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Postoperative Pain Management Techniques and Patient Satisfaction in Bangladeshi Tertiary Care Hospital

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Abstract **Original Research Article**

Background: Patient satisfaction with postoperative pain management is a vital tool for measuring the quality of care in health centres, which associated with the care process and care outcome. ***Objectives:*** This study aimed to assess the Patient satisfaction with postoperative pain management in a tertiary care hospital. ***Methods:*** This was a prospective study was conducted among 190 adult patients using a systematic random sampling technique. Data were collected through structured questionnaires who visited North Bengal Medical College, Sirajgonj from January 2022 to July 2024. Both bivariable and multivariable logistic regression analysis was done to evaluate the association. P-value less than 0.05 was considered statistically significant. ***Results:*** Out of 190 patients, 74.5% of patients were satisfied with the overall pain management services. Factors contributing to higher satisfaction included being classified as ASA I (Adjusted Odds Ratio [AOR] = 2.3; 95% Confidence Interval [CI]: 1.06–5.08), receiving multimodal analgesics (AOR = 4.30; 95% CI: 2.02–9.18), experiencing no perceived pain (AOR = 6.7; 95% CI: 1.54–29.7), having discussions about pain management (AOR = 8.9; 95% CI: 3.67–21.90), and waiting less than 30 minutes for analgesia services (AOR = 6.3; 95% CI: 1.34–29.58). ***Conclusions:*** The study indicates that patient satisfaction with postoperative pain management was lower in our setting compared to many other studies. Therefore, there is a pressing need to enhance the quality of pain management services in the study area.

Keywords: Postoperative pain, postoperative pain management, patients' satisfaction, surgical patients.

INTRODUCTION

Postoperative pain is defined as acute pain resulting from surgical trauma, accompanied by an inflammatory response and the activation of afferent nerve pathways [1]. This combination leads to various unpleasant sensory, emotional, and mental experiences. Assessing patient satisfaction is crucial for healthcare services to evaluate the effectiveness of their outcome management. Patient satisfaction with postoperative pain management stems from their overall satisfaction with the care process as well as the care outcomes. These outcomes include factors such as waiting time, the provision of information, and the accessibility and adequacy of care [2, 3]. Generally, patient satisfaction in healthcare settings encompasses both the psychosocial and technical aspects of care, which are strongly linked to effective pain management [4]. Suboptimal patient satisfaction with postoperative pain management continues to be a common issue in healthcare. Some studies indicate that patients' satisfaction with their postoperative pain treatment is less related to their actual pain levels and more closely linked to the appropriateness of the care they receive and their involvement in the pain management process [5, 6]. A review of international literature indicates that there are conflicting arguments regarding patient satisfaction with pain management. Despite the existence of these studies, there is still limited clinical information available on the relationship between patient characteristics, perceptions of pain experiences, and satisfaction with postoperative pain management [7-10]. The aim of this study is to

evaluate the postoperative pain management techniques and patient satisfaction in a tertiary care hospital in Bangladesh. The ethical clearance and written consent paper were assured before the study.

Objective

- *General objective:* The primary aim of this study was to evaluate the patients' satisfaction regarding pain management.
- *Specific objective:* This study targeted to evaluate postoperative pain management techniques and patient satisfaction among Bangladeshi tertiary care hospital.

METHODOLOGY

This prospective observational study included a total of 190 patients, who were of age 18 years to 60 years old. These patients visited the Department of Anaesthesia at North Bengal Medical College and Hospital, Sirajgonj, Bangladesh for various operations, from January 2022 to July 2024. The present study included all adult patients who had undergone elective surgery during the study period. Patients who were critically ill and unable to communicate and postoperative admission in the intensive care unit were excluded from this study.

- *Inclusion criteria:* The current study included all adult patients who had undergone elective surgery during the study period.
- *Exclusion criteria:* Patients who were critically ill, unable to communicate, or admitted postoperatively to the intensive care unit were excluded from this study.

