

## Maternal Satisfaction towards Spinal Anesthesia for Cesarean Section

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### ABSTRACT

#### Introduction

Patient satisfaction has become an important parameter to assess an overall quality of health care. We conducted this study to evaluate the level of maternal satisfaction with our anesthetic technique and to identify factors that compromise maternal satisfaction.

#### Methods

A descriptive cross-sectional study was conducted in two hundred patients who underwent cesarean section under spinal anesthesia after receiving ethical approval from the Institutional Review Committee. Preset questionnaires were asked in a face-to-face interview within 6 to 24 hours of cesarean section. Descriptive statistics was used to show frequency distribution and percentage of variables.

#### Results

The overall satisfaction level was 99%, with the lowest satisfaction level reported for pain therapy (88.5%). Subscale-wise, 90.5% of the patients were satisfied with the preoperative assessment and evaluation, 95% of the patients were satisfied with the intraoperative care and attention they received from their anesthetist, 97% of the patients were satisfied with their relationship with the anesthetist. More than 97% of the patients were satisfied with the level of care they received from their anesthetist.

#### Conclusion

In general, the overall maternal satisfaction towards spinal anesthesia was high in our population. To further increase our patient satisfaction we need to extend our services to the postoperative period as well.

#### Keywords

*Cesarean section, maternal satisfaction, spinal anesthesia*

## INTRODUCTION

Spinal anesthesia for cesarean section is now an established technique as it is safe for the mothers, least depressant to the newborn and also provides optimal working conditions for the obstetrician. It has a rapid onset, is easy to perform and has low failure rate.<sup>1</sup> These are the factors that have made spinal anesthesia a preferred technique of anesthesia for cesarean section (CS). However, it is important to consider whether this technique is equally satisfactory to our patients. With the emphasis on patient-centered care, patient satisfaction has gained greater attention as a measure of quality of health care services. Patient's satisfaction is an important parameter, not only as a measure of quality of health care services but also for further improving standards of care being provided by the hospitals.<sup>2</sup>

This research was conducted in a tertiary care center where a large number of cesarean deliveries are performed under spinal anesthesia every year. Our main objective was to assess maternal satisfaction with spinal anesthesia for cesarean section while secondary objectives include identifying the factors that compromise maternal satisfaction and to enhance our relationship with patients, improve the quality of spinal anesthesia, and further improve standards of hospital care.

## METHODS

This descriptive cross-sectional study was conducted from October 2021 to April 2022 in the post anesthesia care unit of Nepal Medical College Teaching Hospital after approval from the Institutional Review Committee (Ref. No.: 044-078/079). Parturients who underwent elective or emergency caesarean delivery under spinal anesthesia were interviewed between 6 to 24 hours from the time of delivery. Non consenting patients, parturients who delivered through other modes of anesthesia e.g. general anesthesia, epidural anesthesia and those unable to adequately communicate with the investigator due to illness, language barrier or any other reason were excluded from this study.

The data collection tool had two parts. First part had socio-demographic information of the patient and the second part had questionnaires that measured the level of satisfaction of the parturients. The socio-demographic information also included the patient's level of education. Educational level in this study was classified as literate and illiterate. Based on the UNESCO: International Standard Classification of Education/ ISCED, literate was defined as parturients who had the skills to read and write a simple sentence about everyday life and parturients who didn't have the skills to read and write a simple

sentence about everyday life were grouped into illiterate.<sup>3,4</sup>

The questionnaire for assessing patient satisfaction was adopted from Patient Satisfaction with Perioperative Anesthetic Care questionnaire (PSPACq).<sup>5</sup> Slight modification in the questionnaire was done as per our setup and also due to cultural concern e.g. marital status of the parturient. The questionnaire had 5 subscales. The first subscale measured maternal satisfaction with preoperative assessment and evaluation. The second subscale addressed satisfaction with pain therapy. The third subscale was maternal satisfaction with intraoperative care and attention of the anesthetist. Fourth subscale was for evaluation of anesthetist patient relationship. The fifth subscale measured the quality of care the patient thinks she was given. The questions were translated to Nepali language. Two persons were trained for data collection. They educated the participants about the nature of the study and the subscales used in the study. Only if the patients were willing, data collector started the interview. The questions related to patient satisfaction were asked in Nepali language. Participants used three point Likert scale: satisfied (1), neutral (2), dissatisfied (3) for all the questions. The data collectors along with the investigators of the research were not involved in anesthesia care of the patients.

