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Research Article

Examination of the Mode of Birth, Birth Satisfaction, and Mother-Infant Bonding of Mothers who Received Prenatal Education and Those Who Did Not

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Abstract

Introduction: In order for a healthy birth to occur, WHO recommends that women have a positive birth experience by emphasizing prenatal education programs.

Objectives: We examined the mode of birth, birth satisfaction, and mother-infant bonding of mothers who had received prenatal education and those who had not with a descriptive and comparative design.

Methods: The study was carried out in the 1st-7th days of 227 women in their postpartum period. The data were collected through face-to-face interviews using a questionnaire containing questions about some descriptive and obstetric characteristics of the women, the "Scale for Measuring Maternal Satisfaction-Normal Birth (SMMS-NB)," the "Scale for Measuring Maternal Satisfaction-Caesarean Birth (SMMS-CB)," and the "Mother-to-Infant Bonding Scale (MIBS)."

Results: Most of the women who attended childbirth preparation classes gave a vaginal birth. The median MIBS score of those who had a vaginal birth was statistically significantly lower than the median score of those who had a cesarean section ($p=0.020$). The satisfaction level of mothers who took childbirth preparation classes (144.07±14.82) with the care they received in the hospital during normal birth was higher than the level of those who had not (134.07±14.98), and the satisfaction level of mothers who had education (143.68±17.78) with the care they received in the hospital during cesarean section was statistically significantly higher than the level of those who had not (135.43±14.79) ($p<0.05$).

Conclusion: The satisfaction levels of both mothers who had given a normal birth and a cesarean birth with the care they received in the hospital were low. The satisfaction levels of mothers who had prenatal education with the care they received in the hospital during normal and cesarean births and their mother-to-infant bonding were higher than those who had not.

Keywords: Mode of birth; Birth satisfaction; Bonding; Prenatal education; Midwifery

Introduction

Childbirth preparation classes (CPCs), which are common in developed countries, are generally held with the participation of couples and are also called prenatal education classes, antenatal education, parental education, perinatal education, or pregnancy education, have also become widespread in Turkey. The main purpose of these programs is to ensure that spouses adapt to pregnancy, birth, and the postpartum period, to support normal birth, to prepare expectant mothers for painless birth by showing different techniques, and to make them competent in parenting [1,2]. Educational topics in these programs include adaptation to pregnancy, changes in the mother's body, complaints during pregnancy and methods of coping with them, signs of danger, frequency of check-ups and routine examinations, preparation for birth and pain management, postpartum baby care and self-care in postpartum, the importance of breast milk, breastfeeding, and family planning [3-5]. According to research, CPC education is effective in coping with problems related to pregnancy and labor, increasing knowledge about birth, enhancing birth satisfaction, reducing fear of birth, strengthening mother-to-infant bonding, early initiation of breastfeeding, and reducing anxiety during and following birth [5-7]. In Turkey, CPC service is provided free of charge to expectant mothers/parents in some university hospitals, nursing/midwifery schools, private hospitals, and public hospitals affiliated with the Ministry of Health. There are also special prenatal education classes carried out in a multidisciplinary manner with the cooperation of midwives, nurses, dietitians, physiotherapists, and physicians [4,5].

Cesarean section rates are increasing in developed and developing countries such as Turkey. According to the 2017 report of the Organization for Economic Co-operation and Development (OECD), cesarean section rates vary between 15.5% and 53.1%. Among these countries, Turkey ranks first with 53.1% in the 2017 report and 58.4% in the 2021 report [8,9]. Due to these increasing rates, the World Health Organization (WHO) has strengthened prenatal education programs and focused on ensuring that women have a positive birth experience. What is meant by a positive birth experience is to prepare the woman for a normal birth and, in case of medical necessity, for a cesarean birth. The WHO has emphasized the importance of strengthening women psychologically and socially during pregnancy, rather than considering the birth process only from a medical perspective. It is thought that increasing the woman's self-confidence and her participation in the birth decision during prenatal care will help her sense of personal success increase [10]. For this reason, it is predicted that reducing women's fear of birth, providing them with birth knowledge, teaching them skills to cope with problems that may develop during the birth process, and encouraging normal birth by using a woman-centered approach in CPC education will have a positive contribution to the birth experience and decrease the optional cesarean section rates.

