An Observational Study on Satisfaction with Management of Acute Postoperative Pain among Elective Surgery Patients

[1]Siri Chandana; [2]Kiran Nelamangala
[1]Second year postgraduate, Anesthesiology, Sri Devaraj Urs Medical College, SDUAHER, Kolar, Karnataka, India
[2]Professor, Anaesthesiology, Sri Devaraj Urs Medical College, SDUAHER, Kolar, Karnataka, India

Corresponding Author: Kiran Nelamangala

Abstract:
Introduction: Effective management of acute postoperative pain remains a crucial aspect of surgical care. This study aimed to evaluate patient satisfaction with acute postoperative pain management among elective surgery patients. **Methods:** A prospective observational study was conducted over three months at R.L. Jalappa Hospital and Research Centre, involving 62 patients undergoing elective surgeries under spinal anesthesia. Data was collected using the American Pain Society Patient Outcome Questionnaire (APS-POQ), assessing pain intensity, interference with activities, and satisfaction with pain management. **Results:** The study included 62 patients (54.8% male, 45.2% female), predominantly aged 31-45 years (45.2%). Mean average pain score was 4.8±1.6, with worst pain scores of 6.7±1.9. Pain significantly interfered with daily activities (5.3±2.1) and sleep (4.9±2.3). Overall, 64.6% of patients reported being satisfied or very satisfied with pain management. Orthopedic surgeries constituted the majority (35.5%) of procedures, with 59.7% patients classified as ASA Grade I. **Conclusion:** While overall satisfaction with postoperative pain management was good, there remains scope for improvement in managing pain's interference with daily activities and sleep. The findings suggest the need for more individualized pain management approaches and regular assessment of patient satisfaction.

Keywords: Pain, Postoperative; Patient Satisfaction; Pain Management; Anesthesia, Spinal; Surgery, Elective; Pain Measurement; Quality of Health Care; Treatment Outcome

Background (Introduction)

Pain management following elective surgery remains a critical aspect of postoperative care and significantly influences patient outcomes, recovery trajectories, and overall satisfaction

with healthcare services. Despite advances in pain management protocols and the availability of various analgesic options, studies indicate that 30-75% of patients continue to experience moderate to severe postoperative pain [1,2]. Inadequately controlled postoperative pain can lead to delayed recovery, extended hospital stays, increased healthcare costs, and reduced patient satisfaction [3].

The assessment of patient satisfaction with pain management is increasingly recognized as a key quality indicator in healthcare delivery. While objective pain scores are important clinical measures, patient satisfaction provides valuable insights into the effectiveness of pain management strategies from the recipient's perspective [4]. This subjective assessment encompasses not only the degree of pain relief achieved but also factors such as timeliness of intervention, communication with healthcare providers, and alignment with patient expectations [5].

Several studies have highlighted disparities between standardized pain management protocols and actual patient experiences. A systematic review by Ferreira DC et al. [6] found that despite the implementation of evidence-based pain management guidelines, patient satisfaction rates varied significantly across different surgical specialties and healthcare settings. These variations suggest the influence of multiple factors beyond the simple provision of analgesics.

Understanding patient satisfaction with acute postoperative pain management is particularly relevant in the context of elective surgeries, where preoperative preparation and patient education can be optimized [7]. Unlike emergency surgeries, elective procedures provide opportunities for comprehensive pre-surgical assessment, patient education, and tailored pain management planning. However, the relationship between these preparatory measures and subsequent patient satisfaction remains inadequately explored [8].

This observational study aims to evaluate patient satisfaction with acute postoperative pain management among elective surgery patients, examining various factors that may influence satisfaction levels. By identifying key determinants of patient satisfaction, this research seeks to contribute to the development of more effective and patient-centered pain management strategies.

Objectives

1. Primary objective: to assess the incidence of acute postoperative pain and its interference with ADLs (Activities of Daily Living), sleep, emotions, and IPR (Interpersonal relationships).

2. Secondary objective: It also aims to evaluate patients' satisfaction with overall acute postoperative pain treatment and the response of physicians and nurses to their pain complaints.

Materials & Methods:

Study Design and Setting:

This prospective observational study was conducted over a three-month period at R.L. Jalappa Hospital and Research Centre, Tamaka, Kolar. The study commenced after obtaining

approval from the Institutional Ethics Committee, with strict confidentiality measures implemented for all participants.

