachment. In other words, maternal attachment, which develops and strengthens over time, will cause

the mother to perceive the infant more positively. The fact that this study was carried out with primiparous mothers in both the Mother and Baby-friendly training and research hospital, that most of the pregnancies were planned pregnancy, that the majority of mothers continued to breastfeed at the end of the first month and that they did not have any problems considered as the reasons for the difference between the variables.

Postpartum parenting behavior scale is an observation-based scale and it is necessary to be conducted with two observers. However, since this study was a thesis study, the fact that it was evaluated by only one observer was accepted as a limitation of the study. In addition, the difference between the number of mothers in the sampled vaginal delivery and cesarean section group is another limitation of the study.

In the study, statistically no difference was found between postpartum parenting behavior, maternal attachment levels and infant perception status according to mothers' birth type. Also no relationship was found between maternal attachment levels and postpartum parenting behaviors according to mothers' birth type. And then, there was no difference between maternal attachment and postpartum parenting behaviors of mothers who had both vaginal and cesarean deliveries.

As the cesarean delivery rates increases, nursing care given to women that give cesarean section increases. Some mothers may be anxious and upset about maternal attachment, parenting, and newborn delivery because of cesarean delivery. Therefore, in addition to standard care, nurses should express to these mothers that there is no difference between parental behavior, maternal attachment levels and neonatal perception according to the type of delivery. In order to prepare mothers for the postnatal period, to ensure positive perception of the infant and to strengthen maternal attachment, it was recommended that mothers should be given trainings about transition to parenting, birth process, skin to skin contact, initiation of breastfeeding, continuation of breastfeeding and infant care (prenatal or postnatal). It is important for the mother to infant interaction that nurses initiate skin-to-skin contact and breastfeeding and observe and evaluate the mother's parenting behaviors towards her infant in the early postpartum period. Furthermore, further studies were recommended to examine the

relationship between postpartum parenting behavior, infant perception and maternal attachment variables.

**Yazar Katkıları:** Çalışma konsepti/Tasarımı: SÇA, NEC; Veri toplama: SÇA; Veri analizi ve yorumlama: SÇA, NEC; Yazı taslağı: SÇA, NEC; İçeriğin eleştirel incelenmesi: NEC; Son onay ve sorumluluk: SÇA, NEC; Teknik ve malzeme desteği: -; Süpervizyon: NEC; Fon sağlama (mevcut ise): yok.

