

## Nurse-Led Strategies for Postoperative Pain Management in Patients with Opioid Use Disorder: Focusing on Buprenorphine Continuation Protocols.

Nishat Perveen <sup>1</sup>, Javid Ali <sup>2</sup>, Dr. Naheed Akhtar <sup>3</sup>, Dr. Shah Hussain <sup>4</sup>, Afsana Bibi <sup>5</sup>

<sup>1</sup> MSN Scholar – RNO, THQ Hospital Serai Naurang, Lakki Marwat. Email:

[nishatpgcn@gmail.com](mailto:nishatpgcn@gmail.com)

<sup>2</sup> MSN, BSN, Principal/Assistant Professor, Ismail Nursing Institute Mata, Swat.

<sup>3</sup> PhD, MSN, Principal/Assistant Professor, Nursing Department, Sina Institute of Nursing & Allied Health Science.

<sup>4</sup> PhD, MSN, Principal/Assistant Professor, Nursing Department, Zalan College of Nursing & Allied Health Science, Swat.

<sup>5</sup> Staff Nurse – Luqman International Hospital, Swat.

Corresponding Author: Nishat Parveen: [nishatpgcn@gmail.com](mailto:nishatpgcn@gmail.com)

**DOI:** <https://doi.org/10.63163/jpehss.v3i2.304>

### Abstract

**Background:** Patient recovery from Opioid Use Disorder encounters multiple hurdles when treating postoperative pain because opioid tolerance exists alongside public prejudice and the danger of returning to drug abuse. Healthcare professionals need strategies for implementing buprenorphine continuation protocols, but research about nurse-led implementation in limited-resource areas remains scarce.

**Aim:** This study aimed to investigate nurse-led buprenorphine continuation protocols for postoperative pain management in OUD patients, focusing on challenges, strategies, and outcomes in a surgical ward setting.

**Methods:** The research design was qualitative descriptive, relying on semi-structured interviews with 10 registered nurses at Saidu Teaching Hospital in Swat, Pakistan. The research interviewed nurses because of their experience with postoperative care and buprenorphine administration. Braun and Clarke's thematic analysis was the basis for analyzing the gathered data.

**Results:** The study identified four main themes which included (1) buprenorphine maintenance as essential for withdrawal prevention and pain management (2) personalized patient-centered pain care plans (3) healthcare staff faced barriers of stigma and opioid tolerance and institutional barriers and (4) nursing professionals should act as advocates by promoting education to ensure patient adherence and reduce bias-related issues. Personalized treatment strategies built better relationships with patients and better results despite problems with institutional prejudices and untrained staff members.

**Conclusion:** Nurses' implementation of buprenorphine protocols proves essential for providing appropriate postoperative pain care to patients with OUD. Delivering superior postoperative pain care for patients with OUD requires institutional backing, reduced stigma, and standardized training programs. Future initiatives require interdisciplinary cooperation with specialized educational programs to meet the specific needs of individuals who require such care.

### Keywords:

Opioid Use Disorder, postoperative pain management, buprenorphine continuation, nurse-led protocols, qualitative research.

## Introduction

Postoperative pain management plays a crucial role in the healing and recovery of patients. Patients diagnosed with Opioid Use Disorder (OUD) present exceptional hurdles in treating postoperative pain because their doctor believes they have modified pain response as well as acquired tolerance to opioids (Echeverria-Villalobos et al., 2020). Nurses create postoperative intervention approaches and care protocols that they start and guide to deliver optimal patient care (Hyland et al., 2021). The care of postoperative pain requires three sequential steps, which include pain evaluation together with procedural pain prevention and postoperative pain therapy.

Opioid Use Disorder (OUD) represents a persistent medical health issue that leads people to use opioids even though they face dangerous effects repeatedly (Cheung et al., 2022). Medical practitioners employ Buprenorphine as a partial opioid agonist to treat both acute pain and opioid dependence in patients (Roselli et al., 2021). Buprenorphine continuation protocols supply step-by-step directions for surgical patients who receive buprenorphine treatment to preserve therapy throughout the perioperative phase so they can avoid withdrawal symptoms and get proper pain management. Understanding these basic concepts leads to an analysis of nurses' essential role in pain management for this population (Hadland et al., 2024).

