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Factors affecting maternal satisfaction in labor and neonatal outcomes: A cross-sectional study

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Abstract

This study evaluated the factors affecting maternal satisfaction during labor and neonatal outcomes. This cross-sectional study was conducted with 319 mothers who gave birth in a hospital (01.10.2023-31.03.2024) and volunteered for the study. Data were collected using a personal information form including socio-demographic and obstetric characteristics of the mothers and the 'Birth Satisfaction Scale'. The mean age of the mothers who participated in the study was 28.07±6.44 years. The mean score of the Birth Satisfaction Scale was 22.29±5.03. The sub-dimensions of the scale were found to be significantly affected by mode of delivery, various factors ($p<0.05$). Positive birth experience also affects maternal satisfaction. This study showed that maternal satisfaction in labor was at a moderate level. It explains that maternal satisfaction in labor is affected by the mode of delivery and other factors. In addition, it is seen that the method of delivery has various negative effects on the newborn. *(Afr J Reprod Health 2024; 28 [11]: 85-95).*

Keywords: : Mode of birth, vaginal, cesarean, birth, satisfaction, newborn, cross-sectional studies

Résumé

Cette étude visait à évaluer les facteurs affectant la satisfaction maternelle pendant le travail et les résultats néonataux. Cette étude transversale a été menée auprès de 319 mères ayant accouché dans un hôpital (01.10.2023-31.03.2024) et s'étant portées volontaires pour l'étude.

Les données ont été collectées à l'aide d'un formulaire d'informations personnelles comprenant les caractéristiques sociodémographiques et obstétriques des mères et l'échelle de satisfaction à l'égard de l'accouchement. L'âge moyen des mères qui ont participé à l'étude était de 28,07±6,44 ans. Le score moyen de l'échelle de satisfaction à la naissance était de 22,29±5,03. Les sous-dimensions de l'échelle ont été significativement affectées par le mode d'accouchement et divers facteurs ($p<0,05$). Une expérience positive de l'accouchement influe également sur la satisfaction maternelle. Cette étude a montré que la satisfaction maternelle pendant le travail était à un niveau modéré. Elle explique que la satisfaction maternelle pendant le travail est influencée par le mode d'accouchement et d'autres facteurs. De plus, il apparaît que le mode d'accouchement a divers effets négatifs sur le nouveau-né.. *(Afr J Reprod Health 2024; 28 [11]: 85-95).*

Mots-clés: Mode d'accouchement; accouchement vaginal; césarienne; naissance; satisfaction; nouveau-né; études transversales

Introduction

Childbirth is a unique, powerful, multidimensional, personalized experience in women's life[1, 2]. Maternal satisfaction with childbirth is a term that encompasses a woman's evaluation of her labor experience. Maternal satisfaction at birth is an important issue in terms of maternal-infant, family, and public health[3,4]. It also has short- and long-term effects on the health of women and infants, both physically and emotionally[2,5,6]. In the literature, it has been described that a positive birth experience has long-lasting benefits, including a woman's perspective on motherhood, as it contributes to mother-infant attachment, relationship, self-confidence, and sense of accomplishment[7,8]. Similarly, a negative childbirth experience can lead to many problems, such as postpartum and breastfeeding difficulties, increased likelihood of depression and post-traumatic stress disorder, increased rates of unwanted pregnancies and miscarriages, longer inter-pregnancy intervals,

preference for cesarean delivery in subsequent births, negative feelings toward the baby, and problems with adjustment to motherhood[5,8-10].

Prenatal and intrapartum care guidelines emphasize the importance of positive experiences during pregnancy and childbirth[7,11-13]. The focus of maternity care has often been on physical outcomes, such as morbidity and mortality, rather than emotional dimensions[7,14]. Understanding women's perceptions of care and satisfaction with services is important because perceived quality is a key determinant of service use[15]. Therefore, health systems can be more effective if they consider women's experiences to provide quality care and meet their needs and expectations[16]. Factors affecting maternal satisfaction in childbirth in previous studies on this subject; include planned pregnancy and delivery[17], birth preparation training of the pregnant woman[5,9,10], fear of childbirth[18], duration, coping with labor pain, providing care and meeting needs throughout the entire process[16,19], receiving respect and support, being given information and self-control during childbirth[5,9,20,21], unexpected interventions to the mother or baby during labor[5,9], involvement of the pregnant woman in decision-making processes and receiving social support during childbirth[22], multiple births, birth center[23,24]. Maternal satisfaction at birth is an important marker in evaluating the birth experience, and its evaluation is important in indicating the quality of care provided to the mother and the health of the newborn and mother[1,16,19].

