



Evaluation of Birth Satisfaction in Caesarean Section with General Anesthesia and Spinal Anesthesia

Genel Anestezi ve Spinal Anestezi Uygulanan Sezaryen Doğumlarda Doğum Memnuniyetinin Değerlendirilmesi

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Abstract

Objective: This study aims to investigate the effects of general and spinal anesthesia methods on the birth satisfaction of women in cesarean deliveries with the birth satisfaction scale (BSS) and to determine the factors affecting birth satisfaction.

Method: This descriptive cross-sectional study included 350 women who delivered by cesarean section under general and spinal anesthesia in a tertiary healthcare institution between June 2022 and November 2022. The patients were divided into groups S (spinal anesthesia) and G (general anesthesia). The data collection form and the "BSS" were filled in by face-to-face interview technique on the day of discharge to women who had a cesarean section.

Results: A total of 350 women who had a cesarean section, 228 (65.1%) in group S and 122 (34.9%) in group G, participated in the study. While 59.7% (n=209) of the women were primary school graduates, 6.9% (n=24) were university graduates. The mean BSS score was significantly higher in group S compared to group G (108±13 vs. 104±12, p=0.005). The preference for spinal anesthesia in university graduates and general anesthesia in illiterate women was significantly higher (p=0.021). When evaluated according to educational status, BSS scores were significantly higher in university graduates (p=0.002).

Conclusion: Birth satisfaction scores were high in women with a cesarean section under spinal anesthesia. In addition, preference for spinal anesthesia and BSS scores were high in university graduate

Öz

Amaç: Bu çalışmanın amacı, sezaryen doğumlarda genel ve spinal anestezi yöntemlerinin kadınların doğum memnuniyetine olan etkisinin doğum memnuniyet ölçeği (BSS) ile araştırılması ve doğum memnuniyetine etki eden faktörlerin belirlenmesidir.

Yöntem: Tanımlayıcı kesitsel tipteki bu çalışmaya Haziran 2022 ile Kasım 2022 tarihleri arasında tersiyer bir sağlık kuruluşunda genel ve spinal anestezi altında sezaryen ile doğum yapan 350 kadın dahil edildi. Hastalar grup S (spinal anestezi) ve grup G (genel anestezi) olarak iki gruba ayrıldı. Sezaryen doğum yapan kadınlara taburcu olacakları gün yüz yüze görüşme tekniği ile veri toplama formu ve "BSS" dolduruldu.

Bulgular: Çalışmaya grup S'de 228 (%65,1) ve grup G'de 122 (%34,9) olmak üzere toplam 350 sezaryen doğum yapmış kadın katıldı. Kadınların %59,7'si (n=209) ilkökul mezunu iken %6,9'u (n=24) yükseköğrenim mezunu idi. Grup S'de BSS skor ortalaması grup G'ye kıyasla anlamlı olarak yüksek saptandı (108±13 vs. 104±12, p=0,005). Üniversite mezunu kadınlarda spinal anestezi ve okur-yazar olmayan kadınlarda genel anestezi tercihi anlamlı olarak yüksekti (p=0,021). Eğitim durumuna göre değerlendirildiğinde üniversite mezunlarında BSS skorları anlamlı olarak yüksek bulundu (p=0,002).

Sonuç: Spinal anestezi altında sezaryen doğum yapan kadınlarda doğum memnuniyet skorları yüksek saptanmıştır. Ek olarak üniversite mezunu kadınlarda spinal anestezi tercihi ve BSS skorları yüksek bulunmuştur. Eğitim seviyesi düşük kadınların spinal anestezi hakkında



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Abstract

women. Informing women with low educational levels about spinal anesthesia and eliminating any concerns may increase the preference for spinal anesthesia and the satisfaction of delivery.