Sample Size Determination:

The sample size was calculated using a single proportion formula based on the incidence of acute postoperative pain experience (82.5%) from the study by Sharma SK et al.[9] Using the formula $N = Z_{1-\alpha/2}^2 p(100-p)/d^2$, where $Z_{1-\alpha/2} = 1.96$ at 5% type 1 error, p = 82.5%, and d = 10% absolute precision, a sample size of 56 was obtained. Accounting for a 10% non-response rate, the final sample size was determined to be 62 subjects.

Study Population and Sampling:

Using convenient sampling, the study included patients undergoing surgeries under spinal anesthesia. The inclusion criteria comprised postoperative patients classified as ASA (American Society of Anesthesiologists) grade I and II, aged above 18 years, undergoing elective surgeries and receiving intravenous postoperative analgesia. Patients were excluded if they declined consent, were under 18 years, required ICU admission, underwent emergency surgeries, had impaired cognition, life-threatening illness, history of substance abuse, or were on antiepileptic medications. Additionally, patients with comorbidities such as diabetes mellitus, hypertension, bronchial asthma, renal disease, cardiac diseases, those who underwent multiple surgical procedures, or developed infections were excluded.

Inclusion and Exclusion Criteria:

The study included postoperative patients classified as ASA (American Society of Anesthesiologists) grade I and II, aged above 18 years, who underwent elective surgeries under spinal anesthesia and received intravenous postoperative analgesia.

Exclusion criteria encompassed patients who did not provide consent, those under 18 years, patients requiring ICU admission, emergency surgery cases, individuals with impaired cognition or life-threatening illnesses, those with a history of substance abuse, and patients on antiepileptic medications. Additionally, patients with comorbidities such as diabetes mellitus, hypertension, bronchial asthma, renal disease, and cardiac diseases, as well as those who underwent multiple surgical procedures or developed infections, were excluded.

Data Collection Tools and Process:

Data collection was conducted through 15-20 minute face-to-face interviews using the standardized American Pain Society Patient Outcome Questionnaire (APS-POQ). The questionnaire was divided into two sections. Section I gathered information about socio-demographic characteristics and clinical profiles, including hospitalization duration, diagnosis, surgery type, and analgesics used. Section II comprised the APS-POQ, which assessed patients' pain experiences within the first 24 postoperative hours.

Pain Assessment and Satisfaction Measures:

Pain assessment included recording the presence of pain (yes/no), average pain levels, worst pain episodes, and pain at 24 hours postoperatively using a numerical scale from 0 (no

pain) to 10 (worst pain). The questionnaire evaluated pain interference with activities of daily living, sleep, emotions, and interpersonal relationships on a scale of 0 (no interference) to 10 (complete interference). Patient satisfaction with overall pain treatment and healthcare provider responses was measured using a 6-point Likert scale ranging from very dissatisfied to very satisfied. The questionnaire also assessed the use of non-pharmacological pain relief methods and patient involvement in pain management decisions.

Statistical Analysis:

Data was entered into Microsoft Excel and analyzed using SPSS version 22 software. Categorical data was represented as frequencies and proportions, while continuous data was expressed as mean and standard deviation. Chi-square test or Fischer's exact test was used for categorical data analysis. For quantitative data, Student's t-test or Mann-Whitney U test was employed based on data distribution. Paired t-test or Wilcoxon Signed rank test was used for paired data analysis. Statistical significance was set at $p<0.05$. Results were presented using appropriate graphical representations including pie and bar diagrams

Results:

Demographic and Clinical Characteristics:

The study included 62 participants, with a predominant age group of 31-45 years (45.2%). There was a relatively even gender distribution with slightly more males (54.8%) than females (45.2%). The majority of participants had secondary education (40.3%). In terms of clinical characteristics, ASA Grade I patients constituted 59.7% of the sample, and orthopedic surgeries were the most common procedure type (35.5%).

Table 1: Socio-demographic Characteristics of Study Participants (N=62)

Characteristic	Frequency (n)	Percentage (%)
Age (years)		
18-30	15	24.2%
31-45	28	45.2%
46-60	12	19.3%
>60	7	11.3%
Gender		
Male	34	54.8%
Female	28	45.2%
Education		
Primary	18	29%
Secondary	25	40.3%
Graduate	14	22.6%
Postgraduate	5	8.1%