Satisfaction with childbirth is an important concept that accelerates women's adaptation to pregnancy, birth, and the postnatal period. The mother's satisfaction with childbirth facilitates postnatal adjustment, positively affects breastfeeding, strengthens mother and baby attachment, reduces postnatal depression, and enables mothers to approach baby care more confidently[1,5,10,16,19]. In addition to these benefits, birth satisfaction is associated with increased quality and reduced cost of the care services provided. These reasons highlight the necessity of evaluating birth satisfaction and conducting continuous improvement studies. WHO's goal emphasizes that healthcare systems should be designed not only to reduce the unacceptable burden of maternal mortality, stillbirths, and neonatal deaths prevalent in low- and mid-dle-income countries but also to deliver equitable and affordable care that meets women's needs[7,11].

In the literature, some studies have examined the effect of the mode of delivery on maternal satisfaction and its relationship with features such as planned pregnancy, planned birth, birth preparation education of the pregnant woman, fear of childbirth, duration, birth pain, and quality care[5,7,9,16-19]. Because labor is a unique, powerful, multidimensional, and personalized experience in a woman's life, evaluating maternal satisfaction in labor is important. Because the care given in labor is not only specific to the mother but also affects the health of newborns, it is an important issue that needs to be examined. In this context, since there is not enough information in the literature about the factors affecting maternal satisfaction in childbirth and neonatal outcomes, it is important to examine the subject with all its sub-dimensions and it was decided to conduct this study as it was seen that comprehensive information was needed. Within the framework of the information obtained, it may contribute to the literature on the factors affecting maternal satisfaction in labor and their effects on neonatal outcomes and may be a useful resource for health professionals in service delivery. In this direction, the study aimed to evaluate the factors affecting maternal satisfaction in labor and neonatal outcomes.

Methods

Study design and participants

This cross-sectional study was conducted between 01 October 2023 and 31 March 2024. According to the aims of the study, women who were eligible according to the research criteria and preparing to be discharged in the postnatal period were included in the study. The study population consisted of mothers preparing for discharge during the postpartum period in which the study was conducted. In the study of Çıtak Bilgin *et al*. (2018), the level of satisfaction with childbirth was reported to be 80.4%, and in the power analysis performed with the G*Power (3.1.9.7) program according to an effect size of 0.4, one unit difference, 80% power, $\alpha = 0.05$ margin of error value, it was determined that at least 128 people should be included in the sample. Considering possible case losses, the study was completed in 319 women.

The inclusion criteria for this study were as follows; (1) younger than 18 years of age and not having health problems, including mental health (2) no complications during the postnatal period; (3) able to speak, read, write, listen, and communicate in Turkish; and (4) willing to participate in the study. Mothers who did not meet the inclusion criteria were not included in the study. The sociodemographic characteristics of mothers are the independent variables. The dependent variables were the mean sub-dimension scores and total "Birth Satisfaction Scale" scores of the mothers.

Data collection tools

"Demographic Characteristics Information Form" and "Maternal Satisfaction Scale" prepared by the researcher in line with the literature[5,16–19] were used to collect data.

Demographic characteristics information form

The form consists of 20 questions about sociodemographic characteristics (e.g. age, education, employment status, family type) and obstetric characteristics (e.g. number of pregnancies, number of births, fertility goal).

Maternal satisfaction scale

The "Maternal Satisfaction Scale Short Form" consisting of 10 questions was used to determine the satisfaction level of mothers toward childbirth, which was developed and short-formed by Martin & Martin (2014), and the validity and reliability study in our country was conducted by Serhatlıoğlu et al. The scale is a 5-point Likert scale and is scored as "strongly agree (4), agree (3), undecided (2), disagree (1), strongly disagree (0)". Items 2, 4, 7, and 8 of the scale were inversely calculated. The scale consists of three subdimensions: quality of care, women's personal characteristics, and stress experienced during childbirth. The Cronbach's alpha coefficients for the original version of the scale were reported as 0.71 for the total scale, 0.66 for the personal characteristics and stress subdimensions, and 0.74 for the quality-of-care subdimension[25]. In this study, Cronbach's alpha values were calculated as 0.82 for the total scale, 0.70 for quality of care, 0.68 for personal characteristics, and 0.67 for the stress subdimension.