Mother-to-infant bonding begins as the expectant mother responds positively to pregnancy and accepts the fetus as a separate individual [11]. The bonding process develops throughout pregnancy, birth, and the postpartum period, and mother-infant interaction, especially in the postpartum period, strengthens this bond [12]. Skin-to-skin contact between mother and infant in the early postpartum period, the kangaroo method, and sharing the same room are methods that will facilitate mother-infant bonding. In addition, holding the baby, talking to it, baby massage, eye contact, and breastfeeding improve and support bonding [13]. Studies have shown that CPC education increases the level of prenatal bonding and has a significant contribution to breastfeeding duration and skin-to-skin contact [5,6].

This study was planned to compare and evaluate the mode of birth, birth satisfaction, and mother-infant bonding in mothers who had received prenatal education and those who had not.

Materials and Methods

Type of the research

A descriptive and comparative study design was used.

Population and sample of the study

Population of the Study: The population of this research consisted of women who had a cesarean section and normal birth in a state hospital and a university hospital between December 1, 2018 and February 1, 2019.

Sample of the study: No sample selection procedure was performed; 227 women who agreed to participate in the research between the dates of the study, were at least primary school graduates, and were in their first to seventh postpartum days were included in the study. During the time of the study, while there were pregnancy education classes conducted by a midwife in the state hospital where the application was carried out, such a service was not yet available in the university hospital.

Data collection tools: A questionnaire, which was prepared by the researchers following a review of the literature [5,6,14] and included some questions about the descriptive characteristics of women and their mode of birth, the Scale for Measuring Maternal Satisfaction-Normal Birth (SMMS-NB), the Scale for Measuring Maternal Satisfaction-Caesarean Birth (SMMS-CB), and the Mother-to-Infant Bonding Scale were used to collect data through face-to-face interviews.

The Scale for Measuring Maternal Satisfaction-Normal Birth (SMMS-NB): The SMMS-NB is a five-point Likert-type scale consisting of 43 items and 10 subscales: perception of the healthcare team (items 1, 2, 3, and 4), nursing care in labor (items 5 and 6), comforting (items 7, 8, 9, and 10), information and involvement in decision-making (items 11, 12, 13, 14, 15, 16, 17, and 18), meeting the baby (items 19, 20, and 21), postpartum care (items 22, 23, 24, 25, 26, and 27), hospital room (items 28, 29, 30, and 31), hospital facilities (items 32, 33, and 34), respect for privacy (items 35, 36, 37, and 38), and meeting expectations (items 39, 40, 41, 42, and 43). Thirteen of the items are reverse scored (items 7, 8, 9, 10, 19, 20, 21, 22, 35, 36, 38, 41, and 42). To calculate the scale score, first, negative items are reversed. Positive items are

scored with "1-disagree, 2-somewhat agree, 3-undecided, 4-agree, and 5-strongly agree", while negative item scores are reversed as follows: "5-disagree, 4-somewhat agree, 3-undecided, 2-agree, and 1-strongly agree." After the negative items are reversed, the sum of the scores of all items on the scale gives the "total scale score". The sum of the items that make up each sub-dimension can be used as the "total sub-dimension score". The total raw score varies between 43 and 215. As the total scale score increases, the level of mothers' satisfaction with the care they receive in the hospital during normal birth increases. The cut-off score calculated for the SMMS-NB is 150.5 (≥150.5, high level of satisfaction; <150.5, low level of satisfaction). Cronbach's alpha coefficient of the scale is 0.91.15 In our study, the alpha coefficient of the scale was calculated as 0.84.

The scale for measuring maternal satisfaction-cesarean birth (SMMS-CB): The SMMS-CB is a five-point Likert-type scale consisting of 42 items and 10 subscales: perception of the healthcare team (items 1, 2, 3, 4, and 5), preparation for cesarean (items 6 and 7), comforting (items 8, 9, and 10), information and involvement in decision making (items 11, 12, 13, 14, 15, 16, 17, and 18), meeting the baby (items 19, 20, and 21), postpartum care (items 22, 23, 24, 25, 26, and 27), hospital room (items 28, 29, and 30), hospital facilities (items 31, 32, and 33), respect for privacy (items 34, 35, 36, and 37), and meeting expectations (items 38, 39, 40, 41, and 42). Twelve items are reverse scored (items 8, 9, 10, 19, 20, 21, 22, 34, 35, 37, 40, and 41). After the negative items are reversed, the "total scale score" is obtained by summing the scores of all items on the scale, and the "total sub-dimension score" is obtained by summing the items that make up each sub-dimension. The total raw score varies between 42 and 210. As the total scale score increases, the level of mothers' satisfaction with the care they receive in the hospital during cesarean section increases. The cut-off score for the SMMS-CB is 146.5 (≥146.5, high level of satisfaction; <146.5, low level of satisfaction). Cronbach's alpha coefficient of the scale is 0.91.15 In this study, the alpha coefficient of the scale was calculated as 0.78.