In a Kenyan study, 85% of parturients who delivered by cesarean section under spinal anesthesia were found to be satisfied with spinal anesthesia.<sup>6</sup> Taking this value as reference, using a confidence level of 95% and 0.05 margin of error, we calculated a minimum sample size of 196. Formula used was  $n = z^2 p(1-p)/d^2$ , where,  $z = 1.96$  (at 95% CI),  $p = 85$ ,  $d =$ margin of error at 0.05. Hence,

$$n = (1.96)^2 \times 0.85 \times 0.15 / (0.05)^2 = 196$$

The questionnaires were checked for completeness. The three point Likert scale response of satisfaction was grouped into "dissatisfied" and "satisfied". For each subscale, a satisfaction of 50% and above was taken as satisfied and less than 50% was taken as dissatisfied. Overall maternal satisfaction level was classified according to the demarcation threshold formula.<sup>7</sup>

$$\text{Cut point score} = \frac{\text{maximum total score} - \text{minimum total score}}{2} + \text{minimum total score}$$

Therefore, parturients with a total satisfaction score of greater than or equal to 44 were considered satisfied. Parturients having a total score of less than 44 were considered dissatisfied. Data was analyzed using SPSS (Statistical package for Social Sciences) software version 16. Descriptive statistics was used to summarize and show frequency distribution and percentages of variables.

## RESULTS

During the study period, 200 patients completed the questionnaires. The mean age of the study population was  $28.3 \pm 4.9$  years with most of the patients in the age group of 27 – 35 years (55.5%). In the study group, 187 (93.5%) of the patients were literate and 13 (6.5%) of the patients were illiterate. Similarly, 79 (39.5%) of the patients were employed and 121 (60.5%) were unemployed. Most of the surgeries were elective (51.5%) than emergency (48.5%). Previous spinal anesthesia exposure was present in 57 (28.5%) of the study population. Good neonatal outcome was seen in 184 (92%) of the patients, whereas 16 (8%) neonates needed Neonatal Intensive Care Unit admissions. No neonatal death was recorded in the data (Table 1).

Subscale wise, 181 (90.5%) of the patients were satisfied with the preoperative assessment and evaluation conducted by anesthetist (Figure 1 and Table 2). Majority of the parturients (177, 88.5%) were satisfied with the pain therapy they received. With the intraoperative care and attention given, 190 (95%) of the patients were satisfied. Most of the patients 194 (97%) were satisfied with their relationship with anesthetist. The number of patients satisfied with the quality of care they received from their anesthetist was 195 (97.5%). Overall maternal satisfaction was seen in 198 (99%) of parturients.

Table 1. Sociodemographic and clinical characteristics of study population (n=200)

Characteristics	Number (%)
Age (years)	
Mean = $28.3 \pm 4.9$	
Min = 19, Max = 42	70 (35)
18 – 26	111 (55.5)
27 - 35	19 (9.5)
36 - 42	
Level of Education	
Literate	187 (95.5)
Illiterate	13 (6.5)
Employment	
Employed	79 (39.5)
Unemployed	121 (60.5)
Nature of surgery	
Elective	103 (51.5)
Emergency	97 (48.5)
Previous spinal anesthesia exposure	
Yes	57 (28.5)
No	143 (71.5)
Neonatal outcome	
Good	184 (92)
NICU	16 (8)