The "Quality of Care" sub-dimension of the scale (statements about the communication and support of health personnel and cleanliness of the delivery room) consists of four items (3, 5, 6, 10). In the quality-of-care sub-dimension, there are statements about the communication and support of the health personnel and the cleanliness of the delivery room. The "Personal Characteristics of the Woman" sub-dimension consists of items 4 and 8 (items related to the woman's sense of control and anxiety during labor). In this sub-dimension, items are related to the woman's sense of control and anxiety during childbirth. The "Stress Experience in Childbirth" sub-dimension consists of 4 items (statements about perceived stress and duration of action): items 1, 2, 7, and 9. In the stress experienced in the childbirth sub-dimension, statements are related to perceived stress and delivery duration. A cut-off score was calculated for the scale to facilitate the comparison of satisfaction levels between groups. Scale cut-off scores were calculated by dividing the total score into three equal parts (low <13, medium 14-27, high satisfaction ≥ 28)[25]. In the original form of the scale, the scores ranged from 0 to 40, and higher scores without any cut-off value indicate increased satisfaction. While collecting data for the study, first, the mothers were assessed in the postnatal clinics, the eligibility criteria were evaluated, and the eligible mothers were informed about the study and invited to participate. After the written consent of the mothers who agreed to participate in the study was obtained, the researcher completed the questionnaire using the face-to-face interview technique. It took approximately 15-20 minutes to complete the questionnaires. The confidentiality of the participants was carefully protected, and the information obtained was duly stored anonymously for use only in scientific publications.

Data analysis

The data obtained within the scope of this study were analyzed using the IBM Statistical Package for the Social Sciences (SPSS) for Windows 23.0 package. Frequency and percentage values are given for descriptive data, and mean, standard deviation, median, minimum, and maximum values are given for continuous data. The compatibility of continuous variables with normal distribution was analyzed by the Kolmogorov-Smirnov test. In intergroup comparisons, "Pearson Chi-Square/Fisher Exact

Test/Independent sample t-test" was used to compare variables. The relationship between the sub-dimensions of the birth satisfaction scale and the total satisfaction levels of women was examined using Pearson Correlation Analysis. All analyses were performed at a 95% confidence interval and significance level of 0.05.

Ethical considerations

This study was conducted in compliance with the rules of the Declaration of Helsinki. The researcher protected the rights of the mothers of this study from the beginning of data collection. Before collecting data, Ethics Committee Approval dated 18.09.2023 (2023/9-15) was obtained from the Mardin Artuklu University Non-Interventional Clinical Research Ethics Committee.

Results

It was determined that 21.9% of the mothers (N=319) included in the study had high school/equivalent school education, 6.2% had university education (associate degree/undergraduate/graduate), 88.4% were legally married, 87.1% were not employed in an income-generating job, and 48% had a low level of income (Table 1). The mean score of the mothers on the Maternal Satisfaction Scale was 22.29±5.03 (Min.:12, Max.:39).

When the mean scores of the subdimensions of the Maternal Satisfaction Scale were evaluated, the quality-of-care sub-dimension was 8.90±2.37 (min.: 4, max.: 16), the personal characteristics of the woman sub-dimension was 4.42±1.36 (min.: 2, max.: 8), and the stress experience in childbirth sub-dimension was 8.96±1.99 (min.: 4, max.: 16). It was determined that the mothers received the highest score from the sub-dimension of stress experience during childbirth and the lowest score from the sub-dimension of personal characteristics of the women (Table 1).

When the characteristics of newborns were examined in this study, 5% were hospitalized in the neonatal intensive care unit. The mean values of some parameters were as follows: fifth-minute Apgar score 8.29±1.36 (Min.:3; Max.:10), birth weight 3317.59±489.48 (Min.:1700; Max.:4850), height 50.82±1.26 (Min.:47; Max.:53), and head circumference 34.35±1.05 (Min.:32.3; Max.:36.2) (Table 1).