The mother-to-infant bonding scale (MIBS): With the MIBS developed by Taylor et al. (2005), it was shown that mother-infant bonding continuously developed in the first 12 weeks following birth. For this reason, the scale can be used to evaluate bonding immediately after birth and to re-evaluate it within a short period. The adaptation, validity, and reliability study of the scale in Turkey was conducted by Karakulak-Aydemir, et al. [16]. The MIBS is a four-point Likert scale consisting of eight items. Each item is scored using four options between 0 and 3. The lowest score that can be obtained from the scale is 0 and the highest score is 24. High scores on the scale indicate mother-infant bonding problems. Items 1, 4, and 6 express positive emotions and are scored as 0, 1, 2, and 3, while items 2, 3, 5, 7, and 8 show negative emotions and are scored in reverse as 3, 2, 1, and 0. The inter-rater reliability of the scale is 0.71 and the internal consistency reliability (Cronbach's alpha) is 0.66 [16]. In this study, the alpha coefficient of the scale was calculated as 0.71.

Data analysis: The study data were analyzed on appropriate statistical software. Descriptive statistics were presented using n (%), mean±standard deviation (SD), and median (Q1-Q3) values. Fisher's Exact Test or Pearson chi-square test was used to analyze the relationships between categorical variables. To check normality, the Shapiro-Wilks test was used in cases where the number of samples in the group was less than 50 and the Kolmogorov-Smirnov test in cases where it was larger. In the analysis of the difference between the scores of the two groups, the Mann-Whitney U test was used for normal distribution, and the Student's t-test was employed for non-normal distribution. The Kruskal-Wallis test was used for non-parametric comparison of three or more groups, and the Bonferroni-Dunn test was utilized as a post-hoc test for cases showing significance. Spearman correlation test was used to examine relationships between ordinal or non-normally distributed continuous variables, and the Pearson correlation test was performed for continuous variables with normal distribution. The results were evaluated at a confidence interval of 95%, and the significance level was accepted as $p<0.05$.

Ethical aspects of the research: Women who agreed to participate in the study were informed about the subject and purpose of the study by the researchers. The permission of the institutions where the research was conducted and the approval of Tokat Gaziosmanpasa University (TOGU) Clinical Research Ethics Committee (2018/83116987-661) were obtained. Questionnaires were given to women who agreed to participate in the study and were filled out by the mothers under the observation of the researchers.

Results

The mean age of the women participating in the study was 26.89±5.45 years (min-max=17-44). It was determined that the mean number of pregnancies was 2.10±1.32 (min-max=1-9), the mean number of living children was 1.81±1.00 (min-max=1-6), the mean postpartum days was 2.81±1.67 (min-max=1-7), and the mean gestational weeks in the last birth was 38.67±1.70 (min-max=29-41). It was found that most of the women were primary school graduates (40.1%), spent most of their lives in a province (51.1%), defined their income as equal to their expenses (65.6%), and did not have a job (80.6%). It was found that most of the women in the research wanted their current pregnancy (79.7%), had a normal birth (58.1%), had their birth done by a physician (50.7%), and could not choose the person who would assist them with their birth (71.4%). Also, 55.1% of the women had not participated in CPCs, 30.0% could not initiate the first postpartum breastfeeding within the first four hours after birth, and 53.3% could not have skin-to-skin contact with the baby immediately after birth. It was found that all women who had taken prenatal education (44.9%) had received it from a midwife. Women reported the subjects of the education given in CPCs as follows: birth (76.5%), breastfeeding (83.3%), baby care (75.5%), family planning (34.3%), nutrition during pregnancy (n = 14), and birth exercises (n = 13). Most of the women stated the time of first breastfeeding after birth as "within the first four hours" (30.0%) and "within the first 15 minutes" (22.0%), (Table 1).

