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Original Article

Assessing Maternal Satisfaction on Post-Dural Puncture Headache After Spinal Anesthesia for Cesarean Section in Tertiary Care Hospital of Peshawar

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ABSTRACT

Background: Post-dural puncture headache is a clinically distressing complication of spinal anesthesia and may adversely affect maternal recovery, breastfeeding, newborn care, and satisfaction after cesarean delivery. Objective: To determine the frequency of post-dural puncture headache and evaluate its association with maternal satisfaction among women undergoing cesarean section under spinal anesthesia in tertiary care hospitals of Peshawar. Methods: A quantitative cross-sectional study was conducted at Northwest General Hospital and Research Centre and Khyber Teaching Hospital, Peshawar, over six months. A total of 170 mothers aged 18–40 years who underwent cesarean section under spinal anesthesia were recruited using non-probability convenience sampling. Data were collected using a structured questionnaire assessing demographic characteristics, clinical variables, PDPH occurrence, pain-relief satisfaction, and overall maternal satisfaction. Data were analyzed using SPSS version 28. Descriptive statistics, categorical association testing, and binary logistic regression were performed. Results: PDPH occurred in 31 mothers (18.2%), while 118 participants (69.4%) were satisfied with their anesthetic experience. PDPH was strongly associated with lower satisfaction, with 51.6% of affected mothers reporting dissatisfaction compared with 5.1% of mothers without PDPH. In analysis, absence of PDPH was the strongest predictor of satisfaction (AOR = 8.94, 95% CI: 3.72–21.46, $p < 0.001$), followed by elective cesarean section (AOR = 2.47, 95% CI: 1.19–5.12, $p = 0.015$) and multiparity (AOR = 2.11, 95% CI: 1.08–4.12, $p = 0.029$). Conclusion: Maternal satisfaction after spinal anesthesia for cesarean section was generally favorable, but PDPH was strongly associated with dissatisfaction. Preventive anesthesia practices, effective counseling, early postoperative screening, and prompt PDPH management may improve maternal experience in obstetric anesthesia care. Keywords: Maternal Satisfaction, Post-Dural Puncture Headache, Spinal Anesthesia, Cesarean Section, Obstetric Anesthesia, Patient Satisfaction, Peshawar.

INTRODUCTION

Cesarean section is among the most frequently performed obstetric surgical procedures worldwide, and spinal anesthesia is widely used for both elective and emergency cesarean delivery because it provides rapid onset, reliable intraoperative anesthesia, reduced maternal airway risk, avoidance of fetal exposure to general anesthetic agents, and the opportunity for the mother to remain awake during childbirth (1,2). Despite these advantages, spinal anesthesia is not free from complications, and post-dural puncture headache remains one of the most clinically distressing adverse outcomes in obstetric anesthesia. In women recovering from cesarean section, even a self-limiting postoperative headache may interfere with

early mobilization, breastfeeding, maternal-infant bonding, newborn care, emotional comfort, and perception of the overall quality of perioperative care (3).

Post-dural puncture headache is classically defined as a headache occurring within five days of dural puncture, commonly aggravated by sitting or standing and relieved by recumbency, with or without associated symptoms such as neck stiffness, nausea, vomiting, dizziness, tinnitus, photophobia, or visual disturbance (4). Its pathophysiology is mainly attributed to persistent cerebrospinal fluid leakage through the dural puncture site, resulting in reduced cerebrospinal fluid pressure, traction on pain-sensitive intracranial structures, and compensatory cerebral vasodilation (5). Obstetric patients are particularly vulnerable because pregnancy-related physiological changes, young age, female sex, and peripartum hemodynamic and hormonal factors may increase susceptibility to PDPH following neuraxial anesthesia (6,7). The reported frequency of PDPH varies considerably across settings, largely because of differences in spinal needle gauge and type, number of puncture attempts, operator experience, diagnostic criteria, timing of postoperative assessment, and patient-related characteristics (7,8).