The mean age of the mothers was 28.07±6.44 (min: 18; max: 43), the number of pregnancies was 2.75±1.40 (Min.:1, Max.:7), the number of living children was 2.06±1.12 (Min.:1, Max. :7), mean body mass index was 29.15±3.22 (Min.: 21, Max.: 39), gestational week at birth was 38.50±1.50 (Min.: 37, Max.: 41), and delivery time was 3.77±7.93 hours (Min.: 1, Max.: 48) (Table 2). When the relationship between the mode of delivery of the mothers and some parameters of the newborns was examined, it was found that the majority of newborns born with vaginal delivery had birth weight (≥2500 g), height (≥48 cm), and Apgar scores (≥7) at the fifth minute (60.3%, 60.9%, 61.7%, respectively). No significant difference was found as a result of the statistics ($p>0.05$). It was determined that the majority of newborns who were hospitalized in the intensive care unit (81.2%) and who did not receive breast milk (65.1%) were born by cesarean section, and a statistically significant difference was found ($p<0.05$) (Table 2).

When the relationship between mode of delivery and maternal satisfaction level was examined, only 1.0% of those who underwent vaginal delivery and 4.7% of those who underwent cesarean section were satisfied at low levels. Among the mothers who were moderately satisfied with the mode of delivery, 87.5% had a vaginal delivery and 83.5% had a cesarean section. No significant difference was found as a result of the statistics ($p>0.05$). In addition, when the satisfaction level score obtained from the Maternal Satisfaction Scale was compared with the gestational age, mothers who had a birth ≥39 weeks of gestation had a higher score (≥28) and a higher level of satisfaction (≥28) compared to those who had a smaller birth (37-38 weeks). This finding was found to be statistically significant because of the analysis ($p<0.05$) (Table 3). The distribution of some characteristics of the women in this study in comparison with the subdimensions of the Maternal Satisfaction Scale is presented in Table 4. When the table was examined, it was found that there were no statistically significant results among the subdimensions of the scale according to age, education, planned pregnancy, delivery time, birth weight of the newborn, or hospitalization in the neonatal intensive care unit ($p>0.05$). It was found that there was a statistically significant difference between the gestational age and mode of delivery in the Quality-of-Care sub-dimension ($p<0.05$).

Table 1: Women's sociodemographic and obstetric characteristics, and newborn parameters (n=319)

Characteristics	**N (%)**	
Education status		
Illiterate/literate	43 (13.5)	
Primary education	186 (58.3)	
High School	70 (22.0)	
University (Associate's Degree/ Undergraduate/Graduate)	20 (6.2)	
Employment status		
Not working	278 (87.1)	
Working	41 (12.9)	
Perceived income level		
Income less than expenses	31 (9.7)	
Income equal to expenses	135 (42.3)	
Income more than expenses	153 (48)	
Marital status		
Married	282 (88.4)	
Single/Divorced	26 (8.1)	
Living separately	11 (3.5)	
Planned status of the most recent pregnancy		
Yes	236 (74.0)	
No.	83 (26.0)	
Mode of delivery		
Vaginal delivery	192 (60.1)	
Cesarean section	127 (39.9)	
	Mean ± SD	**Min-Max**
Age	28,07±6,44	18-43
Number of pregnancies	2.75±1.40	1-7
Number of living children	2.06±1.12	0-6
Pregnancy week	38.50±1.50	37-41
Duration of birth	3.77±7.93	1-48
Maternal Satisfaction Scale (Cronbach's Alpha)	22.29±5.03 (.82)	12-39
Quality of Care (Cronbach's Alpha)	8.90±2.37 (.70)	4-16
Women's Personal Characteristics (Cronbach's Alpha)	4.42±1.36 (.68)	2-8
Experience of Stress at Birth (Cronbach's Alpha)	8.96±1.99 (.67)	4-16
Newborn parameters		
Apgar, mean ± SD (5th minute)	8.29±1.36	3-10
Weight, mean ± SD	3317.59±489.48	1700-4850
Height, mean ± SD	50.82±1.26	47-52
Head circumference (cm) ± SD	34.35±1.05	32.-37.0

It was determined that there was a statistically significant difference between the working status, perceived income level, gestational week, and mode of delivery in the Women's Personal Characteristics sub-dimension ($p<0.05$). There was a statistically significant difference in the analysis between the perceived income level, gestational week, and mode of delivery of the Stress Experience in Child-birth sub-dimension ($p<0.05$) (Table 4).