Table 1: Distribution of women according to their descriptive characteristics and status of receiving prenatal education

Characteristics	Frequency (n)	Percentage (%)
Education		
Primary School	91	40.1
High school	78	34.4
University and above	58	25.5
Place of the longest residence		
Province	116	51.1
County	66	29.1
Town/village	45	19.8
Income level		
Income<expenses	60	26.4
Income=expenses	149	65.6
Income>expenses	18	8.0
Employment status		
Yes	44	19.4
No	183	80.6
Family type		
Core	139	61.2
Extended	88	38.8
Whether the pregnancy was wanted		
Yes	181	79.7
No	19	8.4
Partly	27	11.9
Mode of birth		
Vaginal birth	132	58.1
Cesarean birth	95	41.9
Person managing the birth		
Midwife	115	48.9
Physician	111	50.7
Self-management	1	0.4
Status of choosing the person to assist with the birth		
Yes	65	28.6
No	162	71.4
Status of having received CPCs		
Yes	102	44.9
No	125	55.1
The person giving the CPCs*		
Midwife	102	100
Topics of the CPCs **		
Birth	78	76.5
Breastfeeding	85	83.3
Baby care	77	75.5
Family planning	35	34.3
Nutrition during pregnancy	14	13.7
Birth exercises	13	12.7
Time of the first breastfeeding immediately after birth		
Within the first 15 minutes	50	22
Within the first half an hour	32	14.1
Within the first 1 hour	27	11.9

Within the first 4 hours	68	30
Within the first 8 hours	18	7.9
Within the first 24 hours	7	3.1
Within the first 48 hours	7	3.1
Within the first 72 hours	5	2.2
No breastfeeding	13	5.7
Status of skin-to-skin contact immediately after birth		
Yes	89	39.2
No	121	53.3
Partly	17	7.5
Total	227	100

*: 102 responses **: multiple responses

The mean score of the women who had given a normal birth on the SMMS-NB was 140.13±15.59 (min=87-max=191). The mean score of the women who had a cesarean section on the SMMS-CB was 137.34±15.75 (min=98-max=170). The median MIBS score of the women was 0.00 (0.00-2.00) (Table 2). The mean scores of the women from the subscales of SMMS-NB and SMMS-CB are shown in Table 2.

Table 2: Women's mean scores on the total and subscales of the SMMS-NB and SMMS-CB.

Scales		**Mean±SD (min-max)**
	Total score*	140.13±15.59(87-191)
SMMS-NB	perception of the healthcare team	16.97±2.76 (4-20)
	nursing care in labor	8.04±1.90 (2-10)
	comforting	13.20±4.56 (5-20)
	information and involvement in decision-making	29.42±6.24 (8-40)
	meeting the baby	9.75±2.05 (5-15)
	postpartum care	20.71±4.55 (9-30)
	hospital room	14.97±2.85 (4-20)
	hospital facilities	11.21±1.65 (5-14)
	respect for privacy	18.93±2.01 (6-20)
	meeting expectations	19.15±4.33 (7-25)
		Mean±SD (min-max)
SMMS-CB	**Total score****	137.34±15.75 (98-170)
	perception of the healthcare team	20.03±3.37 (9-25)
	preparation for cesarean	8.20±1.41 (2-10)
	comforting	8.60±2.95 (3-15)
	information and involvement in decision-making	30.70±5.36 (12-40)
	meeting the baby	7.98±4.68 (3-15)
	postpartum care	18.80±4.79 (6-30)
	hospital room	10.42±3.06 (3-15)
	hospital facilities	10.25±2.63 (3-14)
	respect for privacy	14.41±1.85 (6-16)
	meeting expectations	15.74±4.68 (7-25)
		Median (Q1-Q3)
MIBS	**Total score*****	0.00 (0.00-2.00)

*: n=132, **n=95, ***n=227

There was a statistically significant relationship between the education status of the women participating in the study and the status of having received CPCs (p = 0.000). Most of the women who had received CPCs were high school graduates (20.2%), and most of those who had not received CPCs were primary school graduates (30.4%), (Table 3).

Table 3: Distribution of women's status of receiving CPCs according to their demographic characteristics.