Maternal satisfaction is an important patient-reported indicator of the quality of obstetric anesthesia care. It reflects not only the technical success of anesthesia but also pain relief, postoperative comfort, communication, emotional reassurance, management of complications, and the extent to which care meets maternal expectations during childbirth (9,10). In cesarean delivery, satisfaction with spinal anesthesia may be influenced by the degree of intraoperative comfort, confidence in the anesthesia team, clarity of preoperative counseling, postoperative recovery experience, and absence of distressing complications (11). PDPH is therefore clinically important not only as a neurological or anesthetic complication but also as a determinant of maternal experience and perceived quality of care, particularly when it delays mobilization, disrupts breastfeeding, or increases anxiety during the early postpartum period (12).

Although maternal satisfaction after spinal anesthesia has been studied in different obstetric populations, evidence from Pakistan remains limited, particularly regarding the relationship between PDPH and maternal satisfaction among women undergoing cesarean section in tertiary care settings. Hospitals in Peshawar manage a substantial burden of elective and emergency cesarean deliveries, yet local data describing PDPH frequency, satisfaction levels, and factors independently associated with maternal satisfaction are scarce. This evidence gap limits the ability of anesthesia and obstetric teams to identify modifiable aspects of perioperative care, strengthen patient counseling, standardize PDPH prevention strategies, and improve postoperative follow-up. Locally generated evidence is therefore needed to guide quality improvement in obstetric anesthesia services and to identify whether PDPH remains a clinically meaningful contributor to maternal dissatisfaction in routine tertiary care practice (13).

This study aimed to determine the frequency of post-dural puncture headache and evaluate its association with maternal satisfaction among women undergoing cesarean section under spinal anesthesia in tertiary care hospitals of Peshawar. The study further sought to identify demographic and clinical predictors of maternal satisfaction, with the hypothesis that mothers who did not develop PDPH would report higher satisfaction with their anesthetic experience than those who experienced PDPH.

MATERIALS AND METHODS

This quantitative cross-sectional study was conducted to assess maternal satisfaction and its association with post-dural puncture headache among women who underwent cesarean section under spinal anesthesia. The cross-sectional design was selected because the study objective was to estimate the frequency of PDPH, describe maternal satisfaction after spinal anesthesia, and examine associations between clinical factors and satisfaction status during the postoperative period. The study was carried out at Northwest General Hospital and Research Centre and Khyber Teaching Hospital, Peshawar, both

of which are tertiary care hospitals providing obstetric, surgical, and anesthetic services to a large population of women undergoing elective and emergency cesarean delivery. The study was completed over six months, during which participant recruitment, data collection, data entry, verification, and statistical analysis were performed according to the approved research protocol.

Eligible participants were mothers aged 18–40 years who underwent cesarean section under spinal anesthesia, had an American Society of Anesthesiologists physical status classification of ASA I or ASA II, and provided informed consent for participation. Women were excluded if they had undergone normal vaginal delivery, had received anesthesia other than spinal anesthesia for delivery, or had a documented history of chronic headache disorder, neurological deficit, coagulopathy, obstructive disease, or other pre-existing clinical conditions that could confound the assessment of postoperative headache or satisfaction. These criteria were applied to ensure that the study population was clinically relevant to obstetric spinal anesthesia and to reduce misclassification of headache symptoms unrelated to dural puncture.

A total of 170 eligible mothers were recruited using a non-probability convenience sampling technique. Participants were approached during the postoperative period after cesarean section, screened against the eligibility criteria, informed about the study purpose and procedures, and enrolled after written informed consent was obtained. Convenience sampling was used because eligible mothers were recruited from routine obstetric postoperative care areas during the study period; however, uniform eligibility criteria and a standardized data collection procedure were applied to minimize selection and information bias. The sample size was calculated using OpenEpi version 3 at a 95% confidence level and 5% margin of error, based on the anticipated proportion required for estimating maternal satisfaction among women undergoing cesarean section under spinal anesthesia.