Keywords: Cesarean section, childbirth, general anesthesia, satisfaction, spinal anesthesia

Introduction

Pregnancy and childbirth are among the most important and unique experiences that affect women's lives physically, psychologically, and socially. In birth satisfaction, the training received in preparation for birth, the pain experienced during the birth process, the care and needs of women, the mode of delivery, and the sense of individual control of the birth are of great importance. In addition, it is effective for pregnant women not to be included in the decision-making process and to receive support from someone they trust during delivery (1-3). The determination of birth satisfaction is crucial as it indicates maternal care quality and shows the well-being of the newborn and mother.

The satisfaction level of women from obstetric services in health institutions from various regions of is between 54 and 90% (4,5). Positive birth experience increases women's self-confidence and contributes positively to establishing stronger relationships with their children and planning for future births. Negative birth experience; is associated with inadequacy in breastfeeding and maternal attachment, postpartum depression, neglect of child care, sexual reluctance, and fear of the subsequent birth (6).

Cesarean section rates are increasing in Turkey and the rest of the world. Spinal anesthesia; has advantages such as the faster recovery of gastrointestinal functions after surgery, providing postoperative analgesia, lower risk of drug toxicity for mother and baby, early mobilization in the postoperative period, and early communication between mother and baby (7). In addition, complications have been reported to be higher in general anesthesia (8). For all these reasons, the preference for spinal anesthesia is increasing in cesarean deliveries.

This study aims to investigate the effect of general and spinal anesthesia methods on the birth satisfaction of women in cesarean deliveries with the "birth satisfaction scale (BSS)" and to determine the factors affecting the level of birth satisfaction.

Öz

bilgilendirilmeleri ve varsa endişelerin giderilmesi spinal anestezi tercihini ve doğum memnuniyetini artırabilir.

Anahtar kelimeler: Doğum, genel anestezi, memnuniyet, sezaryen, spinal anestezi

Materials and Methods

This prospective descriptive cross-sectional study was approved by the Clinical Research Ethics Committee of the University of Health Sciences Turkey, Kanuni Sultan Süleyman Training and Research Hospital (date: 06.04.2022, number: 90). The work was started following the principles of the Declaration of Helsinki. Verbal and written consent was obtained from all women who gave birth in the study.

The Design, Universe, and Sample of the Study

Women who gave birth by cesarean section between June 2022 and November 2022 at the University of Health Sciences Turkey, Kanuni Sultan Süleyman Training and Research Hospital and agreed to participate in the study were included.

Inclusion criteria for the study;

- Eighteen years of age and older who had a cesarean section under general and spinal anesthesia in the hospital where the research was conducted,
- Not having a high-risk pregnancy, not having health problems in herself or her baby, not being treated in the postnatal intensive care unit for herself or her baby,
- Not a refugee or a citizen of another country, fluent in Turkish and with no communication problems,
- Primiparous and multiparous women who agreed to participate in the study and had elective cesarean delivery during working hours were included (Figure 1).

In the hospital where the study was conducted, the number of cesarean deliveries in 2021 was 3248, and the number of vaginal deliveries was 3033. The study's sample size: According to the sample size formula used when the universe is known, it was calculated as 343 at a 95% confidence interval by using the Epi info 7.2.5 program. A total of 350 women who had cesarean delivery under spinal and general anesthesia were included in the study. The patients were divided into groups G (general anesthesia group) and S (spinal anesthesia group), and their BSS scores were analyzed. At the same time, socio-

demographic characteristics affecting birth satisfaction in the whole population were investigated.

Data Collection and Data Collection Tools

Questionnaire forms were applied to the women who agreed to participate in the study, on the day of discharge, in their rooms, and when alone by using the face-to-face interview technique. The researchers prepared the data collection form, and the “BSS” was used to collect the data (Table 1). In the data collection form, women’s socio-demographic data (age, number of births, educational status, employment status) and obstetric and neonatal clinical data (gestational week, visual analog scale score at the 6th-hour postoperative, APGAR score of the newborn at 1 and 5 minutes) were questioned.