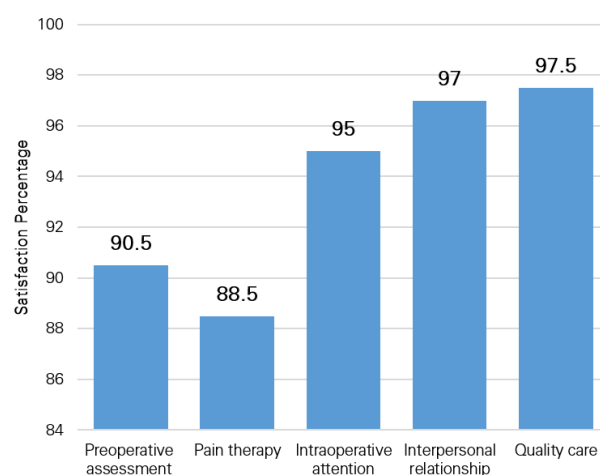


Figure 1. Maternal subscale satisfaction

## DISCUSSION

Patient satisfaction is a difficult outcome to measure as it is a subjective multidimensional concept.<sup>8</sup> Patient's satisfaction depends on the balance between what the patient expects and what is actually perceived or experienced. It was found that for the patients undergoing caesarean delivery the most distressing factors are of psychological or general nature such as poor communication, fears, missing out on the birth or immediate postpartum period.<sup>9,10</sup> The factors traditionally thought to greatly influence satisfaction such as pain relief and intrapartum medical interventions were neither as obvious, nor as powerful as the psychological factors.<sup>9</sup>

In a similar study in which a survey of maternal satisfaction towards spinal anesthesia was conducted an overall maternal satisfaction of 87.9% was reported.<sup>11</sup> They found that the Satisfaction with subscales Pain therapy, Intraoperative assessment, Interpersonal relationship, Postoperative care and follow up and quality care was more than 90% in their population. But only 16.7% patients were satisfied with their Preoperative assessment subscale. In another study conducted with the objective of assessing the level of satisfaction of patients with perioperative care, the subscale "information provision" showed the least satisfaction (45%).<sup>12</sup> Poor communication has been identified as a negative predictor of maternal satisfaction.<sup>13</sup> In our hospital preanesthetic assessment is conducted for elective as well as emergency surgery. A brief information about spinal anesthesia is provided to the patient which includes the advantages of spinal anesthesia over general anesthesia, the feeling of numbness, sensory and motor block in the lower limbs and possible postoperative complications. Our practice of proper communication with patients might have led to high maternal satisfaction rate. In a similar study in which all the patients were

Table 2. Level of satisfaction towards different subscales

Satisfaction subscales	Dissatisfied N (%)	Neutral N (%)	Satisfied N (%)
1. Preoperative assessment and evaluation			
a. Satisfaction with the information given from the anesthesia practitioners	5 (2.5)	16 (8)	179 (89.5)
b. Explanation about operation	6 (3)	31 (15.5)	163 (81.5)
c. Understandable information	4 (2)	13 (6.5)	183 (91.5)
d. Sufficient explanation about the feeling after anesthesia	6 (3)	14 (7)	180 (90)
e. Satisfaction with preoperative visit	40 (20)	15 (7.5)	145 (72.5)
f. Satisfaction with information about postoperative complication	11 (5.5)	17(8.5)	172(86)
2. Pain therapy			
a. Satisfaction with postoperative pain	6 (3)	42 (21)	152 (76)
b. Satisfaction with the absence of pain at puncture site	4 (2)	19 (9.5)	177 (88.5)
c. Satisfaction with absence of pain during operation	6 (3)	22 (11)	172 (86)
3. Intraoperative care and attention of the anesthetist			
a. Satisfaction of anesthetist's attention to your complaints like pain and nausea	2 (1)	8 (4)	190 (95)
b. Satisfaction with degree of anesthetist's will to listen to your questions	3 (1.5)	10 (5)	187 (93.5)
c. Action according to your needs.	2 (1)	9 (4.5)	189 (94.5)
d. Anesthetist showing understanding of your situation	3 (1.5)	11(5.5)	186 (93)
4. Anesthetist patient relationship			
a. Did the anesthetist take your privacy into account?	3 (1.5)	11 (5.5)	186 (93)
b. Anesthetist's politeness	4 (2)	33 (16.5)	163 (81.5)
c. The personal interest and attention given by anesthetist during birth	3 (1.5)	5 (2.5)	192 (91)
d. Satisfaction with the chance for your decision on type of anesthesia received	3 (1.5)	4 (2)	193 (96.5)
5. Quality care			
a. Satisfaction with waiting time between your arrival at theater and operation	2 (1)	13 (6.5)	185 (92.5)
b. Expectations met during the birthing experience	4 (2)	4 (2)	192 (96)
c. Satisfaction with receiving the same anesthetic again	3 (1.5)	4 (2)	193 (96.5)
d. Degree of your confidence in the anesthesia practitioners	2 (1)	3 (1.5)	195 (97.5)
e. Recommendation of the anesthesia team to others in your family	2 (1)	4 (2)	194 (97)