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## REFERENCES

- Karabulutlu Ö. Kadınların doğum şekli tercihlerini etkileyen faktörler. *Florence Nightingale J Nurs.* 2012;20:210-8.
- Molina G, Weiser TG, Lipsitz SR, Esquivel MM, Uribe-Leitz T, Azad T et al. Relationship between cesarean delivery rate and maternal and neonatal mortality. *JAMA.* 2015;314:2263-70.
- Temizkan E, Mete S. Primipar gebelerin doğum şekli tercihlerini etkileyen etmenlerin belirlenmesi. *Koç Üniversitesi Hemşirelikte Eğitim ve Araştırma Dergisi.* 2020;17:112-9.
- World Health Organization. Sezaryen doğum hızları ile ilgili DSÖ açıklaması. [https://apps.who.int/iris/bitstream/handle/10665/161442/WHO\\_RHR\\_15.02\\_tur.pdf;jsessionid=161442/WHO\\_RHR\\_15.02\\_tur.pdf;jsessionid=161442/WHO\\_RHR\\_15.02\\_tur.pdf;jsessionid=161442/WHO\\_RHR\\_15.02\\_tur.pdf](https://apps.who.int/iris/bitstream/handle/10665/161442/WHO_RHR_15.02_tur.pdf;jsessionid=161442/WHO_RHR_15.02_tur.pdf;jsessionid=161442/WHO_RHR_15.02_tur.pdf;jsessionid=161442/WHO_RHR_15.02_tur.pdf) (Accessed May 2020).
- T.C. Sağlık Bakanlığı Sağlık İstatistikleri Yıllığı. 2019. Ankara, Sağlık Bakanlığı, 2019.
- Özkan H. Annelik kimlik gelişimi eğitiminin primiparların annelik rolü kazanımına ve bebeğin algısına etkisi (Doktora tezi). Erzurum, Atatürk Üniversitesi. 2010.
- Özkan H, Polat S. Annelik davranışını öğrenme süreci ve hemşirelik desteği. *Bozok Tıp Dergisi.* 2014;1:5-9.
- Çalışır H, Karaçam Z, Akgül F, Kurnaz D. Doğum Sonrası Ebeveynlik Davranışı Ölçeği'nin Türkçe formunun geçerliliği güvenirliliği. *Anadolu Hemşirelik ve Sağlık Bilimleri Dergisi.* 2009;12:1-8.
- Can G. Anne-yenidoğan bağının önemi. In Ben Hasta Değilim: Çocuk Sağlığı ve Hastalıklarının Psikososyal Yönü (Ed A. Ekşi):35-44. Nobel Tıp Kitabevleri, Ankara. 2011.
- Örsdemir Ç. Doğum sonu dönemde annelerin emzirmeye ilişkin bilgileri ve emzirme davranışlarının belirlenmesi (Uzmanlık tezi). Lefkoşa, Yakın Doğu Üniversitesi. 2011.
- Kuguoglu S, Yildiz H, Tanir MK, Demirbag BC. Breastfeeding after a cesarean delivery. *Cesarean Delivery Intech.* 2012;121-60.
- Çakır D, Alparslan Ö. Doğum tipi değişkeninin anne-bebek etkileşimi ve annenin bebeğini algılaması üzerindeki etkilerinin incelenmesi. *J Contemp Med.* 2018; 8:139-47.
- Karabel MP, Demirbaş M, İnci MB. Türkiye'de ve Dünya'da değişen sezaryen sıklığı ve olası nedenleri. *Sakarya Tıp Dergisi.* 2018;7:158-63.
- Britton HL, Gronwaldt V, Britton JR. Maternal postpartum behaviors and mother-infant relationship during the first year of life. *J Pediatr.* 2001;138:905-9.
- Coktay Z, Turk R. The effect of early kangaroo care provided to term babies on the maternal-fetal attachment. *Int J Caring Sci.* 2020;13:24-34.
- Bryanton J, Beck CT. Postnatal parental education for optimizing infant general health and parent-infant relationships. *Cochrane Database Syst Rev.* 2013;(11):CD004068..
- Savaşer S, Yılmaz EA. The effect of planned training given to adolescent pregnant on the self-esteem of mother and on newborn perception. *Bull Legal Med.* 2017;22:27-33.
- Yılmaz-Servet M, Kostak-Akgün M. Prematüre bebeği yenidoğan yoğun bakım ünitesinde yatan annelerin postpartum depresyon ve maternal bağlanma düzeyleri. *Avrasya Sağlık Bilimleri Dergisi.* 2021;4:71-9.
- Haratipour H, Partash N, Ebrahimi E, Zadeh MD, Bolbolhaghighi N. Non-physiological and physiological delivery method: comparison of maternal attachment behaviors and anxiety. *J Caring Sci.* 2021;10:37-42.
- Herguner S, Cicek E, Annagur A, Herguner A, Ors R. Association of delivery type with postpartum depression, perceived social support and maternal attachment. *Dusunen Adam.* 2014;27:15-20.
- Egelioglu-Cetişli N, Arkan G, Top ED. Maternal attachment and breastfeeding behaviors according to type of delivery in the immediate postpartum period. *Rev Assoc Med Bras (1992).* 2018;64:164-9.
- Cohen J. *Statistical Power Analysis for the Behavioral Sciences.* New York, Academic Press. 1969.
- Kavlak O, Şirin A. Maternal Bağlanma Ölçeği'nin Türk toplumuna uyarlanması. *International Journal of Human Sciences.* 2009;6:188-201.
- Güleşen A, Yıldız D. Erken postpartum dönemde anne bebek bağlanmasının kanıtı dayalı uygulamalar ile incelenmesi. *Türk Silahlı Kuvvetleri Koruyucu Hekim Bul.* 2013;12:177-82.
- Özkan H, Kanbur A, Apay S, Kılıç M, Ağapınar S, Özorhan EY. Annelerin doğum sonu dönemde ebeveynlik davranışlarının değerlendirilmesi. *Sisli Etfal Hastanesi Tıp Bülteni.* 2013;3:117-21.
- Öztürk S, Erci B. Primipar mothers in postpartum

- period given maternity and newborn education increased attachment: post test with control group semi experimental research. *Balıkesir Sağlık Bilimleri Dergisi*. 2017;5:129–34.
27. Broussard ER, Hartner MSS. Maternal perception of the neonate as related to development. *Child Psychiatry Hum Dev*. 1970;1:16–25.
  28. Balcı S, Savaşer S. Annelerin bebeklerini algılama durumu. VI. Ulusal Hemşirelik Kongre Kitabı, 1998, Ankara, p.215-21.
  29. Müller ME. A questionnaire to measure mother-to-infant attachment. *J Nurs Meas*. 1994;2:129–41.
  30. Koç Ö, Özkan H, Bekmezci H. Annelik rolü ve ebeveynlik davranışı arasındaki ilişkinin değerlendirilmesi. *İzmir Dr. Behçet Uz Çocuk Hastanesi Dergisi*. 2016;6:143-50.
  31. Şolt A, Savaşer S, Dolgun G. Doğum sayısının anne bebek bağlanmasına etkisi. *Sağlık Bilimleri ve Meslekleri Dergisi*. 2017;4:236–43.
  32. Mutlu C, Yorbik Ö, Tanju İA, Çelikel F, Gönül Sezer R. Doğum öncesi, doğum sırası ve doğum sonrası etkenlerin annenin bağlanması ile ilişkisi. *Anadolu Psikiyatri Derg*. 2015;16:442–50.
  33. Kokanalı D, Ayhan S, Devran A, Kokanalı MK, Taşçı Y. Sezaryen doğumun postpartum depresyona ve maternal bağlanmaya etkisi. *J Contemp Med*. 2018;0:148–52.
  34. Çalışır H, Karaçam Z. Factors associated with parenting behavior of mothers in the early postpartum period in Turkey. *Nurs Heal Sci*. 2011;13:488–94.