BSS

Martin and Fleming (9) developed the BSS in 2009 to evaluate the birth satisfaction of women. The scale was prepared in English and consisted of 30 items. BSS is a five-point Likert-type scale scored according to the answers given. “I strongly agree” is 5 points; “I agree” is 4 points; “I neither agree nor disagree” is 3 points; “I disagree” is 2 points; “I strongly disagree” is 1 point.

The total number of points taken from the scale varies between 30 and 150. Items 4, 8, 12, 15, 16, 17, 19, 20, 21, 23, 25, and 29 of the BSS are scored in reverse order. As the score obtained from the scale increases, the level of birth satisfaction increases, and the scale has no cut-off value. When the scale was created, validity and reliability studies

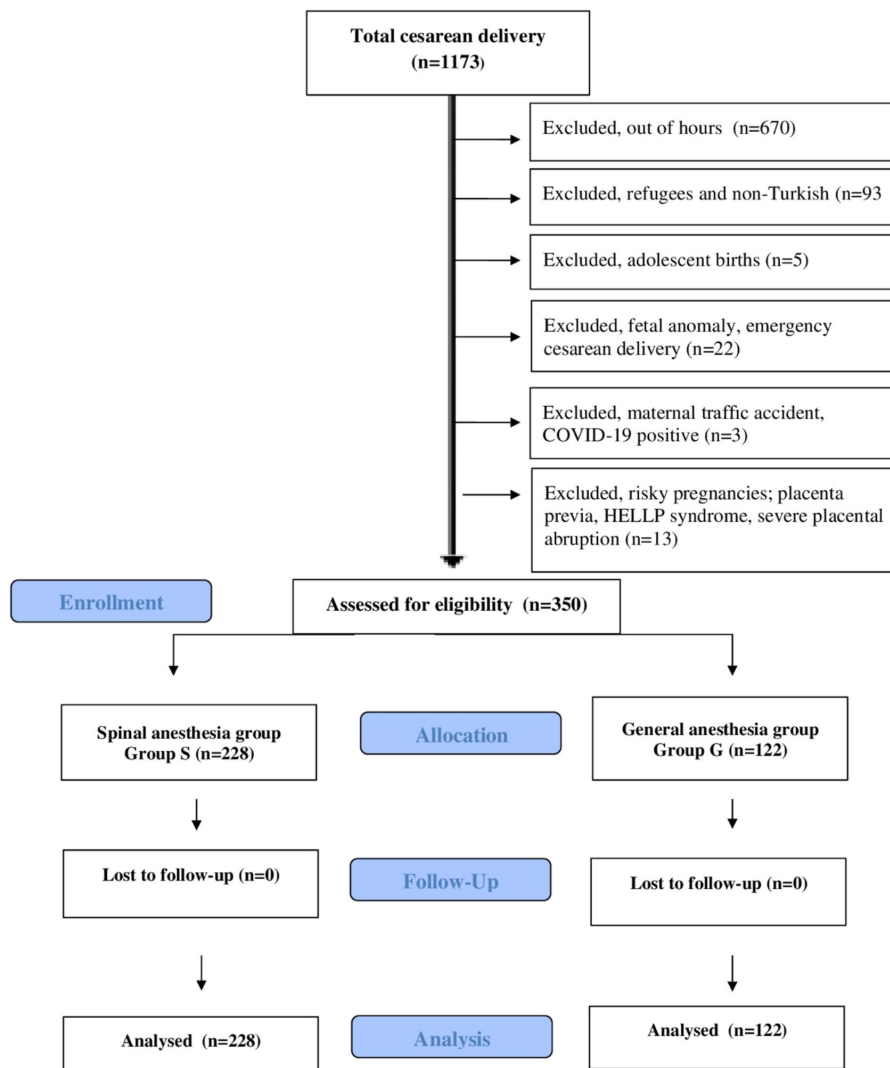


Figure 1. Flow chart of the study

COVID-19: Coronavirus disease-2019

were not carried out, and central themes and sub-themes were determined in line with the literature review results. Three overarching themes were selected in the scale:

1. Quality of care provision
2. Women's attributes
3. Stress experienced during labor (Table 2).

Turkish validity and reliability of BSS Cetin et al. (10). Cronbach's alpha coefficient was determined as 0.62.