Opioid use disorder affects millions of people globally at dangerous rates. Nationwide surveys indicate that the National Institute on Drug Abuse (2022). Reports 2.1 million Americans are currently struggling with OUD. Hospitalized surgical patients show rising rates of OUD, while this behavior creates significant clinical challenges for medical providers within their facilities (Strathdee et al., 2021). Research reveals that OUD affects 12% of surgical hospital patients who are seeking care. Buprenorphine maintenance therapy, which doctors use extensively for treating OUD, now appears more frequently, and this complicates standard opioid-based pain management approaches (Henningfield et al., 2022). The World Health Organization (WHO) documents rising opioid misuse as a worldwide health problem that particularly affects middle- and high-income nations. Postoperative pain management strategies that fit the individual needs of OUD patients need immediate attention (Biancuzzi et al., 2022).

Buprenorphine maintenance treatment patients typically received orders from healthcare providers to stop their drug before surgery, which resulted in poor relapse outcomes, in addition to inadequate pain management and prolonged hospital stays in the past. Clinical research now demonstrates that maintaining buprenorphine throughout the perioperative stage leads to enhanced pain management and decreases the odds of opioid recovery failures (Macintyre et al., 2020). The absence of established buprenorphine continuation procedures at healthcare facilities leads to inconsistent clinical approaches and care team misunderstanding (Zweben et al., 2021). Nurse-led protocols function as standardized procedures that guide practitioners to provide evidence-based methods for effective pain management solutions during treating patients with OUD (Acampora et al., 2020).

Perioperative nurses take a central position in the patient care team by evaluating pain, managing medications, tracking medication effects, and providing patient information. Nurse-led initiatives produce tailored pain management plans to handle surgical pain in OUD patients while upholding their current buprenorphine therapy (Hickey et al., 2022). The development of organized buprenorphine continuation protocols enables nurses to prevent opioid withdrawal symptoms, together with uncontrolled pain, as well as harmful opioid-use relapses. Nurses obtain the power to petition for optimum pharmacologic and non-pharmacologic treatment options through protocols targeting OUD patients' requirements (Munday et al., 2020).

Studies have validated the safe usage of continuing buprenorphine therapy alongside other appropriate pain management options for perioperative patients to achieve pain control without compromising substance use disorder recovery (Vaismoradi et al., 2024). Implementation of this evidence remains challenging because health providers lack sufficient knowledge about the subject, and healthcare facilities encounter institutional policy challenges as well as societal

stigma against substance use disorder patients (Fang et al., 2025). Nurse-led approaches should maintain staff training with effective interdisciplinary communication and patient support measures because these limitations must be addressed to deliver the best possible postoperative care standards (Buresh et al., 2020).

In recent scientific investigations, research has proven that nurse-driven interventions lead to enhanced outcomes for vulnerable patient groups (Kohan et al., 2021). Flexible nursing treatment plans that understand OUD patients' multifaceted pain needs effectively reduce recovery time and medical complications and enhance patient satisfaction results (Smith et al., 2022). The nurse-driven approach enables patients to receive continuous care through excellent follow-up planning while delivering an entire wellness approach to health. A comprehensive standardization of nurse-led buprenorphine continuation protocols for postoperative pain care creates a solution to implement across surgical and addiction medical practice (Turner et al., 2022).

Recent OUD rate increases underscore the necessity of developing nurse-led protocols that efficiently manage postoperative pain using buprenorphine (Alexander et al., 2023). This research investigates buprenorphine continuation protocols led by nurses that could be incorporated into surgical care procedures for better pain results while reducing relapse rates through evidence-based patient care for OUD patients (Nunes et al., 2024). Nursing practice expansion in this area delivers simultaneous benefits to patient safety and creates healthcare environments suitable for vulnerable population recovery and resilience (Gordon, 2022).