Data were collected using a structured questionnaire adapted from a previously published study assessing maternal satisfaction after spinal anesthesia. The questionnaire included demographic characteristics, obstetric and clinical variables, previous exposure to spinal anesthesia, history of previous PDPH, type of cesarean section, duration of surgery, postoperative mobilization, occurrence of PDPH, satisfaction with pain relief, and overall maternal satisfaction with the anesthetic experience. Maternal satisfaction was measured on a five-point Likert scale consisting of strongly satisfied, satisfied, neutral, dissatisfied, and strongly dissatisfied responses. For descriptive analysis, responses were recategorized into three groups: satisfied, neutral, and dissatisfied. For binary logistic regression, maternal satisfaction was operationalized as a binary outcome by classifying satisfied responses as “satisfied” and combining neutral and dissatisfied responses as “not satisfied,” allowing estimation of predictors independently associated with satisfaction.

Post-dural puncture headache was operationally defined as a postoperative headache occurring after spinal anesthesia within the recognized post-dural puncture period, with postural characteristics suggestive of PDPH, including worsening in the upright position and relief in the supine position, with or without associated symptoms such as nausea, neck stiffness, photophobia, tinnitus, or dizziness. The occurrence of PDPH was recorded as a binary clinical variable based on participant-reported postoperative symptoms assessed through the structured questionnaire under researcher supervision. Pain relief from spinal anesthesia was assessed as a separate satisfaction-related variable to distinguish intraoperative analgesic satisfaction from overall maternal satisfaction with the anesthetic experience.

The primary outcome variable was maternal satisfaction following spinal anesthesia for cesarean section. The main exposure variable was occurrence of PDPH. Additional independent variables included age group, residence, parity, ASA classification, type of cesarean section, previous exposure to spinal anesthesia, history of previous PDPH, duration of surgery, and timing of postoperative mobilization. Elective and emergency cesarean sections were analyzed as separate clinical categories because emergency procedures may involve higher maternal anxiety, limited preoperative counseling, and

greater perioperative stress. Parity was categorized as primiparous or multiparous to assess whether previous childbirth experience influenced satisfaction.

To reduce measurement bias, the same structured questionnaire format was used for all participants, and responses were collected under researcher supervision to ensure completeness and consistency. Eligibility criteria were applied before enrollment to reduce confounding from pre-existing headache disorders or neurological conditions. Data were checked for completeness before entry, and categorical coding was reviewed before analysis to ensure consistency between the questionnaire, database, and statistical output. Potential confounding was addressed analytically by using multivariable binary logistic regression to adjust for demographic and clinically relevant predictors of satisfaction.

Data were entered and analyzed using Statistical Package for the Social Sciences version 28. Descriptive statistics were calculated for all study variables. Categorical variables were presented as frequencies and percentages. Associations between maternal satisfaction categories and demographic or clinical variables were examined using Chi-square tests, with Fisher's exact test considered where expected cell counts were small. For multivariable analysis, binary logistic regression was performed to identify independent predictors of maternal satisfaction. The regression model included clinically relevant variables, including age, residence, parity, type of cesarean section, and occurrence of PDPH. Results were reported as odds ratios with 95% confidence intervals and p-values. A p-value of less than 0.05 was considered statistically significant. Reference categories were defined before analysis, and model interpretation was based on the association between each predictor and the likelihood of being satisfied with the anesthetic experience.

Ethical approval was obtained from the Institutional Review Board and Ethical Committee of Northwest General Hospital and Research Centre before data collection. Administrative permission was obtained from the relevant hospital authorities and departments. Participation was voluntary, and written informed consent was obtained from all participants before enrollment. Confidentiality and anonymity were maintained throughout the study by using study data only for research purposes and by avoiding disclosure of personally identifiable information in the analysis or reporting. The study was conducted in accordance with accepted ethical principles for human participant research, including respect for autonomy, privacy, and the right to withdraw without effect on clinical care.

RESULTS

A total of 170 mothers who underwent cesarean section under spinal anesthesia were included in the analysis. The demographic and obstetric profile of the participants is presented in Table 1.

