e-ISSN: 0975-1556, p-ISSN:2820-2643

Available online on www.ijpcr.com

International Journal of Pharmaceutical and Clinical Research 2023; 15(8); 502-509

Original Research Article

Assessing the Characteristics of Postoperative Pain and its Quality of Management among Patients Underwent Surgery: A Cross-Sectional Study from North Wales, UK

Asna Zehra Naqvi[1], Umair Hassan[2], Wasif Raza[3], Nik Abdullah[4], Rajeev Ranjan[5]

[1]Specialist, Department of Obstetrics & Gynaecology, Betsi Cadwaladr University Health Board, North Wales, UK

[2]Specialist, Department of General & Colorectal Surgery, Betsi Cadwaladr University Health Board, North Wales, UK

[3]Specialist, Department of General & Colorectal Surgery, Betsi Cadwaladr University Health Board, North Wales, UK

[4]Consultant, Department of General & Colorectal Surgery, Betsi Cadwaladr University Health Board, North Wales, UK

[5]Assistant Professor, Department of General Surgery, Madhubani Medical College, Madhubani, Bihar, India

Received: 30-05-2023 / Revised: 21-06-2023 / Accepted: 25-07-2023

Corresponding author: Dr. Wasif Raza

Conflict of interest: Nil

Abstract:

Background: Quality pain management (QPM) focuses on patient-centered, safe, effective, timely, efficient, and equitable care, aiming to reduce pain severity, provide relief, minimize functional interference, and ensure satisfaction. Despite improvement efforts and guidelines, pain prevalence in hospitals remains high (48%-88% in the past 24 hours), negatively impacting well-being and increasing costs. Encouraging patient involvement yields positive outcomes in acute and chronic pain scenarios. This study examines pain experienced by surgical patients three days post-operation and evaluates pain management quality.

Methods: A cross-sectional study conducted at a tertiary care hospital in North Wales, UK for one year among 261 surgical patients who underwent elective procedures. A validated questionnaire, Strategic and Clinical Quality Indicators Postoperative Pain (SCQIPP), comprising three subscales (pain management, nursing intervention, and environment) with 14 items, was utilized. Participants rated each item on a 5-point Likert-type scale. Descriptive statistics summarized participant demographics, pain intensity scores, and satisfaction levels using means, standard deviations, frequencies, and percentages.

Results: Tingling was the most commonly experienced sensation, reported by 83.5% of patients. Pulsating pain was also prevalent, reported by 61.7% of patients. The most frequently reported factor was movement, with 84.7% of patients experiencing increased pain when moving. Loss of the painkiller's effect was also a significant factor, reported by 33.3% of patients. The mean score for pain management was 14.01±1.34, indicating the participants' satisfaction with pain management. The mean score for nursing/staff intervention was 26.91±2.34, reflecting positive perceptions of the assistance provided by healthcare professionals. Overall, the total mean score for the SCQIPP questionnaire was 48.96±4.08, suggesting a generally high level of satisfaction with pain management, nursing intervention, and the environment.

Conclusion: This study identified areas for improvement in postoperative pain management, emphasizing patient-centered care. Active patient participation, individualized approaches, and effective communication are crucial for enhancing care quality. Findings stress the importance of prioritizing patient preferences, shared decision-making, and comprehensive education to optimize pain management, improve experiences, and enhance outcomes.

Keywords: Pain, Surgery, Nursing, Postoperative, Management.

Introduction

Pain management is a significant concern for patients, and the perception of care plays a crucial role in evaluating the quality of healthcare institutions [1]. Quality pain management (QPM) encompasses the structure, process, and outcomes of care, focusing on patient-centered, safe, effective, timely, efficient, and equitable services. QPM aims to reduce pain severity, provide

adequate pain relief, minimize functional interference, minimize adverse effects from pain or its treatment, and ensure patient satisfaction with the pain treatment [2].