Characteristics	Status of receiving CPCs			
	Yes (n=102) n (%)	No (n=125) n (%)	Total (n=227) n (%)	Test value X^2 ; p
Education				
Primary school	22 (9.7)	69 (30.4)	91 (40.1)	26.453; 0.000
High school	46 (20.2)	32 (14.2)	78 (34.4)	
University and above	34 (15.0)	24 (10.5)	58 (25.5)	
Place of the longest residence				
Province	71 (31.2)	45 (19.9)	116 (51.1)	30.071; 0.000
County	24 (10.6)	42 (18.5)	66 (29.1)	
Town/village	7 (3.1)	38 (16.7)	45 (19.8)	
Income level				
Income<expenses	28 (12.2)	32 (14.2)	60 (26.4)	4.077; 0.130
Income=expenses	70 (30.8)	79 (34.8)	149 (65.6)	
Income>expenses	4 (1.8)	14 (6.2)	18 (8.0)	
Employment status				
Yes	30 (13.2)	14 (6.2)	44 (19.4)	27.028; 0.001
No	72 (31.7)	111 (48.9)	183 (80.6)	
Family type				
Core	68 (29.9)	71 (31.3)	139 (61.2)	2.303; 0.129
Extended	34 (15.0)	54 (23.8)	88 (38.8)	
Whether the pregnancy was wanted				
Yes	91 (40.1)	90 (39.6)	181 (79.7)	21.092; 0.000
No	1 (0.4)	26 (11.5)	27 (11.9)	
Partly	10 (4.4)	9 (4.0)	19 (8.4)	
Mode of birth				
Vaginal birth	80 (35.2)	52 (22.9)	132 (58.1)	28.940; 0.000
Cesarean birth	22 (9.7)	73 (32,2)	95 (41.9)	
Person managing the birth				
Midwife	74 (32.6)	41 (18.1)	115 (50.7)	36.371; 0.000
Physician	28 (12.3)	83 (36.6)	111 (48.9)	
Self-management	0 (0.0)	1 (0.4)	1 (0.4)	
Status of choosing the person to assist with the birth				
Yes	16 (7.0)	49 (21.6)	65 (28.6)	15.197; 0.000
No	86 (37.9)	76 (33.5)	162 (71.4)	
Time of the first breastfeeding after birth				

Within the first 15 minutes	41 (18.0)	9 (4.0)	50 (22.0)	68.417; 0.000
Within the first half an hour	22 (9.7)	10 (4.4)	32 (14.1)	
Within the first 1 hour	10 (4.4)	17 (7.5)	27 (11.9)	
Within the first 4 hours	17 (7.5)	51 (22.5)	68 (30.0)	
Within the first 8 hours	3 (1.3)	15 (6.6)	18 (7.9)	
Within the first 24 hours	0 (0.0)	7 (3.1)	7 (3.1)	
Within the first 48 hours	4 (1.8)	3 (1.3)	7 (3.1)	
Within the first 72 hours	4 (1.8)	1 (0.4)	5 (2.2)	
No breastfeeding	1 (0.4)	12 (5.3)	13 (5.7)	
Status of skin-to-skin contact immediately after birth				
Yes	57 (25.0)	32 (14.2)	89 (39.2)	22.256; 0.000
No	41 (18.1)	80 (35.2)	121 (53.3)	
Partly	4 (1.8)	13 (5.7)	17 (7.5)	
Total	102 (44.9)	125 (55.1)	227 (100.0)	

X^2= It represents the chi-square test value

The relationship between participants' status of having received CPCs was statistically significant according to the place of the longest residence (p = 0.000). Most of the women who had received CPCs (31.2%) and those who had not (19.9%) were found to live in a province (Table 3).

The examination of the relationship between the women's employment status and the status of having received CPCs indicated that there was a statistically significant relationship (p = 0.001). Most of the women who had received CPCs were housewives (31.7%), (Table 3).

There was a statistically significant relationship between whether the women wanted their last pregnancy and the status of having received CPCs (p = 0.000). Most of the women who received CPCs had wanted their last pregnancy (40.1%), (Table 3).

A statistically significant relationship was found between women's mode of birth and the status of having received CPCs (p=0.000). Most women participating in CPCs had given a vaginal birth (35.2%). Most of the women who had not received CPCs had cesarean section (32.2%), (Table 3).

There was a statistically significant relationship between the women's status of having received CPCs according to the person who managed their birth (p = 0.000). It was seen that most of those who had participated in CPCs were delivered by a midwife (32.6%), while most of those who had not received CPCs were delivered by a physician (36.6%), (Table 3).

A statistically significant relationship was found between the women's status of having received CPCs and their chance to choose the person to assist them with their birth (p=0.000). Most of the women who had received prenatal education did not have the chance to choose the person who would assist them with their birth (37.9%), (Table 3).

The relationship between the time when breastfeeding was initiated after birth and the status of having received CPCs was statistically significant (p=0.000). It was observed that most of the women who had received CPCs started breastfeeding within the first 15 minutes (18.0%), while those who had not received education started it within the first four hours (22.5%), (Table 3).