Table 1. Demographic and Obstetric Characteristics of Participants (n = 170)

Variable	Category	n	%
Age, years	18–25	52	30.6
	26–30	61	35.9
	31–35	39	22.9
	36–40	18	10.6
Educational status	No formal education	28	16.5
	Primary	35	20.6
	Secondary	52	30.6
	Graduate and above	55	32.3
Residence	Urban	98	57.6
	Rural	72	42.4
Employment status	Housewife	132	77.6
	Employed	38	22.4
Parity	Primiparous	64	37.6
	Multiparous	106	62.4
ASA classification	ASA I	112	65.9
	ASA II	58	34.1
Type of cesarean section	Elective	74	43.5
	Emergency	96	56.5

Most participants were aged 26–30 years, representing 61 mothers (35.9%), followed by 52 mothers (30.6%) aged 18–25 years. Graduate-level education or above was reported by 55 participants (32.3%), while 52 participants (30.6%) had secondary education. Urban residence was reported by 98 mothers (57.6%), and 132 participants (77.6%) were housewives. Multiparous mothers constituted 106 participants (62.4%), while 64 participants (37.6%) were primiparous. ASA I classification was documented in 112 mothers (65.9%), and emergency cesarean section was performed in 96 cases (56.5%).

Table 2. Clinical Characteristics, PDPH Occurrence, and Satisfaction Outcomes (n = 170)

Variable	Category	n	%
Previous exposure to spinal anesthesia	Yes	103	60.6
	No	67	39.4
History of previous PDPH	Yes	21	12.4
	No	149	87.6
Duration of surgery	Less than 45 minutes	48	28.2
	45–60 minutes	81	47.6
	More than 60 minutes	41	24.2
Postoperative mobilization	Within 12 hours	94	55.3
	After 12 hours	76	44.7
Occurrence of PDPH	Yes	31	18.2
	No	139	81.8
Maternal satisfaction level	Satisfied	118	69.4
	Neutral	29	17.1
	Dissatisfied	23	13.5
Pain relief from spinal anesthesia	Satisfied	126	74.1
	Neutral	24	14.1
	Dissatisfied	20	11.8

Previous exposure to spinal anesthesia was reported by 103 mothers (60.6%), while 21 participants (12.4%) reported a previous history of PDPH. The most frequent surgical duration was 45–60 minutes, recorded in 81 cases (47.6%). Postoperative mobilization within 12 hours was reported by 94 participants (55.3%). PDPH occurred in 31 mothers (18.2%), while 139 participants (81.8%) did not report PDPH. Overall maternal satisfaction was reported by 118 mothers (69.4%), while 29 participants (17.1%) were neutral and 23 participants (13.5%) were dissatisfied. Satisfaction with pain relief from spinal anesthesia was reported by 126 mothers (74.1%).

Table 3. Association of Demographic and Clinical Variables With Maternal Satisfaction (n = 170)

Variable	Category	Satisfied n (%)	Neutral n (%)	Dissatisfied n (%)	Total	p-value
Age, years	18–25	32 (61.5)	10 (19.2)	10 (19.2)	52	0.183
	26–30	46 (75.4)	9 (14.8)	6 (9.8)	61	—
	31–35	29 (74.4)	6 (15.4)	4 (10.3)	39	—
	36–40	11 (61.1)	4 (22.2)	3 (16.7)	18	—
Residence	Urban	73 (74.5)	15 (15.3)	10 (10.2)	98	0.127
	Rural	45 (62.5)	14 (19.4)	13 (18.1)	72	—
Parity	Primiparous	39 (60.9)	12 (18.8)	13 (20.3)	64	0.048
	Multiparous	79 (74.5)	17 (16.0)	10 (9.4)	106	—
Type of cesarean section	Elective	58 (78.4)	10 (13.5)	6 (8.1)	74	0.028
	Emergency	60 (62.5)	19 (19.8)	17 (17.7)	96	—
Occurrence of PDPH	Yes	8 (25.8)	7 (22.6)	16 (51.6)	31	<0.001
	No	110 (79.1)	22 (15.8)	7 (5.1)	139	—

PDPH, post-dural puncture headache. p-values were reported from categorical association testing. The manuscript did not provide χ^2 statistics; therefore, test statistics are not reported.