Despite numerous quality improvement initiatives and the existence of clinical guidelines and treatment protocols, pain remains prevalent in hospital settings, with reported prevalence rates ranging from 48% to 88% within the past 24 hours [3]. Approximately 30% of patients experience severe pain, which negatively impacts their physical, psychological, and social well-being. Additionally, pain can increase hospital costs due to delayed recovery and pain-related readmissions [4].

Research has shown a correlation between patient satisfaction and pain severity. Paradoxically, patients often report high satisfaction levels despite experiencing severe pain [5,6]. This contradiction can be explained by the importance of effective communication and trust between patients and healthcare professionals [7,8]. The collaboration and trust established in this relationship are vital components of patient participation, shared decision making, and access to comprehensive information [9]. Encouraging patient participation as a means to enhance pain management is advocated, although the specific effectiveness of including patients in decision making within a hospital setting is still relatively unknown [10]. However, in both acute postoperative and chronic pain scenarios, increased patient participation has been associated with positive pain-related outcomes. Studies indicate that patients who feel in control of their pain experience better outcomes compared to those with limited control.

This study aimed to examine the pain encountered by surgical patients on the third day after their operation, as well as to evaluate the quality of the pain management provided.

Methods and Materials

Study Design, Sample, Setting

This study employed a cross-sectional research design to investigate surgical patients' pain experience and the quality of care provided for pain management on the third postoperative day.

The study was conducted at a tertiary care hospital in North Wales, UK, which specializes in various surgical procedures, for 1 year (June 2022 to May 2023).

Study Participants

The sample consisted of 261 surgical patients who had undergone operations (general surgery, orthopaedics and gynaecology) at the hospital during study period. The inclusion criteria for participation were as follows: adult patients (age 18 and above) who underwent elective surgical procedures (being available on the third postoperative day), were capable of providing informed consent, and were able to communicate their pain experience. Patients with cognitive impairments or language barriers were excluded from the study. A convenience sampling method was employed to recruit participants.

Data Collection Tool

A standardized and validated questionnaire, and Strategic and Clinical Quality Indicators Postoperative Pain (SCQIPP), was utilized to collect data regarding patients' pain experience and the quality of pain management. The measurement instrument comprised three subscales: pain management, nursing intervention, and environment, and consisted of a set of 14 items. Participants were asked to rate each item on a 5-point Likert-type scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The total score on the SPPM scale could range from 14 to 70, with higher scores indicating a higher level of satisfaction with postoperative management. Interpreting the scores, a mean score < 4 for an item suggested a low quality of health care, while a mean score between 4 to 4.5 indicated an acceptable quality, and a mean score > 4.5 indicated a high quality of health care [11].

Data Collection Procedure

Prior to data collection, ethical approval was obtained from the Institutional Review Board of the hospital. Participants were approached individually by trained research assistants who explained the study's purpose, procedures, and potential risks and benefits. Informed consent was obtained from each participant who agreed to participate voluntarily. Participants were assured of the confidentiality and anonymity of their responses.

The research assistants administered the SCQIPP questionnaire to participants on the third postoperative day during one-on-one interviews. The research assistants provided assistance if participants faced difficulties in completing the questionnaire due to physical discomfort or comprehension issues. The interviews were conducted in a private and comfortable environment to ensure participants' privacy and encourage open communication. Descriptive statistics, including means, standard deviations, frequencies, and percentages, were calculated to summarize the demographic characteristics of the participants, pain intensity scores, and satisfaction levels.

Ethical Consideration

The study was conducted in compliance with ethical guidelines and principles, ensuring the protection of participants' rights and welfare. Informed consent was obtained from all

participants, and their confidentiality and anonymity were strictly maintained throughout the study. Participants were informed of their right to withdraw from the study at any time without facing any negative consequences. The study protocol was reviewed and approved by the Institutional Review Board of the hospital, ensuring that the research adhered to ethical standards.