satisfied with the explanations provided regarding anesthesia, a high overall satisfaction score (97%) was recorded.<sup>14</sup>

In our study the lowest patient satisfaction score was for pain therapy. Spinal anesthesia provides analgesia during surgery and immediate postoperative period. At 6- 24 postoperative hour, a lesser percentage (76%) of our patients were satisfied with postoperative pain management.

Postoperative nausea and vomiting (PONV) are the problems that play a great role in patient satisfaction. PONV was not asked for in this study. This study indicates the need to extend our anesthesia care to postoperative period to further increase patient satisfaction. In our assessment patients were asked whether they were satisfied or dissatisfied but the reason of dissatisfaction was not asked. Knowing the reason for dissatisfaction might be helpful for us to consider other aspects of patient satisfaction.

We found that 96.5% of our patients were satisfied with receiving the same anesthetic technique again and 97% of patients were happy to recommend the same anesthesia team to their family members. A large number of our participants (96%) felt that their expectations during birthing experience were met. Meeting patient's expectations can be taken as one of the strongest predictors of satisfaction with caesarean delivery.<sup>15</sup> The significance of these findings is that our patients were happy with the quality of care they received from anesthesia team.

We found a high satisfaction rate in our patients. Similarly, a survey conducted in Saudi patients showed an overall satisfaction of 95.2%.<sup>16</sup> A score of 98.9% was reported in another study conducted in Canada with 2730 patients.<sup>17</sup> But as proper assessment of satisfaction is a complex task, high satisfaction scores do not necessarily reflect high quality of medical care.<sup>18,19,20</sup> A high satisfaction score may be due to euphoria associated with childbirth. We collected data at 6 to 24 hours after cesarean section. At this time patients depend on health care staffs so to please service providers, they might have replied "satisfied" also delayed adverse effects such as post dural puncture headache which also affect satisfaction were yet to occur. These factors might have resulted in a high satisfaction score in our study. At the time of discharge patient do not need to fear of getting a low quality of care and also are more oriented to differentiate surgical from anesthesia complications. An assessment just before discharge might help us in obtaining a more complete picture.

Our study has several limitations. A small sample size limits the generalizability of the study findings and makes it difficult to identify any associations between patient satisfaction and sociodemographic or clinical variables. The study is cross sectional which limits the ability to infer causality, as an association between patient satisfaction and anesthesia technique is identified by the study. Questionnaires used in this study were not validated in the local language which could have affected the validity of the study's result. Data collection was done at 6 to 24 hours after cesarean section. Delayed adverse effects such as post dural puncture headache that might affect patient satisfaction were not captured by the study.

## CONCLUSION

The overall maternal satisfaction towards spinal anesthesia was high (99%) in our population. We found that more than 90% of our patients were satisfied with the preoperative assessment, intraoperative attention and the quality of care they received from our anesthesia team. To further increase our patient satisfaction we need to extend our services to postoperative period.

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## CONFLICT OF INTEREST

The author(s) declare that they do not have any conflicts of interest with respect to the research, authorship, and/or publication of this article.