There was a statistically significant relationship between having skin-to-skin contact with the baby immediately after birth and having received CPCs (p=0.000). It was observed that most of the women who had participated in CPCs had skin-to-skin contact with their babies immediately after birth (25.0%), while most of those who had not did not (35.2%), (Table 3).

No statistically significant relationship was found between women's description of their income level and their family type and the status of having received CPCs (p>0.05) (Table 3).

As a result of the correlation analysis performed to determine the relationship between the scales, a weak, negative, and significant relationship was found between the SMMS-NB and the MIBS total scores (r=-.232; p<0.01). Accordingly, as the mother's satisfaction decreased during normal birth, the level of mother-infant bonding problems increased. The relationship between MIBS and SMMS-NB subscales is given in Table 4. Accordingly, a weak, negative relationship was found between MIBS total score and some subscales of the SMMS-NB, namely perception of the healthcare team (r=-.235, p<0.01), nursing care in labor (r=-.294, p<0.01), postpartum care (r=-.268, p <0.01), respect for privacy (r=-.262, p<0.01), and meeting expectations (r=-.244, p<0.01). A weak, negative, and significant relationship was found between the SMMS-CB and the MIBS total scores (r=-.354, p<0.01). Accordingly, as the mother's satisfaction decreased during cesarean birth, the level of mother-infant bonding problems increased. There was a weak, significant negative relationship between MIBS total

score and some subscales of the SMMS-CB, namely preparation for cesarean section (r=-.279, p<0.01), hospital room (r=-.316, p<0.01), and respect for privacy (r=-.360, p<0.01). It was observed that there was a weak, positive relationship between the MIBS total score and the comforting (r=.217, p<0.05) and meeting the baby (r=.366, p<0.01) subscales of the SMMS-CB (Table 4).

Table 4: Correlations between the scales.

Scales	MIBS total score	
	Test value (r)	p
SMMS-NB total score	-.232**	0.007
Perception of the healthcare team	-.235**	0.007
Nursing care in labor	-.294**	0.001
Comforting	-0.059	0.498
Information and involvement in decision-making	-0.147	0.092
Meeting the baby	-0.069	0.433
Postpartum care	-.268**	0.002
Hospital room	0.009	0.916
Hospital facilities	-0.096	0.273
Respect for privacy	-.262**	0.002
Meeting expectations	-.244**	0.005
SMMS-CB total score	-.354**	0.000
Perception of the healthcare team	-0.199	0.053
Preparation for cesarean	-.279**	0.006
Comforting	.217*	0.034
Information and involvement in decision-making	-0.181	0.079
Meeting the baby	.366**	0.000
Postpartum care	-0.171	0.097
Hospital room	-.316**	0.002
Hospital facilities	-0.181	0.080
Respect for privacy	-.360**	0.000
Meeting expectations	-0.05	0.633

*p<0.05; **p<0.01; rs: Spearman correlation coefficient

The relationship between the total MIBS score and some characteristics of the participants is given in Table 5. Accordingly, a statistically significant difference was found between women's mode of birth (p=0.020), the time when they started breastfeeding following birth (p=0.007), the status of having skin-to-skin contact with their baby immediately after birth (p=0.001) and the median of the total MIBS score. It was found that the median of the total MIBS score of those who had given a vaginal birth was lower than the score of those who had cesarean section. Accordingly, women who had cesarean section were more likely to experience mother-baby bonding problems than those who had a vaginal birth. Post-hoc analyses showed that the groups that initiated breastfeeding within the first 15 minutes and the first four hours after birth and the groups who responded yes-no and yes-partly to the item about the status of skin-to-skin contact immediately after birth created a difference. According to Table 5, there was no statistically significant difference between the status of wanting the pregnancy and the median of the total MIBS score (p=0.515).

The relationship between receiving CPCs and the total scores of the scales is presented in Table 6. As seen in the table, a statistically significant difference was found between having received CPCs and the mean SMMS-NB score of the women who had given a normal birth (p=0.000). Accordingly, it was understood that the satisfaction level of mothers who had received CPCs ($\bar{X}$=144.07±14.82) with the care they received in the hospital during normal birth was higher than those who had not ($\bar{X}$=134.07±14.98). Similarly, a statistically significant difference was found between having received CPCs and the mean SMMS-CB score of mothers who had cesarean section (p=0.000). It was observed that the satisfaction levels of mothers who had received CPCs ($\bar{X}$=143.68±17.78) with the care they received in the hospital during cesarean birth were

higher than those who had not ($\bar{X}$=135.43±14.79). A statistically significant difference was found between having received CPCs and the median MIBS score (p=0.000). The median MIBS score of those who had received education was lower than those who had not. According to these results, women who had not received CPCs experienced higher levels of mother-infant bonding problems than those who had.