Results

The study included a total of 261 participants with diverse demographic and clinical characteristics. In terms of age distribution, the majority of participants fell into the 31-60 years age group, with 26.4% aged 31-45 years, 31.8% aged 46-60 years, and 20.7% aged less than 31 years or over 60 years. Gender distribution was nearly balanced, with 52.9% male and 47.1% female participants. Regarding education, the highest proportion (31.8%) had completed primary/middle school, followed by high/senior secondary school (29.9%), graduate or above (23.4%), and illiterate (14.9%). In terms of inpatient department (IPD), the largest group was from general surgery (46.0%), followed by orthopedics (36.4%) and gynaecology (17.6%). The duration of surgery varied, with 46.4% of surgeries lasting less than 2 hours, 37.5% lasting 2-4 hours, and 16.1% lasting over 4 hours.

The majority of participants received general anesthesia (60.2%) compared to regional/local anesthesia (39.8%). Regarding postoperative pain management, nonsteroidal anti-inflammatory drugs were the most commonly used approach (100%), while a smaller percentage received opioid analgesics (4.2%) or other methods (3.4%). The expected time for pain management was predominantly less than 11 minutes (94.3%), with only a small percentage reporting an expected time of 11-20 minutes (5.7%) (Table 1).

Table 1: Baseline characteristics of the patient (N = 261).

Variables	Frequency	%
Age group (in years)		
<31	54	20.7
31–45	69	26.4
46–60	83	31.8
>60	55	21.1
Gender		
Female	123	47.1
Male	138	52.9
Education		
Illiterate	39	14.9
Primary/Middle school	83	31.8
High/Senior Secondary school	78	29.9
Graduate or above	61	23.4
IPD		
Orthopedics	95	36.4
General surgery	120	46.0
Gynaecology	46	17.6
Duration of surgery (in hours)		
<2	121	46.4
2-4	98	37.5
>4	42	16.1
Type of anaesthesia		
General	157	60.2
Regional/Local	104	39.8
Postoperative pain management*		
Nonsteroidal anti-inflammatory drug	261	100.0
Opioid analgesics	11	4.2
Other	9	3.4
Expected time for pain management (minutes)		
<11	246	94.3
11–20	15	5.7
*Multiple responses		

Among the pain patients included in the study, various characteristics of pain experiences were reported. Tingling was the most commonly experienced sensation, reported by 83.5% of patients. Pulsating pain was also prevalent, reported by 61.7% of patients. Other sensations included pressing/tugging/pulling (13.4%),

pricking/crushing (13.4%), burning (11.9%), formication (4.2%), and cramp-like pain (3.4%). It is important to note that patients could report multiple types of pain sensations (Figure 1).