Table 1. Items of the birth satisfaction scale

- 1) I coped well with my birth.
- 2) The delivery room staff encouraged me to make decisions about how I wanted my birth to progress.
- 3) I was well prepared for my labour, i.e., read a lot of literature and/or attended parenthood education classes.
- 4) I found giving birth a distressing experience.
- 5) I came through childbirth virtually unscathed
- 6) I gave birth to a healthy normal baby.
- 7) During labour I received outstanding medical care.
- 8) I received a lot of medical intervention, i.e., induction, forceps, section etc.
- 9) I had a swift and speedy labour.
- 10) I felt well supported by my partner during labour and birth.
- 11) I was encouraged to hold my baby for a substantial amount of time after birth.
- 12) My birth experience was considerably different from what I intended.
- 13) I had the same midwife throughout the entire process of labour and delivery.
- 14) I felt that the delivery room was unthreatening and comfortable.
- 15) I felt very anxious during my labour and birth.
- 16) I felt out of control during my birth experience.
- 17) I felt it was better not to know in advance about the processes of giving birth.
- 18) I was not distressed at all during labour.
- 19) I felt mutilated by my birth experience.
- 20) My baby was avoidably hurt during birth.
- 21) The staff provided me with insufficient medical care during my birth.
- 22) I had a natural labour, i.e., minimal medical intervention.
- 23) I thought my labour was excessively long.
- 24) I felt well supported by staff during my labour and birth.
- 25) I was separated from my baby for a considerable period of time after my birth.
- 26) My birth proceeded as I planned it.
- 27) The staff communicated well with me during labour.
- 28) The delivery room was clean and hygienic.
- 29) Giving birth was incredibly painful.
- 30) Labour was not as painful as I imagined.

In our study, the total Cronbach's alpha coefficient for BSS was 0.82, 0.68 for the first theme, 0.62 for the second theme, and 0.72 for the third theme. The general validity of the BSS was tested, and its items were found to be suitable and sufficient for factor analysis (KMO=0.75, $p < 0.001$).

Statistical Analysis

SPSS 26.0 (SPSS Inc., Chicago, USA) program was used to analyze the data. Descriptive data are expressed as the number of patients, percentage, mean, standard deviation, and range. The conformity of the variables to the normal distribution was evaluated analytically (Shapiro-Wilks test) and visually (histogram). Mann-Whitney U and Kruskal-Wallis H tests were used to analyze non-normally distributed quantitative data. Mann-Whitney U test was used in the analysis of the scale data. The chi-square test was used in the analysis of categorical data. The Bonferroni test was used as a post-hoc test to determine the difference between groups in categorical data. The statistical significance limit was accepted as $p < 0.05$.

Results

A total of 350 women, 228 (65.1%) in group S and 122 (34.9%) in group G participated in the study. While the mean age and distribution range of the cases were 29.4 ± 5.5 (18-44) in group S, it was 28.8 ± 4.9 (18-38) in group G. The mean parity was 2.2 ± 1.2 in group S and 2.1 ± 1.3 in group

Table 2. Themes and sub-themes affecting birth satisfaction

Themes	Sub-themes	Questions
Quality of care provision	Home assessment	12 and 26
	Birth environment	14 and 28
	Sufficient support	10 and 24
	Relationships with health care professionals	13 and 27
Women's personal attributes	Ability to cope during labour	1 and 15
	Feeling in control	2 and 16
	Preparation for childbirth	3 and 17
	Relationship with baby	11 and 25
Stress experienced during labour	Distress experienced during labour	4 and 18
	Obstetric injuries	5 and 19
	Perception of medical care	7 and 2
	Receipt of an obstetric intervention	8 and 22
	Pain experienced	29 and 30
	Long labour	9 and 23
	Health of baby	6 and 20