The results of Pearson Correlation Analysis examining the relationship between the subdimensions of the maternal satisfaction scale and the total satisfaction levels of women are presented in Table 5.

Table 2: Comparison of mode of delivery with neonatal parameters and distribution of some characteristics of mothers (n=319)

Characteristics	Groups	Vaginal delivery	Cesarean section	P
Birth weight	≤2499 gr	8 (57.1)	6 (42.9)	.812
	≥2500 gr	184 (60.3)	121 (39.7)	
Height	<48 cm	5 (41.7)	7 (58.3)	.182
	≥48 cm	187 (60.9)	120 (39.1)	
Apgar score (5th minute)	<7	26 (52.0)	24 (48.0)	.198
	≥7	166 (61.7)	103 (38.3)	
Newborn intensive care hospitalization	Hospitalized	3 (18.8)	13 (81.2)	**.001**
	Non-hospitalized	189 (62.4)	114 (37.6)	
Nutritional status	Breastfed	170 (66.4)	86 (33.6)	**.000**
	Not breastfed	22 (34.9)	41 (65.1)	
		Mean ± SD	**Min-Max**	
Age	28,07±6,44	18-43	28,07±6,44	
Number of pregnancies	2.75±1.40	1-7	2.75±1.40	
Number of living children	2.06±1.12	0-6	2.06±1.12	
Pregnancy age (week)	38.50±1.50	37-41	38.50±1.50	
Duration of childbirth (hour)	3.77±7.93	1-48	3.77±7.93	
Body mass index	29.15±3.22	21-39	29.15±3.22	

Table 3: Distribution of birth satisfaction levels among mothers according to some variables (n=319)

Characteristics	Groups	Low satisfaction <13	Medium satisfaction 14-27	High satisfaction ≥ 28	P
Average age	≤24	4 (%3.5)	93 (%82.3)	16 (%14.2)	0.369
	≥25	4 (%1.3)	181 (%87.9)	21 (%10.2)	
Education status	≤12 years	8 (%2.7)	256 (%85.6)	35 (%11.7)	0.732
	≥13 years	0 (%0)	18 (%90.0)	2 (%10.0)	
Employment status	Not working	8 (%2.9)	237 (%85.3)	33 (%11.9)	0.491
	Working	0 (%0)	37 (%90.2)	4 (%9.8)	
Perceived income level	Poor	7 (%2.4)	244 (%84.7)	37 (%12,8)	0.104
	Equal/ Excess	1 (%3.2)	30 (%96.8)	0 (%0)	
Pregnancy status	Planned	7 (%3.0)	204 (%86.4)	25 (%10.6)	0.453
	Unplanned	1 (%1.2)	70 (%84.3)	12 (%14.5)	
Pregnancy age	37-38	1 (%3.8)	25 (%96.2)	0 (%0)	**0.049**
	≥39	7 (%2.4)	249 (%85)	37 (%12.6)	
Mode of delivery	Vaginal	2 (%1.0)	168 (%87.5)	22 (%11.5)	0.117
	Cesarean	6 (%4.7)	106 (%83.5)	15 (%11.8)	
Birth duration	≤12 hours	7 (%2.4)	247 (%86.1)	33 (%11.5)	0.957
	≥13 hours	1 (%3.1)	27 (%84.4)	4 (%12.5)	
Birth weight	≤2499 gr	0 (%0)	13 (%92.6)	1 (%7.1)	0.704
	≥2500 gr	8 (%2.6)	261 (%85.6)	36 (%11.8)	

The results of the correlation analysis between the subdimensions of the scale and satisfaction levels revealed a strong positive linear relationship ($p<0.05$). Based on these results, the level of maternal satisfaction can be affected by the quality of care, women's personal characteristics, and the experience of stress during childbirth.