Table 5: Comparison of women's scores on the total MIBS according to some descriptive characteristics.

Some descriptive characteristics	MIBS Total score (Median (Q1-Q3))	Test value
Whether the pregnancy was wanted		
Yes	0.00 (0.00-2.00)	KW=1.325
No	0.00 (0.00-2.00)	p=0.515
Partly	0.00 (0.00-3.00)	
Mode of birth		z=7.274
Vaginal birth	0.00 (0.00-1.75)	p=0.020
Cesarean birth	1.00 (0.00-3.00)	
Time of the first breastfeeding after birth		
Within the first 15 minutes	0.00 (0.00-0.00)	KW=21.178 p=0.007
Within the first half an hour	0.00 (0.00-2.50)	
Within the first 1 hour	1.00 (0.00-3.00)	
Within the first 4 hours	1.00 (0.00-3.00)	
Within the first 8 hours	1.50 (0.00-3.00)	
Within the first 24 hours	0.00 (0.00-3.00)	
Within the first 48 hours	0.00 (0.00-1.00)	
Within the first 72 hours	0.00 (0.00-1.00)	
No breastfeeding	0.00 (0.00-2.50)	
Status of skin-to-skin contact immediately after birth		
Yes	0.00 (0.00-1.00)	KW=14.660 p=0.001
No	0.00 (0.00-2.00)	
Partly	3.00 (0.00-4.00)	

Data that did not show a normal distribution were presented as median (Q1-Q3). KW= Kruskal-Wallis test, z= Mann-Whitney U test value

Table 6: Examination of the relationship between women's status of receiving CPCs and the total scale scores.

Characteristics	Status of receiving CPCs		Test value
	Yes $\bar{X}$ ± SD	No $\bar{X}$ ± SD	
Total SMMS-NB score (n=132)	144.07±14.82 (n=80)	134.07±14.98 (n=52)	t=3.770 p=0.000
Total SMMS-CB score (n=95)	143.68±17.78 (n=22)	135.43±14.79 (n=73)	t=2.184 p=0.031
Total MIBS score (n=227)	Median (Q1-Q3) 0.00 (0.00-3.00) (n=102)	Median (Q1-Q3) 1.00 (0.00-3.00) (n=125)	z=8.562 p=0.000

Mean±standard deviation=$\bar{X}$±SD was used for data that showed a normal distribution, and median values (Q1-Q3) for data that did not; t: Independent samples t-test, z= Mann-Whitney U test value

Discussion

In this study, which was conducted to examine the mode of birth, birth satisfaction, and mother-to-infant bonding in mothers who had received prenatal education and those who had not, it was observed that 44.9% of the women had received prenatal preparation classes. More than half of the women in the study (58.1%) had given a vaginal birth. Most of the women participating in CPCs had given a vaginal birth. In a study by Aslantekin-Özçoban, et al. [17], 52% of pregnant women were found to give birth normally and 48% surgically. Yılmaz-Esencan et al. [5] found that 5% of the women had a natural birth, 45.6% had a vaginal birth with episiotomy, 18.3% had a cesarean birth with spinal anesthesia, and 30% had a cesarean birth with general anesthesia. In another study on the comparison of the birth results of groups who had received CPCs during pregnancy and those who had not, it was reported that all women who had received education had given a vaginal birth [18]. The higher rate of vaginal birth compared to cesarean birth in the study can be interpreted as the effect of education that included explaining the mechanism of normal birth, reducing/relieving women's fears, and encouraging normal birth.