## **Methodology**

The study used descriptive qualitative methods to investigate how nurses handle postoperative pain management in Opioid Use Disorder patients through buprenorphine continuation protocols. Qualitative research methods allowed researchers to understand nurses' perspectives and practical activities related to postoperative pain management in vulnerable patients with OUD. The researchers conducted their work within the Saidu Teaching Hospital, Swat surgical wards, because this facility accommodates a wide range of surgical patients with an OUD diagnosis. Nursing staff members who perform postoperative pain management on OUD patients in the surgical wards were selected as the target participants for this research. Data saturation objectives guided the purposive sampling, allowing researchers to choose 10 participants from the clinical field to participate in the study and gather relevant knowledge. The study included registered nurses with six months of patient postoperative care experience at surgical wards and had experience administering buprenorphine therapy to patients. The study excluded nurses from surgical units and those who did not participate or were unavailable during data collection procedures. The researchers selected participants based on strategic criteria to obtain meaningful data directly connected to their study objectives.

## **Data Collection Method**

Semi-structured interviews functioned as the data collection method since they let participants speak freely, yet maintain the important questions of investigation. The interview guide followed expert advice in addition to existing literature review findings. The interviews happened in secluded private areas of the hospital building to provide both comfort and confidentiality for participants. The interview duration was between 30 and 45 minutes, and participants were granted permission to audio-record their sessions.

## **Data Analysis**

Identity themes emerged through verbatim transcription of interviews that underwent thematic analysis to identify repeatable patterns. Data analysis adhered to Braun and Clarke's six-step thematic analysis method, which involved data familiarization followed by coding, theme generation, review, definition, naming, and report writing. The qualitative data management and organization process used NVivo software as the main platform.

### Ethical Considerations

The study received ethical validation through authorization from the Ethical Review Board of Saidu Teaching Hospital, which operates in the Swat district. Each subject provided consent for participation before beginning the data assessment process. The institute guaranteed data confidentiality and anonymity through its policy to replace participant names with a coding system. The participants received voluntary-based participation information, including their right to leave the study anytime without experiencing negative effects.

### Results

**Demographic Characteristics of Participants:** The research included 10 participating registered nurses. All participants provided nursing care in the surgical wards of Saidu Teaching Hospital, Swat, where they managed postoperative pain in patients with Opioid Use Disorder while administering buprenorphine. The study provides information about participants' demographics, including their gender, age, nursing experience duration, and experience treating OUD patients.

**Table 1: Demographic Characteristics of Participants**

Participant ID	Gender	Age (Years)	Total Nursing Experience (Years)	Surgical Ward Experience (Years)	Experience with OUD Patients (Years)
P1	Female	28	5	3	2
P2	Male	32	8	5	4
P3	Female	30	7	4	3
P4	Male	29	6	3	2
P5	Female	35	10	6	5
P6	Male	31	7	5	3
P7	Female	27	4	2	1
P8	Male	34	9	7	6
P9	Female	29	6	4	2
P10	Male	33	8	5	4

### Major Themes

Four main themes appeared through thematic analysis in nurse-reported experiences regarding postoperative pain care of OUD patients who kept using buprenorphine according to their treatment protocols. Buprenorphine maintenance therapy received emphasis from nurses both as a postoperative pain management solution and as protection against symptoms of withdrawal. Nurses developed customized pain treatment approaches based on patient-specific requirements to improve trust levels and outcome results. Widespread drawbacks included patients' fears, high tolerance levels, and negative social views that necessitated robust nursing advocacy. Nurses educated patients while actively providing evidence-based approaches to care, which supported better adherence outcomes.

**Table 2: Major Themes and Descriptions**

Theme	Description
1. Importance of Buprenorphine Continuation	Nurses emphasized maintaining buprenorphine therapy to manage pain effectively and safely.
2. Patient-Centered Pain Management	Tailoring pain management plans according to each patient's history, condition, and needs.
3. Challenges in Postoperative Pain Control	Difficulties managing pain due to stigma, patient fear, and opioid tolerance.
4. Role of Nurse Advocacy and Education	Nurses highlighted their role in educating patients and advocating for evidence-based care.

### Themes and Sub-Themes

The analysis of themes through deeper examination produced essential sub-themes, which showcased major elements of postoperative pain care delivered by nurses to patients with Opioid Use Disorder. The additional sub-themes expanded our understanding of nursing challenges, methods, and nurse duties for pain management and patient education practices. The study identifies how these components positively affect patient therapy results while promoting compliance with medical protocols.