Maternal satisfaction did not differ significantly by age group or residence. Satisfaction was reported by 79 multiparous mothers (74.5%) compared with 39 primiparous mothers (60.9%), with a reported p-value of 0.048. Satisfaction was also higher among mothers who underwent elective cesarean section, with 58 of 74 mothers (78.4%) satisfied, compared with 60 of 96 mothers (62.5%) who underwent emergency cesarean section. The largest difference in satisfaction was observed by PDPH status. Among mothers who experienced PDPH, 16 of 31 (51.6%) were dissatisfied and 8 of 31 (25.8%) were satisfied. Among mothers without PDPH, 110 of 139 (79.1%) were satisfied and 7 of 139 (5.1%) were dissatisfied.

Table 4. Binary Logistic Regression Analysis of Factors Associated With Maternal Satisfaction (n = 170)

Variable	Category	OR	95% CI	p-value
Age, years	18–25	1.00	—	—
	26–30	1.42	0.71–2.85	0.318
	31–35	1.57	0.69–3.54	0.278
	36–40	0.98	0.34–2.81	0.967
Residence	Rural	1.00	—	—
	Urban	1.38	0.74–2.59	0.307
Parity	Primiparous	1.00	—	—
	Multiparous	2.11	1.08–4.12	0.029
Type of cesarean section	Emergency	1.00	—	—
	Elective	2.47	1.19–5.12	0.015
Occurrence of PDPH	Yes	1.00	—	—
	No	8.94	3.72–21.46	<0.001

OR, odds ratio; CI, confidence interval; PDPH, post-dural puncture headache. Binary outcome coding: satisfied versus not satisfied; neutral and dissatisfied responses were combined as not satisfied. Reference categories are shown with OR = 1.00. The model included age, residence, parity, type of cesarean section, and occurrence of PDPH.

In analysis, age and residence were not independently associated with maternal satisfaction. Multiparous mothers had higher odds of satisfaction than primiparous mothers, with an OR of 2.11 and 95% CI of 1.08–4.12. Mothers who underwent elective cesarean section had higher odds of satisfaction than those who underwent emergency cesarean section, with an OR of 2.47 and 95% CI of 1.19–5.12. Absence of PDPH showed the strongest association with maternal satisfaction, with an OR of 8.94 and 95% CI of 3.72–21.46.

Overall, the results indicate that maternal satisfaction following spinal anesthesia for cesarean section was generally high, with 118 of 170 mothers (69.4%) reporting satisfaction. PDPH occurred in 31 mothers (18.2%) and was strongly associated with lower satisfaction. Elective cesarean section and multiparity were also associated with higher satisfaction, while age and residence showed no statistically significant association with satisfaction in either categorical comparison or regression analysis.

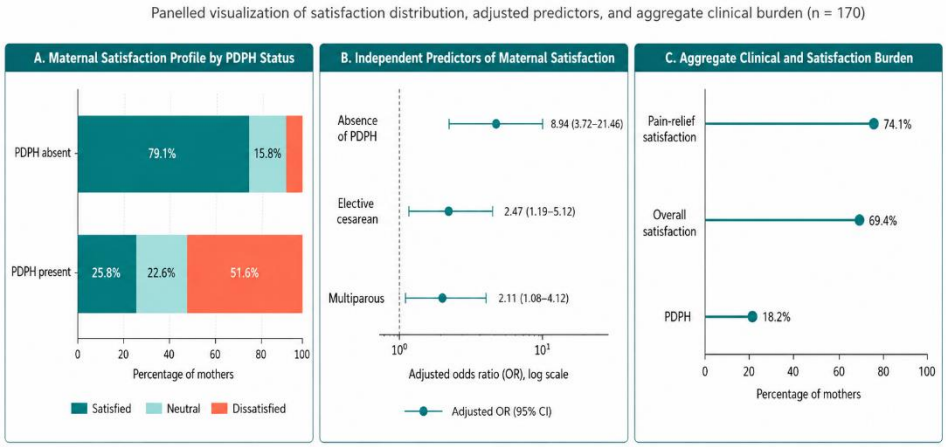

Figure 1. Post-Dural Puncture Headache and Maternal Satisfaction After Cesarean Spinal Anesthesia