The questionnaires were adapted from the Revised American Pain Society Patient Outcome Questionnaire (APS-POQ) and modified to align with the objectives of this study [14]. The study questionnaire consisted of two sections. The first section included questions about the participant's demographic details, such as age, gender, level of education, and clinical characteristics. The second section utilized the APS Patient Outcome Questionnaire (APS-POQ) to assess the patient's pain experience. This section included the following items: 1) pain intensity within the past 24 hours, measured on a scale from 0 (no pain) to 10 (severe pain); 2) pain interference with daily activities and current pain levels; 3) waiting time for pain medication; and 4) satisfaction with five aspects of pain management, assessed using a 5-item Likert scale ranging from 0 (very dissatisfied) to 5 (very satisfied) [15]. To ensure the quality of the data, we provided orientation on the study's objectives, the relevance of each item included in the questionnaires, and the overall data collection process to the data collectors. During the data collection phase, regular supervision and follow-up were conducted. Data were entered into SPSS version 26.0 for analysis, where frequencies, percentages, and cross-tabulations of different variables were determined. The model fit was assessed using the Hosmer-Lemeshow goodness-of-fit test, and the magnitude of associations was analyzed using binary logistic regression and multivariable logistic regression. A p-value of 0.05 or less was considered statistically significant. The adjusted odds ratio (AOR) was used to determine the strength of the association between dependent and independent variables. Additionally, satisfaction, measured on the five-point Likert scale, was dichotomized into satisfied and dissatisfied groups. The North Bengal Medical College and Hospital Institutional Review Board approved this study. Well-informed written consents were received before starting the study.

RESULT

Among 190 patients. 101 were female and 89 were male. Majority of the patients were aged between 36 and 55 years [Table-1]. Of the total, the majority of patients (60%) were undergoing surgery under general anaesthesia while 40% were operated under regional anaesthesia [Table-2]. 72% of the female patients were found satisfied with post-operative management. Patients undergoing general anaesthesia were found comparatively more satisfied, 80%, than the regional anaesthesia group [Table-3]. Multivariate analysis results of patient satisfaction were significant in most of the sectors [Table-4].

Table-1: Socio, demographic, and clinical characteristics of patients (N = 190)

Variables	Categories	Frequency (n)	Percentages (%)
Gender	Male	89	47%
	Female	101	53%
Age	18-35	65	34.3%
	36-55	78	40.9%
	55+	47	24.8%
Education	Illiterate	59	31%
	Literate	131	69%
ASA status	ASAI	129	68%
	ASAII	42	22%
	ASAIII	19	10%

Table-2: Clinical characteristics of the study patients

Variables	Categories	Frequency (n)	Percent (%)
Site of surgery	Limbs	70	37%
	Head and neck	25	13%
	Upper abdomen	38	20%
	Lower Abdomen	57	30%
Types of anaesthesia	GA	114	60%
	RA	76	40%
Analgesia modality	Systemic analgesia	80	42%
	Multimodal	110	58%
Postoperative pain score (VNRS)	VNRS(O)	44	23%
	VNRS(1-3)	68	36%
	VNRS (4-6)	49	26%
	VNRS (7-10)	28	15%

Table-3: Bi-variable logistic regression analysis of patient satisfaction with post-operation pain management