Table 4: Distribution of the comparison of the subdimensions of the Maternal Satisfaction Scale with some variables (n=319)

Characteristics		Quality of Care	Women's personal characteristics	Experiencing Stress in Childbirth
Average age	≤24	9.07±2.31	4.47±1.42	9.07±1.99
	≥25	8.82±2.39	4.38±1.32	8.90±2.00
Test value	t/p	0.902/0.368	0.561/0.575	0.718/0.473
Education status	≤12 years	8.90±2.38	4.441±1.36	8.99±1.99
	≥13 years	8.95±2.23	4.100±1.29	8.55±1.98
Test value	t/p	-0.080/0.937	1.086/0.278	0.954/0.341
Employment status	Not working	8.82±2.39	4.35±1.34	8.96±2.03
	Working	9.46±2.14	4.82±1.44	8.95±1.70
Test value	t/p	-1.608/0.109	-2.072/0**.039**	.038/0.969
Perceived income level	Poor	8.22±2.23	3.83±.93	8.06±1.59
	Equal/ Excess	8.98±2.37	4.48±1.38	9.05±2.01
Test value	t/p	-1.694/0.091	-2.523/**0.007**	-2.660/**0.008**
Pregnancy status	Planned	8.81±2.39	4.37±1.35	8.86±1.94
	Unplanned	9.16±2.28	4.55±1.37	9.25±2.11
Test value	t/p	-1.161/0.247	-1.044/0.297	-1.545/0.123
Pregnancy age	37-38	6.61±1.47	3.69±0.97	7.34±1.38
	≥39	9.11±2.32	4.48±1.37	9.10±1.98
Test value	t/p	-5.369/**0.000**	-2.876/**0.004**	-4.431/**0.006**
Mode of delivery	Vaginal	9.25±1.99	4.59±1.180	9.18±1.67
	Cesarean	8.39±2.77	4.14±1.56	8.62±2.37
Test value	t/p	3.204/**0.001**	2.919/**0.004**	2.438/**0.001**
Birth duration	≤12 hours	8.96±2.35	4.45±1.37	9.00±1.96
	≥13 hours	8.43±2.46	4.12±1.23	8.59±2.24
Test value	t/p	1.187/0.236	1.294/0.197	1.102/0.271
Birth weight	≤2499 gr	8.64±2.34	4.14±1.35	9.00±2.35
	≥2500 gr	8.92±2.37	4.43±1.36	8.96±1.98
Test value	t/p	-0.429/0.668	-0.778/0.437	0.072/0.943
Newborn intensive care hospitalization	Hospitalized	9.00±3.28	4.87±1.92	9.31±3.55
	Non-hospitalized	8.90±2.31	4.39±1.32	8.94±1.88
Test value	t/p	0.157/0.875	1.373/0.171	0.719/0.473

Table 5: Correlations of Satisfaction Levels with the Subscales of the Maternal Satisfaction Scale

	r	P*
Quality of Care* Satisfaction Levels	.891	.000
Women's Personal Characteristics* Satisfaction Levels	.847	.000
Stress in Childbirth Experience* Satisfaction Levels	.885	.000

Discussion

It was found that mothers' employment status, perceived income level, gestational week, and mode of delivery significantly affected their satisfaction status. In addition, it was also shown that the satisfaction status of mothers was significantly affected by the rate of neonatal intensive care unit admission and breastfeeding, which developed depending on the mode of delivery.

In this study, when the sub-dimensions of the Birth Satisfaction Scale were analyzed, the sub-dimensions of "personal characteristics of the woman" and "stress experience in childbirth" were affected in mothers whose employment status and perceived income level were equal or higher. In a study conducted in Turkey examining maternal satisfaction with childbirth and related factors, it was similarly reported that women with incomes higher than expenses had higher postpartum satisfaction[26]. A study on patient satisfaction explained that individual characteristics affect patient satisfaction with the medical services they receive[27]. In a systematic review examining the relationship

between the cost of delivery and maternal satisfaction, it was reported that the cost of care affected maternal satisfaction[15]. In another study, education of the mother and delivery in a private health institution were reported as factors affecting satisfaction[24]. According to these results, the study results are similar to the literature, and it can be said that income level is an important problem in accessing birth services.

This study determined that mothers who gave birth at ≥39 weeks of gestation had higher satisfaction scores than those with 37-38 weeks of gestation. Likewise, it was found that the scores obtained from the three subdimensions of the scale were significantly affected; those with a gestational week ≥39 were more satisfied than those with a gestational week 37-38. It was observed that the sample group of the previous studies on this subject mostly consisted of mothers who gave birth at 36-42 weeks. In these studies, the factors affecting maternal satisfaction were birth pain, mode of delivery, quality of care, anesthesia, and interventions during delivery[19,26,28,29]. A previous study reported that although some discomforts, such as pain, were experienced during childbirth, the healthy birth of the baby was a sufficient criterion for maternal satisfaction[30]. Accordingly, it is seen that there are differences in satisfaction rates for various reasons in the literature. It is believed that the low maternal satisfaction of women with 37-38 weeks at the gestational age in this study may be attributable to the risk of health problems in the baby.