## REFERENCES

1. T.P Juhani and H. Hannele, "Complications during spinal anesthesia for cesarean delivery: a clinical report of one year's experience," *Reg Anesth Pain Med*, 1993;18:128-131
2. Barnett SF, Alagar RK, Grocott MPW et al. Patient- satisfaction measures in anesthesia: Qualitative systematic review. *Anesthesiology*. 2013; 119:452-78
3. Capuzzo M, Landi F, Bassani A et al. Emotional and interpersonal factors are most important for patient satisfaction with anesthesia. *Acta Anaesthesiol Scand*. 2005; 49:735-42.
4. Bohlinger S. The international standard classification of education (ISCED) BWP Vocational training in research and practice special edition, 2013; 42:23-26
5. Schneider S.L., Kogan I. The international standard classification of education 1997: Challenges in the application to national data and the implementation in cross national surveys MZES, Mannheim (2008)
6. W. C. Mui, C. M. Chang, K. F. Cheng et al. "Development and validation of the questionnaire of satisfaction with perioperative anesthetic care for general and regional anesthesia in Taiwanese patients," *Anesthesiology* 2011; 114:5, 1064-75
7. M.S. Senghor E.N. Morema. Determinants of maternal satisfaction with spinal anesthesia care for caesarian delivery at the Kisumu county Hospital IOSR-JNHS 2017; 6:91-95
8. Demilew B.C., Getu D., Tesfaw D et al Assessment of satisfaction and associated factors of parturients underwent cesarean section with spinal anesthesia at the General Hospital, Ethiopia; 2019. *Ann Med Surg* 2021; 65:102282
9. Williams B. Patient satisfaction- A valid concept. *Social Sci Med* 1994; 38: 509-16
10. Hodnett ED. Pain and women's satisfaction with the experience of childbirth: a systematic review. *Am J Obstet Gynecol* 2002; 186:160-172
11. Porter M, Tejjilingen V F, Chi Y L, et al. Satisfaction with caesarean section: Qualitative analysis of open ended questions in a large postal survey. *Birth* 2007; 34(2): 148-54
12. Idris I.M, Weldegiorgis G G, Tesfamariam E.H Maternal satisfaction and its associated factors towards spinal anesthesia for cesarean section: a cross sectional study in two Eritrean hospitals *Anesth Res.Pract.* 2020 Article 5025309
13. Yontan M A, Traudi E, Ghidey G et al . Patient satisfaction with perioperative anesthesia care and associated factors at two National Referral Hospitals: a cross sectional study in Eritrea. *BMC Health Surv Res* 2019 Sep 18;19 (1):669.
14. Lescale KB, Inglis SR, Eddleman KA, et al Conflicts between physicians and patients in non elective caesarean delivered: Incidence and the adequacy of informed consent. *Am J Perinatol* 1996; 15(3): 171-6
15. Dharmalingam T. K., Zainuddin A. N. A "Survey on maternal satisfaction in receiving spinal anesthesia for cesarean section" *Malaysian Journ Med Sci*, 2013;20:51.
16. Qunhong S, Liyang T. Patient preferences, concerns, and satisfaction with providers before the Chinese urban health system reform: A

- social groups analysis. Asia health Policy Program Working Paper 17,2010.
17. Alshehri AA, Alomar YM, Mohammed GA et al. A survey on postanesthetic patient satisfaction in a university hospital. Saudi J Anaesth 2015; 9:303-5
  18. Tong D, Chung F, Wong D. Predictive factors in global and anesthesia satisfaction in ambulatory surgical patients. Anesthesiology. 1997; 87:856-64
  19. Wu CL, Naqibuddin M, Fleisher LA. Measurement of patient satisfaction as an outcome of regional anesthesia and analgesia: a systematic review. Reg Anesth Pain Med. 2001;26:196-208.
  20. Royle CF, Chung F, Newman S et al. Predictors of patient satisfaction with anesthesia and surgery care: a cohort study using the postoperative quality of recovery scale. Eur J Anaesthesiol. 2013;30:106-10
  21. Capuzzo M, Gilli G, Paparella L et al. Factors predictive of patient satisfaction with anesthesia. Anesth Analg. 2007;105:435-42