**Table 3: Themes, Sub-Themes, and Descriptions**

Theme	Sub-Theme	Description
Importance of Buprenorphine Continuation	Medication Adherence	Nurses ensured continuous use of buprenorphine to prevent withdrawal and control pain.
	Coordination with Physicians	Collaboration between nurses and surgeons improved pain outcomes for OUD patients.
Patient-Centered Pain Management	Individualized Care Plans	Pain management approaches were tailored based on patient needs and opioid history.
	Monitoring and Adjustment	Regular pain assessments and therapy adjustments ensured optimal pain control.
Challenges in Postoperative Pain Control	Stigma and Bias	Nurses faced challenges due to bias against OUD patients within clinical teams.
	Managing High Pain Tolerance	Addressing patients' high opioid tolerance levels required creative pain management plans.
Role of Nurse Advocacy and Education	Patient Education on Buprenorphine	Nurses provided detailed information to patients regarding the importance of continuation.
	Advocacy for Nonjudgmental Care	Nurses actively promoted nonjudgmental approaches toward patients with OUD.

### Discussion

This research examined how nurses can manage postoperative pain in OUD patients by studying buprenorphine continuation protocols as their primary focus. The study findings highlighted essential information about maintaining buprenorphine treatments, patient-focused care, pain control barriers, nurse-based advocacy, and educational support. Previous research has established that OUD patients need critical adherence to their medications as the foundation for responding to pain and reducing withdrawal effects alongside recovery promotion (Liu et al., 2025). The nursing staff was crucial in maintaining postoperative buprenorphine treatment to lower possible risks that included uncontrolled pain alongside relapse events.

The study results demonstrated how custom-tailored pain management plans constitute an essential finding, as well as other main themes discovered during analysis. Saidu Teaching Hospital surgical wards nurses designed patient-specific pain management while considering their medical condition and individual background (Gizaw et al., 2022). The personalized care delivery method leads to better pain results and develops stronger relationships between healthcare providers and patients, according to Whitfield (2023). The healthcare practice diverges from general standardized pain management practices prevalent in many facilities because it specifically focuses on meeting individual patient requirements. Studies by Jones

(2024). show that personalized care enhances pain control outcomes through its method of treating the multiple aspects of pain in opioid-dependent patients.

Postoperative pain management proves difficult to handle among this specific patient group, according to study results. Staff at the healthcare facility displayed stigma towards nurses, along with patients who feared insufficient pain control and the difficulties of managing opioid tolerance, presented significant challenges (Rucinski & Cook, 2020). Prior research supports the findings about stigma that OUD patients face in healthcare settings, leading to bad medical experiences and difficulties with pain treatment (Jones, 2022). Advocacy nurses advocate for necessary medical interventions during patient care because such actions help cancel out potential prejudice, which affects patient treatment in clinical settings.

Postoperative pain management became especially difficult due to high opioid tolerance levels frequently found in patients with OUD. Research has confirmed that patients who consumed opioids previously need bigger doses of painkillers to get effective pain relief (Brown, 2024). The research study backs previous conclusions by showing that patients with opioid tolerance alongside OUD stigma encounter greater obstacles when nurses attempt to deliver proper pain management.

The study identifies nurses' essential role in patient education and evidence-based care advocacy. Study participants revealed that nurses worked actively to educate patients about continuing buprenorphine prescription while actively clearing misconceptions related to opioid use disorder. The results of Gallagher (2022) validate nursing interventions because they show how these approaches improve patient adherence rates, leading to enhanced clinical outcomes. The way nurses actively involve patients in treatment decisions reveals their key position for delivering educational content and helping patients maintain self-care during OUD management.

The research findings support mounting understanding that OUD patients require structured education to enhance pain control and medication adherence. The research conducted by Mardian et al. (2020) proves how patient outcomes benefit from nurse-governed educational efforts that foster more precise comprehension of pain treatment strategies and prescription instructions. Doctors have established the clear advantages of implementing structured educational programs for OUD patients, yet these vital interventions remain insufficient in resource-limited settings similar to the study mentioned here (Brousseau et al., 2022). Standardized nurse-led educational programs about buprenorphine continuation within surgical environments are necessary to enhance both pain management and recovery results.