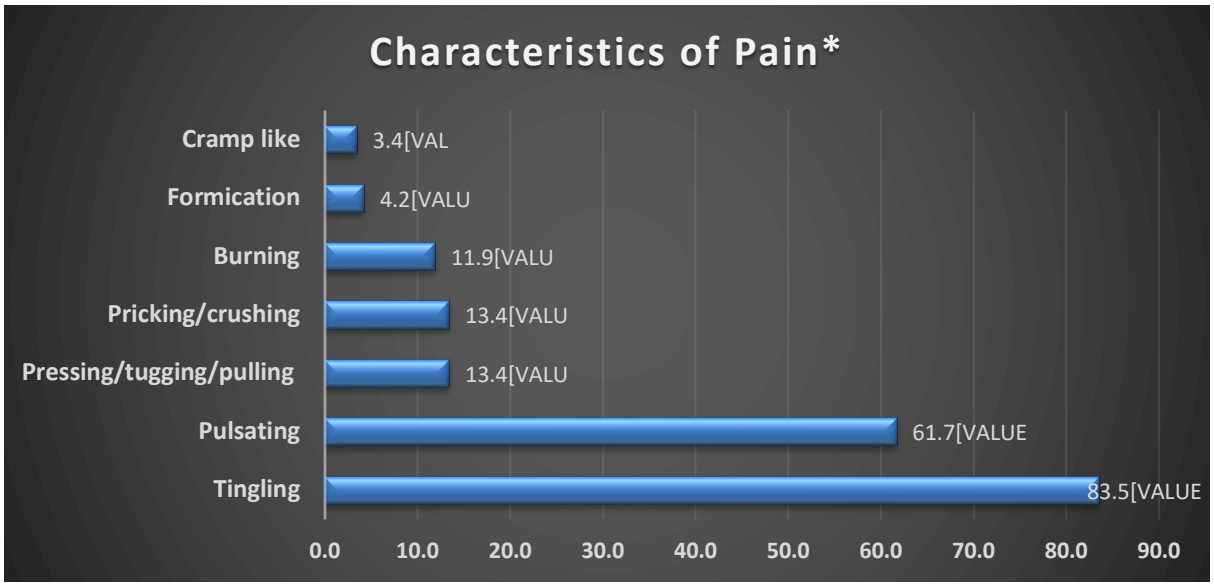

Figure 1: Characteristics of pain experienced by patients (N = 261)
*Multiple responses

Several factors contributing to increased postoperative pain were identified among the study participants. The most frequently reported factor was movement, with 84.7% of patients experiencing increased pain when moving. Loss of the painkiller's effect was also a significant factor, reported by 33.3% of patients. Other contributing factors included activities such as dressing of the incision site, coughing, and flatulence (4.2%), as well as long-term physical inactivity (3.1%). It should be noted that patients could report multiple factors contributing to their postoperative pain (Figure 2).

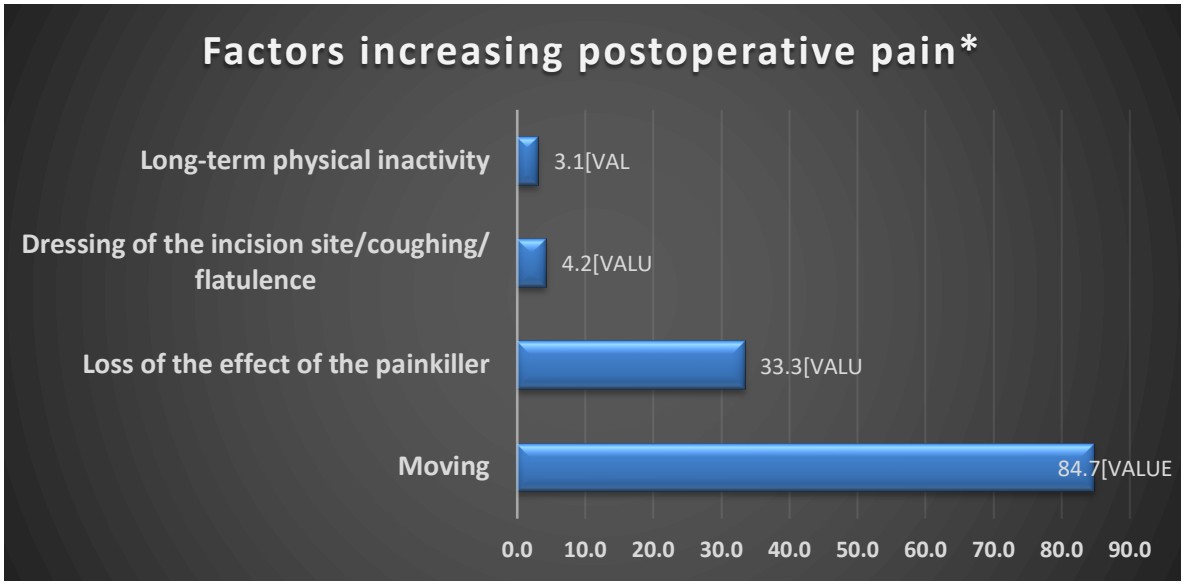

Figure 2: Factors increasing postoperative pain among patients (N = 261)
*Multiple responses

Various factors that were found to reduce postoperative pain among the participants were identified. The most commonly reported factor was resting, with 59.0% of patients experiencing pain reduction when they rested. Taking analgesics was another significant factor, reported by 56.3% of patients. Lying in the appropriate position was mentioned by 18.4% of patients as a pain-reducing factor. Other reported factors included moving or going to the bathroom (3.4%), diverting attention to something else (2.7%), and reading books (2.3%). It is important to note that patients could report multiple factors contributing to the reduction of their postoperative pain (Figure 3).