The figure demonstrates a pronounced satisfaction gradient by PDPH status among mothers undergoing cesarean section under spinal anesthesia. Among mothers with PDPH, dissatisfaction was reported by 51.6%, while only 25.8% were satisfied; in contrast, among mothers without PDPH, satisfaction increased to 79.1% and dissatisfaction declined to 5.1%. In analysis, absence of PDPH showed the strongest association with maternal satisfaction, with an odds ratio of 8.94 and 95% CI of 3.72–21.46, exceeding the associations observed for elective cesarean section and multiparity. At the aggregate level, PDPH occurred in 18.2% of participants, while overall maternal satisfaction and satisfaction with spinal anesthesia-related pain relief were reported by 69.4% and 74.1%, respectively. These patterns indicate that PDPH represents a clinically important postoperative factor associated with reduced maternal satisfaction despite generally favorable overall satisfaction and pain-relief ratings.

DISCUSSION

The present study assessed maternal satisfaction with spinal anesthesia among mothers undergoing cesarean section in tertiary care hospitals of Peshawar, with particular emphasis on the occurrence of post-dural puncture headache. The findings showed that overall satisfaction was generally favorable, with 69.4% of mothers reporting satisfaction with their anesthetic experience and 74.1% reporting satisfaction with pain relief from spinal anesthesia. However, PDPH was reported by 18.2% of participants and showed a marked association with lower maternal satisfaction. This pattern suggests that while spinal anesthesia was positively perceived by most mothers, postoperative headache remained an important factor associated with dissatisfaction during the early recovery period.

The observed PDPH frequency of 18.2% falls within the broad range reported in obstetric populations, where incidence varies according to diagnostic criteria, timing of follow-up, spinal needle characteristics, number of puncture attempts, provider experience, and patient-related susceptibility (3,7,8). Obstetric patients are recognized as a clinically vulnerable group for PDPH because younger age, female sex, pregnancy-related physiological changes, and peripartum factors may influence the likelihood and clinical impact of cerebrospinal fluid leakage after dural puncture (4–6). In the present study, PDPH was assessed as a postoperative clinical symptom pattern after spinal anesthesia; however, procedural determinants such as spinal needle gauge, needle tip design, number of attempts, and operator experience were not available in the reported dataset. This limits the ability to explain why PDPH occurred in specific patients and should be addressed in future prospective studies.

The strongest finding of this study was the association between PDPH status and maternal satisfaction. Among mothers who developed PDPH, 51.6% were dissatisfied and only 25.8% were satisfied, whereas among mothers without PDPH, 79.1% were satisfied and only 5.1% were dissatisfied. This contrast was also reflected in the model, where absence of PDPH was associated with substantially higher odds of maternal satisfaction after adjustment for age, residence, parity, and type of cesarean section. These findings are clinically meaningful because maternal satisfaction after obstetric anesthesia is shaped not only by intraoperative pain control but also by postoperative comfort, communication, mobility, ability to breastfeed, and confidence in the care received (15–18). PDPH can interfere with several of these domains and may therefore influence how mothers evaluate the entire anesthetic experience, even when intraoperative anesthesia itself is technically successful.