Variables	Categories	Satisfied N (%)	Dissatisfied N (%)	COR (95% CI)	P value
Age	18-35	38 (58.5%)	27 (41.5%)	1.12 (0.5.8-2.14)	0.07
	36-55	53 (67.6%)	24 (32.4%)	1.1 (.54-2.14)	0.97
	55+	35 (74.41%)	12 (25.59%)	1	1
Gender	M	59 (66.1%)	30 (33.9%)	0.62 (37-1.02)	0.26
	F	73 (72.4%)	28 (27.6%)	1	
Education	Illiterate	4 (6.88%)	1 (2.22%)	1.6 (.97-29)	0.6
	Literate	99% (75.7%)	32 (24.3%)	1	
ASA status	ASA I	101 (78.3%)	29 (22.7%)	2.2 (1.32-3.64)	0.002
	ASA II&III	44 (72.3%)	17 (27.37%)	1	
Analgesia technique	Systemic	50 (63%)	30 (37%)	1	0.000
	Multimodal	100 (91.2%)	10 (8.8%)	5.3 (3.03-9.29)	
Analgesia type	GA	91 (80.2%)	23 (19.8%)	1.12 (0.68-18)	0.6
	RA	50 (65.4%)	26 (34.6%)	1	
Surgery type	Limbs	48 (68.2%)	22 (31.8%)	05 (0.3-1.2)	0.15
	Lower abdomen	43 (75.7%)	14 (24.3%)	2.9(1.3-6.67)	0.01
	Upper abdomen	24 (64.7%)	14 (36.3%)	1.18 (0.6-2.1)	0.16
	Head & neck	13 (50.5%)	12 (49.5%)	1	1
Pain	VNRS(O)	31 (71.3%)	13 (28.7)	26.4 (8.3-83.25)	1
	VNRs (1-3)	52 (76.6%)	18 (26.3%)	5.3 (2.6-1.883)	.ooo
	VNRS (4-6)	26 (52.4%)	23 (47.6%)	1.76 (0.85-3.64)	.ooo
	VNRS (7-10)	15 (48.5%)	13 (51.5%)	1	0.124
Waiting time (in minutes)	Less than 30	168 (88.6%)	22 (11.4%)	6.9 (2.44-18.03)	.ooo
	More than 30	93 (48.9%)	97 (51.1%)	1	
Discuss pain	Yes	183 (96.2%)	7 (3.8%)	11.78 (5.8-2.88)	.ooo
	No	104 (54.6%)	86 (45.4%)	1	

Table-4: Multivariate analysis results of patient satisfaction

Variables	Descriptive	COR (95%C1)	AOR (95% Cl)	P Value
ASA status	ASA I ASA II & III	2.2 (1.22-3.74) 1	2.33 (1.07-5.08) 1	0.03
Pain score (VNRS)	VNRS(O)	26.4 (8.36-84.25)	6.7(1.54-29.7)	0.001
	VNRS(1-3)	5.3 (2.6-10.83)	4.5 (1.65-12.10)	0.03
	VNRS(4_6)	1.76 (.85-3.64)	1.44 (.516-4.021)	0.48
	VNRS(7-10)	1	1	P<0.001
Analgesia modality	Systemic	1	1	
	Multimodal	5.3 (3.03-9.29)	4.3 (2.02-9.18)	
Waiting time (in minutes)	Less than 30	6.9 (2.74-17.03)	6.3 (1.34-29.5)	0.001
	More than 30	1	1	
Pain discussion	Yes	11.78 (5.81-23.8)	8.97 (3.68-21.90)	P<0.001
	No	1	1	

DISCUSSION

The results of this study indicated that 74.5% of participants were satisfied with postoperative pain management. This represents a slight improvement in patient satisfaction compared to a prospective study conducted in Jimma by W. Esthete, as well as a study at the Gondar Specialized Hospital, where satisfaction rates were reported at only 50.0% and 72.2%, respectively. The differences in satisfaction levels may be attributed to variations in time and the working environment among the study participants [13, 17, 18].

This finding was notably lower compared to other studies conducted in Malaysia, Pakistan, Ghana, and Tanzania [19–22]. The discrepancy may be attributed to differences in pain management techniques and strategies, such as the quality of care provided by pain management teams, the effectiveness of pain education, good communication, superior use of analgesics, and varying demographic characteristics as outlined in those studies. In our study, socio-demographic factors such as age, sex, and education level were not significantly associated with patient satisfaction levels. However, a study by Tawil *et al.*, in 2018 indicated that older patients reported higher satisfaction compared to the middle-aged group. Additionally, research by Subramanian *et al.*, suggested that female participants had higher satisfaction levels than male participants, while those with lower education levels also reported greater satisfaction [23, 24].