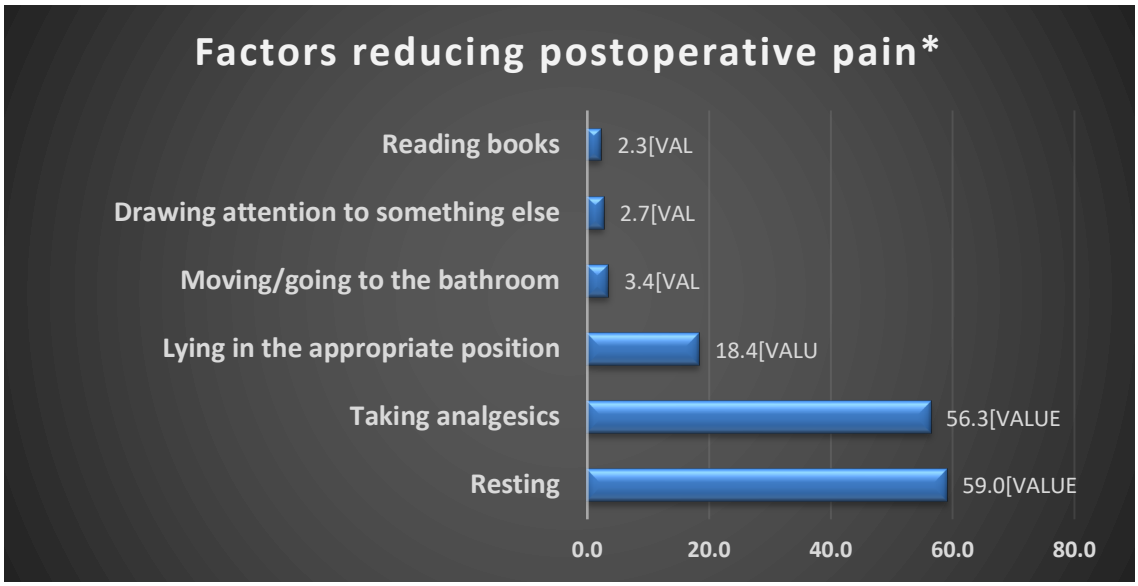

Figure 3: Factors reducing postoperative pain among patients (N = 261)
*Multiple responses

The results of the SCQIPP questionnaire, completed by 261 participants, revealed various aspects of pain management in the healthcare setting. Participants reported low levels of active participation in deciding how their pain should be managed (mean=2.11±0.61) and receiving pain medication without explicit requests (mean=3.58±0.92). However, the medical staff assisted in finding comfortable positions to alleviate pain (mean=3.81±0.53) and consistently inquired about pain during specific movements (mean=4.04±0.67). Participants also reported prompt and efficient responses to pain relief requests (mean=3.98±0.82). The room ambiance was perceived as pleasant (mean=4.03±0.56), and the staff demonstrated expertise in pain alleviation (mean=3.83±0.54). Participants felt believed when communicating their pain experiences (mean=3.95±0.35), and the staff collaborated effectively in providing comprehensive pain management (mean=3.87±0.65). However, the level of care regarding active participation and receiving detailed information about pain treatment options was perceived as low (mean=2.12±0.66 and mean=1.93±1.22, respectively). Overall, the level of care for most items fell within near acceptable range (Table 2).

Table 2: Mean Scores for the 14 Items in the SCQIPP questionnaire among patients (N = 261).