Figure 1: Bar graphs showing socio-demographic characteristics

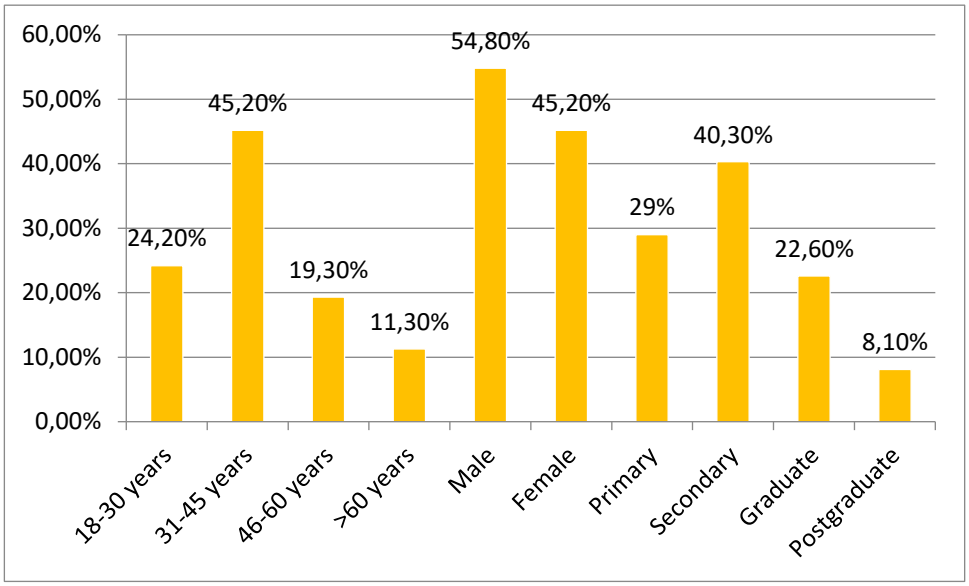
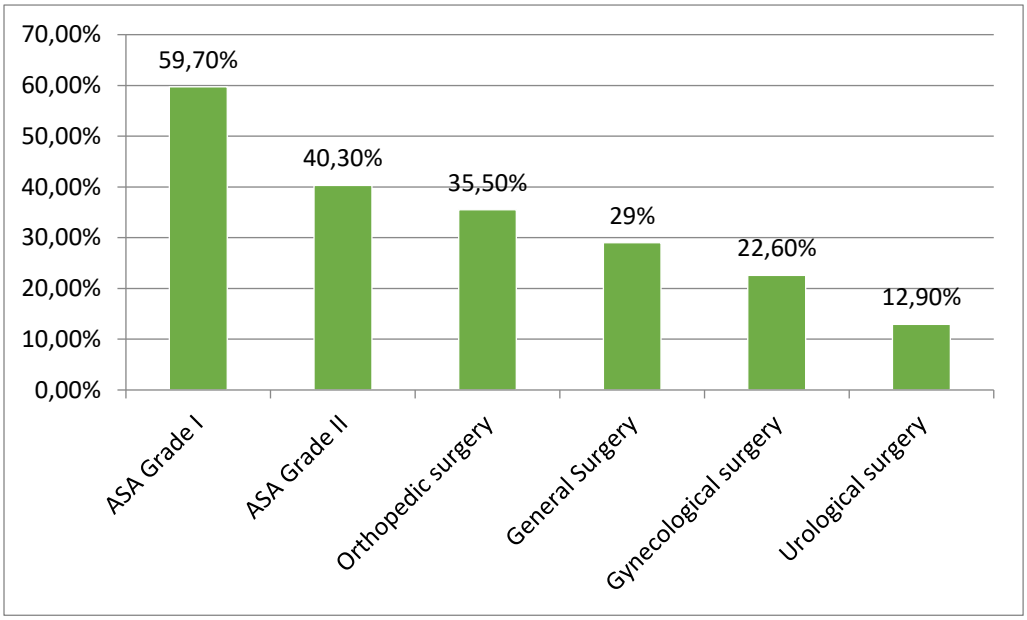


Table 2: Clinical Characteristics and Surgery Types (N=62)

Characteristic	Frequency (n)	Percentage (%)
ASA Grade		
Grade I	37	59.7%
Grade II	25	40.3%
Type of Surgery		
Orthopedic	22	35.5%
General Surgery	18	29%
Gynecological	14	22.6%
Urological	8	12.9%

Figure 2: Bar graph clinical characteristics and surgery types



Pain Assessment Outcomes:

The pain assessment revealed moderate levels of postoperative pain, with a mean average pain score of 4.8±1.6 on a 10-point scale. The worst pain experienced was notably higher (6.7±1.9), while current pain at 24 hours post-surgery was lower (3.2±1.4). Pain significantly interfered with daily activities (5.3±2.1) and sleep (4.9±2.3), with somewhat less impact on emotions (4.1±1.8).