In this study, when the relationship between mode of delivery and maternal satisfaction level was examined, it was determined that the low level of satisfaction among those who gave birth vaginally (1.0%) was lower than that among those who gave birth by cesarean section (4.7%). The maternal satisfaction level of mothers who gave birth vaginally was higher than that of those who gave birth by cesarean section. However, when analyzed according to all subdimensions of the scale, mothers who gave birth vaginally had higher scores, and a statistically significant difference was found ($p<0.05$). The study results are like the literature. In Turkey, in one of the studies comparing the mode of delivery, no statistically significant difference was found in terms of satisfaction with the mode of delivery between the two groups of vaginal delivery and cesarean delivery[30], while in another study, it was reported that the satisfaction of women who gave birth vaginally (89%) was statistically significantly higher than that of women who gave birth by cesarean section (67%)[31]. In other studies, it has been explained that the birth satisfaction of women who gave birth vaginally was statistically higher[24,32,33]. In another study, it was reported that satisfaction with the birth experience was significantly related to birth expectations and mode of delivery[20]. According to these results, it may be recommended to provide services under the best conditions such as mother-centred care to increase maternal satisfaction in childbirth.

It was found that babies born vaginally had higher Apgar scores at the fifth minute (≥7) than those born by cesarean section. In addition, we determined that babies born by cesarean section had more intensive care unit hospitalizations and did not receive breast milk, and a statistically significant difference was found. In some studies, examining infants hospitalized in the neonatal intensive care unit in Turkey, it was reported that they were born by cesarean section; the health status of the infant affected the breastfeeding situation[34], and in one study, 23.4% of the infants were not breastfed at all within 24 hours[35]. In a study conducted in Ghana, it was reported that the APGAR score of babies born by cesarean section was lower, and the risk of NICU admission was twice as high as that of babies born vaginally[36]. In other studies, on this subject, it was reported that babies born by cesarean section were more likely to be admitted to the neonatal intensive care unit[37,38]. A study conducted in Eastern Ethiopia reported that more than one-third of newborns born by cesarean section were not breastfed within 1 hour. In the same study, the risk of adverse neonatal outcomes, such as meconium, in the amniotic fluid was reported to be higher in babies born by cesarean section than in those born by vaginal delivery[38]. Adverse neonatal outcomes that may be encountered in labor may not only be related to cesarean section. It should not be forgotten that there may be factors such as some health problems that can be evaluated outside the scope of this study.

Limitations

Limitations of the study; the findings of the study cannot be generalized because of the limited sample group in which volunteers participated in a single public hospital. Therefore, the findings can only be

evaluated for the study participants and can be transferred to similar settings. In addition, the results may differ depending on women's social and cultural status. Therefore, it is recommended that the study be conducted in more than one location and center with a larger participant group.

Conclusions

Maternal satisfaction at birth and the newborn are affected by various factors including mode of delivery. The results of this study showed that the satisfaction level of mothers was affected by employment status, perceived income level, gestational age, and mode of delivery. It was also shown that the satisfaction level of mothers was significantly affected by the rate of neonatal intensive care unit admission and breastfeeding, which were related to the mode of delivery. The results of this study are important in terms of determining the factors affecting maternal satisfaction at birth and the effects on neonatal and guiding the planning of service provision. It may be recommended that pre- and post-graduation training should be organized to increase the awareness of healthcare professionals on this issue, and local administrations and health administrators should provide support and an environment for quantitative and qualitative studies with wide participation where women's experiences about the birth process can be shared.

In addition, it may be recommended to provide services under the best conditions, such as mother-centered care, to increase maternal satisfaction during birth. Midwives have a very important role in helping mothers cope with their experiences during labor. To increase the satisfaction of mothers at birth, they should be educated and supported in preparation for birth including mode of delivery in pregnancy schools starting from preconceptional care.

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Competing interests

The author declared no conflicts of interest

Authors contribution

Ayşegül Dönmez designed the study, carried out the data analysis and wrote the results.

Yeşim Yeşil critically reviewed the article for its intellectual content. All the authors read and approved the content of the manuscript.

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