Items in the SCQIPP questionnaire (N = 261).	Mean±SD
I had the opportunity to actively participate in deciding how my pain should be managed	2.11±0.61*
The medical staff assisted me in finding a comfortable position in bed to alleviate pain	3.81±0.53*
My room provided a peaceful and quiet environment during the night	4.01±0.53
Pain medication was administered to me, even without explicit requests	3.58±0.92*
Throughout the day, the staff consistently inquired about any pain experienced during deep breaths, sitting up, or movement	4.04±0.67#
I was regularly asked to rate my pain level on a scale of 0 to 10 or mark it on a straight line	1.93±1.22*
The healthcare professionals ensured my pain treatment continued until I was fully satisfied with the relief	3.75±0.73*
The room where my bed was located created a pleasant ambiance	4.03±0.56#
Whenever I requested pain relief, the response was prompt and efficient	3.98±0.82*
The medical team possessed accurate knowledge regarding the severity of my pain and the treatments administered	3.96±0.46*
The staff demonstrated expertise in effectively alleviating my pain	3.83±0.54*
I felt completely believed by the staff when I communicated my pain experiences	3.95±0.35*
The staff collaborated seamlessly to provide comprehensive pain management	3.87±0.65*
Prior to my surgery, I received detailed information about the pain treatment options available post-operation	2.12±0.66*

*Level of care “low”; #Level of care “acceptable”

The mean scores for the SCQIPP questionnaire and its subscales were calculated. The mean score for pain management was 14.01±1.34, indicating the participants' satisfaction with pain management. The mean score for nursing/staff intervention was 26.91±2.34, reflecting positive perceptions of the assistance provided by

healthcare professionals. The mean score for the environment subscale was 8.04±1.06, indicating a positive perception of the room ambiance. Overall, the total mean score for the SCQIPP questionnaire was 48.96±4.08, suggesting a generally high level of satisfaction with pain management, nursing intervention, and the environment (Table 3).

Table 3: Total and subscale mean score for the SCQIPP questionnaire among patients (N = 261).

Total and subscale mean score for the SCQIPP questionnaire	Mean±SD
Pain management	14.01±1.34
Nursing/staff intervention	26.91±2.34
Environment	8.04±1.06
Total	48.96±4.08

Discussion

The assessment of pain and the quality of postoperative pain management are critical aspects of healthcare for surgical patients. In this study, a diverse sample of 261 participants with varying demographic and clinical characteristics was included to evaluate these important factors. The findings of the SCQIPP questionnaire provided valuable insights into the participants' perceptions and experiences regarding pain management in the healthcare setting.

The mean scores for the SCQIPP questionnaire and its subscales provided a comprehensive assessment of pain management and patient satisfaction. The mean score for pain management indicated a high level of satisfaction among participants, suggesting that the pain management strategies employed were generally effective. The positive mean score for nursing/staff intervention reflected participants' positive perceptions of the assistance provided by healthcare professionals. Additionally, the favorable mean score for the environment subscale indicated that the room ambiance was conducive to patient comfort. Collectively, these findings highlight the overall high level of satisfaction with pain management, nursing intervention, and the environment.

In the existing literature, studies by Gunningberg et al., Frödin et al., Patanwala et al.,Vatanseveret al., Magidy et al., Subramanian et al.,and Juszczak et al., consistently indicate a high level of patient satisfaction with pain management [12,13,14,15,16,17,18]. Interestingly, our current study yielded contrasting findings, suggesting a lower quality of postoperative pain management (POPM) and was comparable to the results of Wadensten et al., Carr et al, and Idvall et al., [19,20,21].

One notable finding was the relatively low levels of active participation reported by participants in deciding how their pain should be managed. This indicates a potential area for improvement in patient-centered care, where patients should be empowered to have a more active role in decision-making processes concerning their pain management. Similarly, participants reported receiving pain medication without explicit requests, suggesting a lack of individualized and tailored approaches to pain management. This highlights the need for healthcare providers to engage in effective communication with patients to understand their unique pain management needs and preferences and it was supported in the studies by Subramanian et al., Best et al., and O'Donnell et al., [17,22,23] Furthermore, the pleasant room ambiance and the staff's demonstrated expertise in pain alleviation were perceived positively by the participants which was also reported in the studies by Harris et al., and Williams et al., [24,25].