Patient satisfaction is a subjective and complex concept, particularly in the context of postoperative pain management. In this study, five statistically significant factors were identified that are associated with patient satisfaction. Notably, patients in the ASA I group were 2.3 times more likely to express satisfaction with their pain management (Adjusted Odds Ratio [AOR]; 2.33 [1.07–5.08], P = 0.03). This finding aligns with research conducted by Josef *et al.*, in Gondar, which indicated that ASA I patients were 3.5 times more likely to be satisfied compared to patients in other groups (AOR = 3.55 [1.20–10.55]) [13]. Additionally, another study from Pakistan supports this conclusion, showing that ASA I patients were 3.7 times more likely to report satisfaction compared to other groups [25].

The study revealed that lower mean pain scores (Adjusted Odds Ratio: 6.7; 95% Confidence Interval: 1.54–29.7) were associated with higher levels of patient satisfaction. This finding aligns with previous research indicating that increased pain scores correlate with decreased patient satisfaction [26–28]. These studies highlight a negative association between the pain experienced and patient satisfaction—essentially, as pain intensity rises, satisfaction levels tend to decline. However, this finding contrasts with other studies suggesting that some patients may feel satisfied with their pain management even when experiencing severe pain [15, 29]. One possible explanation for this satisfaction could be unrealistic expectations regarding the appropriateness of care, rather than the actual pain experienced.

Analgesic techniques were a significant factor associated with patient satisfaction. Our findings indicate that patients who received multimodal analgesia, specifically nerve blocks, were four times more likely to report a high level of satisfaction (AOR: 4.30; 95% CI: 2.02–9.18). This aligns with other studies, which showed that patients who received postoperative nerve blocks were nine times more likely to be satisfied compared to those who did not receive nerve blocks [25, 30]. This increased satisfaction may be attributed to the effectiveness of multimodal analgesia in significantly reducing pain scores, thus enhancing overall patient satisfaction. Furthermore, regional blocks provide superior analgesia for pain management. These results are also consistent with findings from various studies that reported higher levels of patient satisfaction among those receiving multimodal analgesia [21, 24].

This study found a positive association between patient satisfaction and postoperative pain management, particularly when patients were engaged in the care process and communication was effective. Specifically, patients who received clear communication about pain management were 8.9 times more likely to express satisfaction than those who were not involved in decision-making regarding their pain management (AOR: 8.9; 95% CI: 3.68–21.90). This heightened satisfaction may be attributed to the fact that patients who had enough information about pain management and felt comfortable discussing their concerns were more likely to be satisfied compared to those who lacked such information. These findings align with research conducted by Botti *et al.*, and Schwenkglenk *et al.*, which indicated that patient satisfaction with pain management is significantly influenced by effective communication [6, 31]. Additionally, the study revealed that a prompt response to patients' pain (AOR = 6.3; 95% CI: 1.34–29.5) was positively associated with satisfaction. This finding supports previous research showing that longer wait times decrease the likelihood of patient satisfaction [20, 21]. For instance, a study conducted in Lebanon by Tawil *et al.*, demonstrated that patients who waited over 30 minutes for requested pain medication and did not receive any additional analgesics experienced lower satisfaction levels [23]. Similar results have been reported in studies from India and Malaysia, indicating that extended wait times adversely affect overall satisfaction with postoperative pain management [20, 21].

Limitations

The study has limitations due to its prospective design. As a single-centred with a limited population for a short period of time, this study may not reflect the proper scenario of the whole country.

CONCLUSION

The study found that patient satisfaction with postoperative pain management was suboptimal. Key factors influencing satisfaction included ASA status, pain intensity, analgesic techniques, and management processes. Satisfaction depends not only on pain levels but also on provider empathy, education, and communication. To improve satisfaction, it is important to achieve acceptable pain levels, offer clear information about treatments, involve patients in decision-making, and ensure timely pain management.

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Conflicts of interest: No conflicts of interest were found

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