Table 3: Pain Assessment Outcomes at 24 Hours Post-surgery (N=62)

Pain Parameter	Mean ± SD	Range
Average Pain Score	4.8 ± 1.6	2-8
Worst Pain Score	6.7 ± 1.9	3-10
Current Pain Score	3.2 ± 1.4	0-7
Pain Interference with:		
Activities	5.3 ± 2.1	1-9
Sleep	4.9 ± 2.3	0-9
Emotions	4.1 ± 1.8	0-8

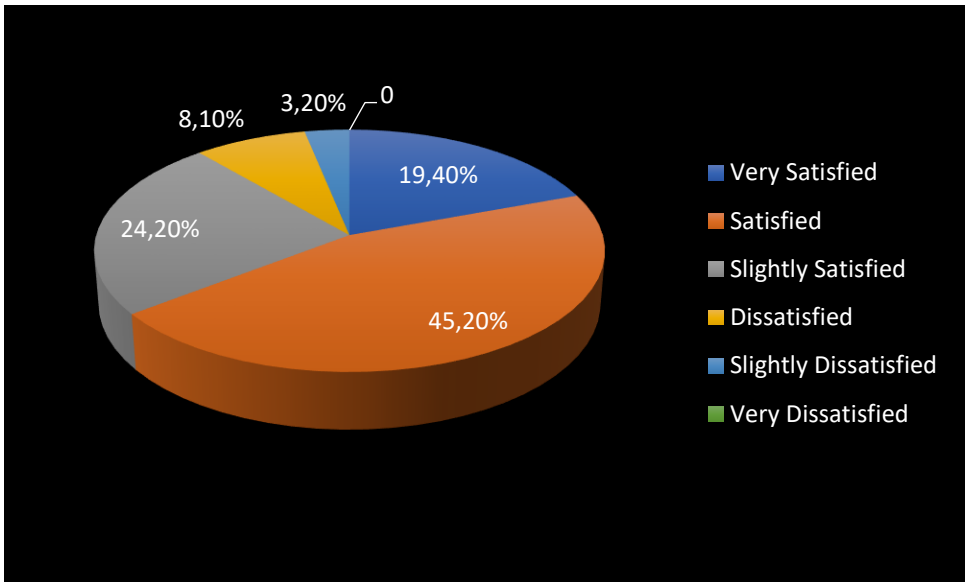
Patient Satisfaction:

Overall satisfaction with pain management was generally positive, with 64.6% of patients reporting being either satisfied or very satisfied with their pain management. A significant portion (24.2%) was slightly satisfied, while only 11.3% expressed some level of dissatisfaction. Notably, no patients reported being very dissatisfied with their pain management.

Table 4: Patient Satisfaction with Pain Management (N=62)

Satisfaction Level	Frequency (n)	Percentage (%)
Very Satisfied	12	19.4%
Satisfied	28	45.2%
Slightly Satisfied	15	24.2%
Dissatisfied	5	8.1%
Slightly Dissatisfied	2	3.2%
Very Dissatisfied	0	0

Figure 3: Pie chart showing Patient Satisfaction with Pain Management



Conflict of Interest: Nil

Discussion:

This prospective observational study provided insights into postoperative pain management satisfaction among elective surgery patients. The predominant age group was 31-45 years (45.2%), consistent with findings by Buli B et al.[10], who reported similar mean age of 41.5 ± 8.51 years in their cross-sectional study of postoperative pain management.

The mean pain scores in our study (average pain: 4.8±1.6; worst pain: 6.7±1.9). However, our findings showed slightly better pain control compared to Sharma SK study [9], which reported mean pain scores of 4.9 ± 1.5, possibly due to our structured pain management protocols.

Patient satisfaction with pain management (64.6% satisfied or very satisfied) aligned with international benchmarks. Buli B et al.[10] reported 74.5% study participants were satisfied with their pain management and 24.5% were dissatisfied, while Suwarman et al.[11] found 80% satisfaction rates in Asian populations. The higher satisfaction rates despite moderate pain scores suggest that patient satisfaction may be influenced by factors beyond pain intensity alone.

The interference of pain with daily activities (mean score 5.3±2.1) and sleep (4.9±2.3) was noteworthy. The predominance of orthopedic surgeries (35.5%) in our sample provided specific insights into this surgical category. Similarly in a study by Venkatesan U et al., severe pain was felt by nearly all (70%) among general surgery patients, 60% in orthopaedic surgery patients and 50% had moderate pain in urological surgery patients, respectively postoperatively [12]. This emphasizes the need for specialized pain management protocols for different surgical types.