G. When examined according to their educational status, 59.7% (n=209) of the population were primary school graduates. In comparison, 6.9% (n=24) were university graduates. When evaluated according to employment status, 87.7% (n=307) of the entire population was not working. The mean gestational week of both groups was 38±1.3. While newborns' mean 1st minute (min) APGAR scores were 6.9±0.6 in group S, it was 6.7±0.7 in group G. The mean post-operative 6th-hour visual analog scale (VAS) scores were 5.1±1.9 in group S and 5.6±2.1 in group G. The mean BSS scores and range of distribution, were 108±13 (66-137) in group S, while it was 104±12 (71-130) in group G (Table 3).

When the BSS themes were evaluated, there was no significant difference between the groups' quality of care delivery (p=0.152). The personal attitudes of the women and the satisfaction levels of their stress experiences during the birth process were significantly higher in group S (p=0.003 and p=0.031, respectively) (Table 4).

When the evaluation was made between groups, BSS scores in group S were significantly higher than in group G (p=0.005). The mean age, number of births, and women's employment rates were higher in group S, although insignificant (p=0.619, p=0.519, p=0.147, respectively). The rate of university graduates in group S and the rate of illiterate women in group G were significantly higher (p=0.021). In group S, newborns' APGAR scores (1st and 5th min) were significantly higher, while post-operative 6th-hour VAS scores were significantly lower (p=0.036, p=0.032, p=0.037, respectively).

When the factors affecting birth satisfaction levels were investigated, the mean BSS scores of women aged 30-44 were higher than those aged 18-29, although insignificant (p=0.201). When compared according to education levels, the highest BSS scores were among university graduate women, and the lowest BSS scores were among high school graduate women. There was a significant difference between BSS scores according to education level (p=0.002).

Table 3. Socio-demographic data by groups, some clinical features, and BSS scores

	All population (n=350)	Group S (n=228)	Group G (n=122)	p-value
Age (years)	29.2±5.3 (18-44)	29.4±5.5 (18-44)	28.8±4.9 (18-38)	0.619*
Parity, n	2.2±1.2 (1-6)	2.2±1.2 (1-6)	2.1±1.2 (1-6)	0.644*
Educational status, n (%)	10 (16.7%)	4 (13.3%)	6 (20.0%)	0.021†
Illiterate	63 (18)	32 (14)	31 (25.4)	
Primary education	209 (59.7)	144 (63.1)	65 (53.4)	
High school	54 (15.4)	33 (14.5)	21 (17.2)	
University and postgraduate	24 (6.9)	5 (16.7%)	5 (4)	
Working status, n (%)				0.147†
Working	43 (12.3)	33 (14.4)	10 (8.2)	
Housewife	307 (87.7)	195 (85.6)	112 (91.8)	
Gestational week, n	38±1.3 (35-41)	38±1.3 (35-41)	38±1.3 (36-41)	0.662*
APGAR score (1st min), n	6.8±0.7 (3-8)	6.9±0.6 (4-8)	6.7±0.7 (3-8)	0.036*
APGAR score (5th min), n	8.7±0.5 (4-9)	8.8±0.5 (6-9)	8.6±0.5 (4-9)	0.032*
VAS score (post-op 6th hour)	5.3±2 (1-9)	5.1±1.9 (2-8)	5.6±2.1 (1-9)	0.037*
BSS score, n	106±13 (66-137)	108±13 (66-137)	104±12 (71-130)	0.005*

Data are given as mean ± standard deviation, range, number of patients (n), and percentage.