In our research, it was determined that the mean score of the women who had given a normal birth from SMMS-NB was 140.13±15.59 (min-max=87-191). Since this score was below the cut-off point (150.5) determined in the study by Güngör, et al. [15], the satisfaction level of the women who participated in our study was low. The mean score on the total SMMS-NB was found as 93.25±25.83 by Akçay-Yaldır [19] and 114.70±12.21 by Bozkurt [20]. When the scores were evaluated according to the cut-off point of the scale (150.5), it was seen that the satisfaction level of mothers after normal birth was low in our study and other studies. In our study, the mean score of women who had a cesarean section on the SMMS-CB was 137.34±15.75 (min=98-max=170). Since this score was below the cut-off point (146.5) determined by Güngör, et al. [15], the satisfaction level of women who had cesarean section was also low. In our study, it was seen that the birth satisfaction of mothers who had received CPCs and given a normal birth was higher than those who had not received education. In addition, the birth satisfaction of mothers who had received CPCs and given birth by cesarean section was higher than those who had not received education. Therefore, regardless of the mode of birth, it can be said that women who had received CPCs had higher birth satisfaction according to this study. Similarly, Akın, et al. [14], Dişsiz, et al. [21], and Mohaghegh, et al. [22] reported that women who had received childbirth preparation education had higher birth satisfaction levels.

The median score of the women in the study on the MIBS was 0.00 (0.00-2.00). As increased scores from MIBS are considered an indicator of mother-infant bonding problems [16], it can be said that the mother-infant bonding of the women in our study was positively high. According to our study findings, women who had received CPCs had a lower score on mother-infant bonding problems than those who had not. In a study by Jayasankari, et al. [18] on the comparison of the birth results of groups who had received childbirth education and those who had not between the 32nd and 34th weeks of gestation, the mother-infant bonding was higher in women who had received education. Kartal, et al. [6] stated that childbirth preparation education increased prenatal bonding. Therefore, it can be said that childbirth preparation education has positive effects on mother-infant bonding both in the prenatal and postnatal periods. Additionally, in our study, it was determined that as maternal satisfaction decreased in both normal and cesarean birth, the level of mother-infant bonding problems increased. Based on these results, thanks to childbirth preparation education given during pregnancy and supportive care during birth, mothers' birth satisfaction can be increased by reducing complications that may occur during and after birth, ensuring early skin-to-skin contact with the newborn, and strengthening the mother-infant bonding [5,23].

Most of the women who participated in our research stated their first breastfeeding time following birth as "within the first four hours" (n=68) and "within the first 15 minutes" (n=50). However, it was observed that most of the women who had received CPCs started breastfeeding within the first 15 minutes (n=41), while those who had not received education started it within the first four hours (n=51). A statistically significant difference was found between the time when women started breastfeeding after birth and the median of the total MIBS score. When the source of the difference was examined in the post-hoc analysis, it was determined to be between the groups that initiated breastfeeding within the first 15 minutes and the first four hours. Yılmaz-Esencan, et al. [5] reported that 7.2% of women started first breastfeeding after birth during skin-to-skin contact, 54.4% within the first hour, 16.1% after one hour, 10.6% after two hours following birth, and 11.1% within the first three hours or later. In the same study, it was stated that 45.6% of the women had skin-to-skin contact with their babies. In this research, it was found that most of those who had received CPCs had skin-to-skin contact with their babies, while most of those who had not received education could not.

Moreover, our study showed a statistically significant difference between women's mode of birth and mother-infant bonding. Accordingly, it was understood that mother-infant bonding was stronger in mothers who had given a vaginal birth than in mothers who had given birth by cesarean section. Similar to our findings, Çankaya, et al. [24] found bonding higher in mothers who had given vaginal birth, while Şolt-Kırca and Savaşer [25] and Başdaş et al. [26] reported that the mode of birth did not affect maternal bonding. Mother-baby bonding may be weaker in mothers who have cesarean section due to reasons such as delayed mother-infant meeting immediately after birth and failure to initiate breastfeeding early.

Conclusion

In conclusion, it was observed that most of the women who had attended CPCs had given a vaginal birth, and most of those who had not participated in this education had cesarean section. In our study, it was found that the satisfaction levels of mothers who had a

normal birth and those who had cesarean section with the care they received in the hospital were low. However, it was understood that the satisfaction levels of mothers who had received CPCs with the care they received from the hospital for both normal and cesarean births were higher than the levels of those who had not received education. It was also found that mother-baby bonding was higher in women who had received CPCs than in those who had not. Accordingly, it may be recommended to disseminate CPCs in health institutions, ensure their continuity, make sure that all pregnant women can easily access the service, and encourage their active participation. In addition, it is thought that providing education for midwives to increase the quality of prenatal care in this field will have a positive impact on protecting and improving the health of mothers and babies.

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Author Contributions

All authors contributed in the conceptual foundation of the study in terms of its rationale, design, data collection, analyses, discussion, and interpretation. All authors read and approved the final manuscript.

Conflict of Interest

Authors declare no conflict of interest.

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