In our study, the tingling was the most commonly reported sensation (83.5%), followed by pulsating pain (61.7%).Determining the characteristics of pain is crucial as it plays a significant role in guiding treatment approaches [26]. Postoperative pain experienced by patients encompasses various sensations including pulsating, tingling, burning, blunt, sharp, and pressuring [27]. A study by Büyükyilmazet al., found that 78% of the patients reported experiencing pulsating pain, while 52.7% experienced tingling pain [28]. Study by Akyol et al., revealed that 32.5% of the patients reported pulsating pain, with 76.7% of them feeling pain at the incision site [29].

In our study,factors contributing to increased postoperative pain were identified among the participants. The most frequently reported factor was movement, with 84.7% of patients experiencing increased pain during movement. Loss of the painkiller's effect was also a significant factor (33.3%), indicating the need for optimized pain medication regimens and monitoring. Patanwala et al., Ramia et al., and Yilmaz et al., studies have highlighted those activities such as getting out of bed, coughing, positioning, movement, and dressing of the incision site after surgery can elicit pain [14,30,31].

Limitations

It is important to acknowledge some limitations of the study. First, the study was conducted in a specific setting and may not be generalizable to other healthcare contexts. Second, the data relied on self-report measures, which are subject to recall and

response biases. Future research could include objective measures of pain and pain management outcomes to complement self-report data.

Conclusion

In conclusion, this study identified areas for improvement in postoperative pain management and highlighted the importance of patient-centered care. Active patient participation, individualized pain management approaches, and effective communication were identified as crucial factors in enhancing the quality of care. The findings emphasize the need for healthcare providers to prioritize patient preferences, promote shared decision-making, and ensure comprehensive patient education. By addressing these areas, healthcare providers can optimize postoperative pain management, improve patient experiences, and enhance overall patient outcomes.