APGAR: Neonatal scoring system, VAS: Visual analog scale, BSS: Birth satisfaction scale, *Mann-Whitney U test, †chi-squared test

Table 4. Birth satisfaction scale theme and total score averages

	All population (n=350)	Group S (n=228)	Group G (n=122)	p-value
Theme				
Quality of care provision	3.70±0.5	3.72±0.5	3.67±0.4	0.152*
Women's personal attributes	3.48±0.5	3.55±0.5	3.34±0.5	0.003*
Stress experienced during labor	3.49±0.4	3.54±0.4	3.41±0.5	0.031*
Total	3.42±0.4	3.46±0.4	3.34±0.3	0.005*

Data are given as mean ± standard deviation, *Mann-Whitney U test

The BSS scores of illiterate women were significantly higher than those of high school graduate women. The BSS scores of university graduate women were considerably higher than high school graduate women (adj. $p=0.019$ and $p=0.004$, respectively). Although not substantial, BSS scores were high in workers and multiparous women ($p=0.153$, $p=0.425$, respectively) (Table 5).

Discussion

The experiences of women in the intrapartum and postpartum period and their satisfaction with the health services they receive have become increasingly important. Many scales, such as the birth satisfaction and postpartum comfort scales, have been developed and used for this purpose (9,11). The delivery type is a critical factor affecting women's satisfaction with birth. Çelik and Çelik (11) reported that those who gave vaginal birth had higher postpartum comfort than those who had a cesarean section. The same study said that postpartum comfort was higher in those who had a cesarean section with regional anesthesia than in those with a cesarean section with general anesthesia. Fleming et al. (12) evaluated labor satisfaction with BSS in their study and reported that the mean BSS score was 128.9 ± 9 . The same survey emphasized that those who had a vaginal delivery had higher birth satisfaction than those who had a cesarean section. In our research, spinal anesthesia was applied in most of the cesarean deliveries (65.1%) that participated in the study, consistent with the literature. The birth satisfaction score

of the whole population was 106 ± 13 . At the same time, the birth satisfaction scores of those who had a cesarean section in group S were significantly higher than those of group G (BSS score 108 ± 13 vs. 104 ± 12 , $p=0.005$).

Pain is one of the negative experiences in childbirth. Problems experienced in the postpartum period, and the birth process, can affect birth satisfaction. Huang et al. (13) determined that the pain experienced in the postpartum period negatively affects birth satisfaction by preventing the mother's comfort, performing the baby, and self-related care activities. A study conducted with primiparous and multiparous women reported that one-third of women had problems in the postpartum period. The most common problem is a pain in the operation area and standing up during cesarean deliveries (14). In our study, the BSS scale was used to evaluate birth satisfaction. When the themes of the BSS were compared between the groups, no significant difference was observed in the quality of care. On the other hand, in the sub-headings of stress level during delivery and attitudes of pregnant women, birth satisfaction scores were found to be significantly higher in the spinal anesthesia group. Following the literature, we think pain palliation in postpartum is essential for birth satisfaction in cesarean deliveries.

It has been reported that maternal age may affect birth satisfaction (1,2,6). However, studies also report that age does not significantly affect birth satisfaction (15-17). In our study, although the mean age of the spinal anesthesia group was higher than the general anesthesia group, no

Table 5. Socio-demographic characteristics affecting the birth satisfaction scale score

	n	%	BSS score	p-value
Age range				0.201*
18-29	194	55.4	105.5 ± 12.3	
30-44	156	4.46	107.6 ± 13.5	
Parity				0.425*
Primiparous	122	34.8	105.6 ± 12.7	
Multiparous	228	65.2	106.9 ± 13	
Educational status				0.002†
Illiterate	63	18	108.3 ± 12^a	
Primary education	209	59.7	106.2 ± 12.9	
High school	54	15.5	101.8 ± 12.9^{ab}	
University and postgraduate	24	6.8	114.1 ± 11.6^b	
Working status				0.153*
Working	43	12.3	110.6 ± 12.4	
Housewife	307	87.7	105.8 ± 12.9	