Elective cesarean section was also independently associated with higher maternal satisfaction compared with emergency cesarean section. Mothers undergoing elective procedures had higher satisfaction than those undergoing emergency procedures, and the analysis showed higher odds of satisfaction among elective cases. This finding is plausible because elective cesarean section usually allows more time for preoperative counseling, psychological preparation, explanation of spinal anesthesia, expectation setting, and consent discussion. In contrast, emergency cesarean section is often associated with urgency, anxiety, limited time for communication, and a more stressful perioperative environment. Previous obstetric anesthesia studies have similarly emphasized the role of preoperative anxiety, communication, and preparedness in shaping postoperative satisfaction (12,18,19).

Parity was another factor associated with satisfaction. Multiparous mothers reported higher satisfaction than primiparous mothers, and multiparity remained independently associated with satisfaction in regression analysis. This may reflect greater familiarity with childbirth, hospital procedures, cesarean delivery, or neuraxial anesthesia among multiparous women. Prior exposure may help mothers develop more realistic expectations regarding perioperative sensations, postoperative recovery, and transient discomfort. Conversely, primiparous mothers may experience greater uncertainty and anxiety, particularly when undergoing cesarean section under spinal anesthesia for the first time. This finding reinforces the importance of individualized counseling, especially for mothers with limited prior obstetric or anesthesia experience.

Age and residence were not significantly associated with maternal satisfaction in either categorical analysis or regression. This indicates that satisfaction in the present study was more closely related to clinical and perioperative experience than to basic demographic characteristics. Such findings are consistent with broader patient satisfaction literature, where perceived quality of care, pain control, communication, respect, responsiveness, and management of complications often exert stronger influence than sociodemographic variables alone (20–22). For obstetric anesthesia services, these results suggest that quality-improvement efforts should focus on modifiable perioperative factors, particularly prevention, early identification, counseling, and treatment of PDPH.

The study has several limitations that should be considered when interpreting the findings. First, the cross-sectional design allows assessment of association but does not establish causality between PDPH and maternal dissatisfaction. Second, participants were recruited through non-probability convenience sampling from two tertiary care hospitals, which may limit generalizability to other public, private, rural, or lower-resource obstetric settings. Third, PDPH was recorded using structured postoperative assessment, but detailed procedural variables such as needle gauge, needle design, puncture attempts, provider experience, hydration status, and postoperative analgesic management were not reported. Fourth, the satisfaction questionnaire was adapted from previous work, but detailed psychometric validation, reliability testing, and cultural adaptation procedures were not fully described in the manuscript. Fifth, the binary logistic regression model required recategorization of satisfaction into satisfied versus not satisfied, with neutral and dissatisfied responses combined; although analytically practical, this may reduce nuance in maternal perception. Finally, the timing of postoperative satisfaction and PDPH assessment may influence reported frequency and satisfaction levels, particularly because PDPH may develop or worsen after early postoperative discharge.

Despite these limitations, the study provides useful local evidence on maternal satisfaction after spinal anesthesia for cesarean section and highlights PDPH as a clinically important postoperative factor associated with dissatisfaction. The findings support the need for standardized obstetric anesthesia counseling, documentation of procedural risk factors, use of evidence-informed PDPH prevention strategies, early postoperative screening, and timely management pathways for affected mothers. Future studies should adopt prospective follow-up designs, include anesthesia procedural variables, apply validated satisfaction instruments, and evaluate whether targeted PDPH prevention and management protocols improve patient-reported outcomes in obstetric anesthesia.

CONCLUSION

Maternal satisfaction following spinal anesthesia for cesarean section was generally favorable among mothers treated in tertiary care hospitals of Peshawar; however, post-dural puncture headache was strongly associated with lower satisfaction. Mothers without PDPH had substantially higher odds of reporting satisfaction, while elective cesarean section and multiparity were also associated with more favorable satisfaction outcomes. Age and residence were not significant predictors, suggesting that maternal satisfaction was influenced more by perioperative and postoperative clinical experience than by demographic characteristics. These findings emphasize the importance of careful preoperative counseling, standardized spinal anesthesia practices, early recognition of PDPH, and prompt postoperative management to improve maternal experience and quality of obstetric anesthesia care.

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