References

1. Breivik H, Borchgrevink PC, Allen SM, et al. Assessment of pain. Br J Anaesth. 2008; 101:17-24.
2. Vila H, Smith RA, Augustyniak MJ, et al. The efficacy and safety of pain management before and after implementation of hospital-wide pain management standards: is patient safety compromised by treatment based solely on numerical pain ratings? Anesth Analg. 2005;101:474-480.
3. Chou R, Gordon DB, de Leon-Casasola OA, et al. Management of postoperative pain: a clinical practice guideline from the American Pain Society, the American Society of Regional Anesthesia and Pain Medicine, and the American Society of Anesthesiologists' committee on regional anesthesia, executive committee, and administrative council. J Pain. 2016;17:131-157.
4. Ravaud P, Keita H, Porcher R, Durand-Stocco C, Desmonts J, Mantz J. Randomized clinical trial to assess the effect of an educational programme designed to improve nurses' assessment and recording of postoperative pain. Br J Surg. 2004;91:692-698.
5. Sloman R, Wruble AW, Rosen G, Rom M. Determination of clinically meaningful levels of pain reduction in patients experiencing acute postoperative pain. Pain ManagNurs. 2006;7:153-158.
6. Van Dijk JFM, Kappen TH, Schuurmans MJ, van Wijck AJM. The relation between patients' NRS pain scores and their desire for additional opioids after surgery. Pain Pract. 2015;15:604-609.
7. Mularski RA, White-Chu F, Overbay D, Miller L, Asch SM, Ganzini L. Measuring pain as the 5th vital sign does not improve quality of pain management. J Gen Intern Med. 2006;21:607-612.
8. Gagliese L, Weizblit N, Ellis W, Chan VWS. The measurement of postoperative pain: a comparison of intensity scales in younger and older surgical patients. Pain. 2005;117:412-422.
9. Coll AM, Ameen JR, Mead D. Postoperative pain assessment tools in day surgery: literature review. J Adv Nurs. 2004;46:124-133.
10. Frasco PE, Sprung J, Trentman TL. The impact of the Joint Commission for Accreditation of Healthcare Organizations pain initiative on perioperative opiate consumption and recovery room length of stay. AnesthAnalg. 2005;100:162-168.
11. Idvall E, Ehrenberg A. Nursing documentation of postoperative pain management. J Clin Nurs. 2002;11(6):734-742.
12. Gunningberg L, Idvall E. The quality of postoperative pain management from the perspectives of patients, nurses, and patient records. J NursManag. 2007;15(7):756-766.
13. Frödin M, Stomberg MW. Pain management after lung surgery. Nurs Rep. 2014;4(1):1–6.
14. Patanwala AE, Aljuhani O, Erstad BL. A cross-sectional study of predictors of pain control during the transition from the surgical intensive care unit to surgical ward. Aust Crit Care. 2018;31(3):159–164.
15. Vatansever NA, Akansel N. Validation study of the strategic and clinical quality indicators in postoperative pain management questionnaire in Turkish surgery patients. Pain ManagNurs. 2014;15(4):871–880.
16. Magidy M, Stomberg M, Bjerså K. Assessment of post-operative pain management among acutely and electively admitted patients—A Swedish ward perspective. J Eval Clin Pract. 2016;22(2):283–289.
17. Subramanian P, Ramasamy S, Ng KH, Chinna K, Rosli R. Pain experience and satisfaction with postoperative pain control among surgical patients. Int J NursPract. 2016;22(3):232–238.
18. Juszczak K, Jaracz K, Kuberka I. Subjective assessment of the quality of nursing care in terms of postoperative pain in patients undergoing surgical intervention. SurgVascNurs. 2016;4:127–130.
19. Wadensten B, Fröjd C, Swenne CL, Gordh T, Gunningberg L. Why is pain still not being assessed adequately? Results of a pain prevalence study in a university hospital in Sweden. J Clin Nurs. 2011;20(5-6):624–634.
20. Carr EC, Meredith P, Chumbley G, Killen R, Prytherch DR, Smith GB. Pain: a quality of care issue during patients' admission to hospital. J Adv Nurs. 2014;70(6):1391–1403.
21. Idvall E, Berg A. Patient assessment of postoperative pain management–Orthopaedic

patients compared to other surgical patients. J Orthop Nurs. 2008;12(1):35–40.
22. Best JT, Musgrave B, Pratt K, Hill R, Evans C, Corbitt D. The impact of scripted pain education on patient satisfaction in outpatient abdominal surgery patients. J Perianesth Nurs. 2018;33(4):453–460.
23. O'Donnell KF. Preoperative pain management education: An evidence-based practice project. J Perianesth Nurs. 2018;33(6):956–963.
24. Harris PB, McBride G, Ross C, Curtis L. A place to heal: environmental sources of satisfaction among hospital patients. J Appl Soc Psychol. 2002;32(6):1276–1299.
25. Williams AM, Irurita VF. Enhancing the therapeutic potential of hospital environments by increasing the personal control and emotional comfort of hospitalized patients. ApplNurs Res. 2005;18(1):22–28.
26. Swift A. Pain management 3: The importance of assessing pain in adults. Nurs Times. 2015;111(41):12–14.
27. Tsai TC, Orav EJ, Jha AK. Patient satisfaction and quality of surgical care in US hospitals. Ann Surg. 2015;261(1):2–8.
28. Büyükyılmaz FE, Aştı T. Postoperative pain characteristics in Turkish orthopedic patients. Pain ManagNurs. 2010;11(2):76–84.
29. Akyol Ö, Karayurt Ö, Salmond S. Experiences of pain and satisfaction with pain management in patients undergoing total knee replacement. OrthopNurs. 2009;28(2):79–85.
30. Ramia E, Nasser SC, Salameh P, Saad AH. Patient perception of acute pain management: Data from three tertiary care hospitals. Pain Res Manag. 2017;2017:7459360.
31. Yılmaz M, Gürler H. Nursing approaches toward postoperative pain of patients: Patients' option. Pain. 2011;23(2):71–79.z.