Data are given as mean \pm standard deviation, BSS: Birth satisfaction scale, *Mann-Whitney U test, †Kruskal-Wallis test, ^aThe BSS scores of illiterate patients were significantly higher than those of high school graduate patients (Adj. $p=0.019$), ^bBSS scores of university graduate patients were significantly higher than high school graduate patients (adj. $p=0.004$)

significant difference was found. Although the BSS scores of women aged 30-44 in the entire population were high, no significant difference was observed.

Parity can also affect birth satisfaction. Bilgin et al. (15) reported that the level of birth satisfaction in multiparous women is higher than in primiparous women. In our study, BSS scores were significantly higher in group S. The mean parity in this group was higher than in general anesthesia, although it was insignificant. In our study, although BSS scores in multiparous puerperal women were higher than those in primiparous, no significant difference was observed. The fact that multiparous and older women are more experienced in both spinal anesthesia and childbirth than primiparous women and are more effective in decision-making is effective in spinal anesthesia preference and birth satisfaction.

One of the factors that affect women's birth satisfaction is education. It has been reported in some studies that education status does not affect birth satisfaction (15,17). However, studies also note that increased education level increases birth satisfaction (16,18). In our research, illiterate women had a significantly higher preference for general anesthesia; similarly, a priority for spinal anesthesia was considerably higher in university graduates. Our study also found that education level greatly affected birth satisfaction ($p=0.002$). While the mean BSS scores in higher education graduates were 114.1 ± 11.6 , the mean BSS scores in the whole population were 106 ± 13 .

One of the factors that may affect birth satisfaction is the working status of women. Studies report that working status does not affect women's birth satisfaction (2,18). However, Goodman et al. (18) said working women had higher labor satisfaction. In our study, the rate of working women in the spinal anesthesia group was high, although it was insignificant. When the whole population was evaluated, the BSS scores of working women were higher than those who did not, although insignificant (BSS score = 110.6 ± 12.4 vs. 105.8 ± 12.9 , $p=0.153$).

Study Limitations

The main limitation of our study is that it is single-centered, and the sample size is relatively small. Additionally, it is not a randomized controlled trial. The anesthesiologist informed the patients about general and spinal anesthesia, and the decisions were left to the patients, and groups were formed. Since general anesthesia is mainly preferred in our clinic for risky pregnancies such as placenta previa, HELLP syndrome, and pregnant with fetal anomalies, these

pregnant were not included in the study. Birth satisfaction scores may have been lower in these pregnant women.

Conclusion

In conclusion, this study found that the birth satisfaction scores of women who had a cesarean section under spinal anesthesia were significantly higher than those who had general anesthesia. In addition, the educational status of women affects their anesthesia preferences and birth satisfaction scores. Informing women with low education levels about spinal anesthesia and eliminating their fears and concerns may enable them to prefer it. Thus, it can increase satisfaction with the birth process, essential in women's lives.

Ethics

Ethics Committee Approval: This prospective descriptive cross-sectional study was approved by the Clinical Research Ethics Committee of the University of Health Sciences Turkey, Kanuni Sultan Süleyman Training and Research Hospital (date: 06.04.2022, number: 90). The work was started following the principles of the Declaration of Helsinki.

Informed Consent: Verbal and written consent was obtained from all women who gave birth in the study.

Peer-review: Internally and externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: H.Ç.A., K.A., Ş.Ç.Y., Concept: H.Ç.A., K.A., Ş.Ç.Y., Design: H.Ç.A., K.A., Ş.Ç.Y., Data Collection or Processing: H.Ç.A., Ş.Ç.Y., Analysis or Interpretation: H.Ç.A., K.A., Literature Search: K.A., Writing: H.Ç.A., K.A.

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