Our findings regarding ASA grade distribution (59.7% Grade I) and its correlation with pain outcomes. In agreement with this study, the study done by Josef et al. at Gondar reported

that ASA I status was associated with good satisfaction, 3.5 times more likely to be satisfied compared with other groups of patients (AOR = 3.55 (1.20–10.55) [13]. Another study conducted in Pakistan also supports our study, where ASA I patients were 3.7 times more likely to be satisfied compared with other groups [14].

Conclusion:

This study demonstrated generally satisfactory postoperative pain management with room for improvement in specific areas. While overall satisfaction rates were high (64.6%), the significant impact of pain on daily activities and sleep suggests the need for more comprehensive pain management strategies. The findings emphasize the importance of individualized pain management approaches and regular assessment of patient satisfaction to optimize postoperative care outcomes.

Limitations:

The sample size of the study was small. It could have been better with larger population size.

References:

1. Gan TJ, Habib AS, Miller TE, White W, Apfelbaum JL. Incidence, patient satisfaction, and perceptions of post-surgical pain: results from a US national survey. *Curr Med Res Opin*. 2014; 30(1):149-160.
2. Svensson I, Sjöström B, Haljamäe H. Assessment of pain experiences after elective surgery. *J Pain Symptom Manage*. 2000; 20(3): 193-201.
3. Kehlet H, Jensen TS, Woolf CJ. Persistent postsurgical pain: risk factors and prevention. *Lancet*. 2006; 367(9522): 1618-1625.
4. Wu CL, Raja SN. Treatment of acute postoperative pain. *Lancet*. 2011; 377(9784):2215-2225.
5. Phillips S, Gift M, Gelot S, Duong M, Tapp H. Assessing the relationship between the level of pain control and patient satisfaction. *J Pain Res*. 2013; 6:683-689. Published 2013 Sep 9.
6. Ferreira DC, Vieira I, Pedro MI, Caldas P, Varela M. Patient Satisfaction with Healthcare Services and the Techniques Used for its Assessment: A Systematic Literature Review and a Bibliometric Analysis. Healthcare (Basel). 2023 Feb 21; 11(5):639. PMID: 36900644; PMCID: PMC10001171.
7. Lee A, Chan SK, Chen PP, Gin T, Lau AS, Chiu CH. The costs and benefits of extending the role of the acute pain service on clinical outcomes after major elective surgery. *Anesth Analg*. 2010; 111(4):1042-1050.
8. Powell R, Scott NW, Manyande A, Bruce J, Vögele C, Byrne-Davis LM, Unsworth M, Osmer C, Johnston M. Psychological preparation and postoperative outcomes for adults undergoing surgery under general anaesthesia. Cochrane Database Syst Rev. 2016 May 26; 2016(5):CD008646.
9. Sharma SK, Thakur K, Mudgal SK, Payal YS. Acute postoperative pain experiences and satisfaction with its management among patients with elective surgery: An observational study. Indian J Anaesth. 2020 May; 64(5):403-408. Epub 2020 May 1. PMID: 32724249; PMCID: PMC7286399.

10. Buli B, Gashaw A, Gebeyehu G, Abrar M, Gerbessa B. Patient satisfaction with post-operative pain management and associated factors among surgical patients at Tikur Anbessa Specialized Hospital: Cross-sectional study. Annals of Medicine & Surgery 2022; 79.
11. Suwarman, Yadi DF, Supriyadi S, Nugraha P. Evaluation of post-elective surgery acute pain management profiles using the APS-POQ-R questionnaire: an observational study. Anaesth Pain Intensive Care 2024; 28.
12. Venkatesan U, Kamal S, Vishwanathan J. Perception of pain, attitude and satisfaction of pain management among postoperative patients. Journal of Clinical and Diagnostic Research. 2021;15 (1):LC05-LC08.
13. Belay Bizuneh Y, Fitiwi Lema G, Yilkal Fentie D, Woldegerima Berhe Y, Enyew Ashagrie H. Assessment of patient's satisfaction and associated factors regarding postoperative pain management at the University of Gondar Compressive Specialized Hospital, Northwest Ethiopia. Pain Research and Management. 2020; 2020(1):8834807.
14. Baek W, Jang Y, Park CG, Moon M. Factors Influencing Satisfaction with Patient-Controlled Analgesia Among Postoperative Patients Using a Generalized Ordinal Logistic Regression Model. Asian Nursing Research 2020; 14:73–81.