This research provides important postoperative healthcare findings regarding patients with OUD, specifically in resource-limited hospital settings. The work of Garpenhag & Dahlman (2021) represents multiple studies that concentrate on Western healthcare facilities, which provide enhanced accessibility to specialized care compared to other settings (Veazie et al., 2020). Findings from our research create a distinct understanding of the conditions in a developing country healthcare system, which faces intense stigma alongside opioid tolerance and insufficient teaching programs (Compton et al., 2020). The results show the requirement for worldwide strategies that support both nurse-provided education platforms and better OUD patient care throughout the surgical period.

## Conclusion

The research study gives extensive details regarding nurse-directed pain management techniques for postoperative patients with OUD while emphasizing the requirement to keep buprenorphine treatments active. The findings support how individualized patient care sustained by nurse advocacy and educational programs remains essential to enhance pain treatment practices and patient outcomes. The quality of care for OUD patients remains inadequate because of stigma and opioid tolerance, and insufficient structured education programs, although implementation solutions are required for improvement. Future research will need to create structured educational programs led by nurses in various healthcare facilities

of both wealthy and developing nations because these efforts will improve postoperative pain care for OUD patients.

### Recommendations

The research demonstrates how registered nurses use buprenorphine continuation protocols as crucial tools for handling postoperative pain of patients with Opioid Use Disorder. The recommendation for better patient care includes deploying standardized educational programs led by nurses for pain management. In contrast, nurses need better training on OUD-specific pain challenges, and nurses must work to eliminate stigma through public awareness initiatives. For optimal care, it is crucial to build up nurse advocacy and develop interdisciplinary partnerships while exploring alternative pain management techniques that reduce opioid usage. Future studies must evaluate the success of these healthcare interventions as applied in underserved areas to enhance OUD treatment results worldwide.

### References

- Acampora, G. A., Nisavic, M., & Zhang, Y. (2020). Perioperative buprenorphine continuous maintenance and administration simultaneous with full opioid agonist: patient priority at the interface between medical disciplines. *The Journal of clinical psychiatry*, 81(1), 14112.
- Alexander, K., Smith, J. M., Gerolamo, A., & Bernhardt, J. (2023). The impact of nursing on health outcomes of people receiving medication for opioid use disorder: An integrative review. *Journal of Nursing Scholarship*, 55(3), 721-729.
- Biancuzzi, H., Dal Mas, F., Brescia, V., Campostrini, S., Cascella, M., Cuomo, A., ... & Miceli, L. (2022). Opioid misuse: a review of the main issues, challenges, and strategies. *International journal of environmental research and public health*, 19(18), 11754.
- Brousseau, N. M., Farmer, H., Karpyn, A., Laurenceau, J. P., Kelly, J. F., Hill, E. C., & Earnshaw, V. A. (2022). Qualitative characterizations of misinformed disclosure reactions to medications for opioid use disorders and their consequences. *Journal of substance abuse treatment*, 132, 108593.
- Brown, M. (2024). Enhancing Nurse Educators' Substance Use Disorder Knowledge (Doctoral dissertation, Wilmington University (Delaware)).
- Buresh, M., Ratner, J., Zgierska, A., Gordin, V., & Alvanzo, A. (2020). Treating perioperative and acute pain in patients on buprenorphine: narrative literature review and practice recommendations. *Journal of general internal medicine*, 35, 3635-3643.
- Cheung, C. K., Adeola, J. O., Beutler, S. S., & Urman, R. D. (2022). Postoperative pain management in enhanced recovery pathways. *Journal of Pain Research*, 123-135.
- Compton, P. A., Wasser, T. E., & Cheatile, M. D. (2020). Increased experimental pain sensitivity in chronic pain patients who developed opioid use disorder. *The Clinical journal of pain*, 36(9), 667-674.
- Echeverria-Villalobos, M., Stoicea, N., Todeschini, A. B., Fiorda-Diaz, J., Uribe, A. A., Weaver, T., & Bergese, S. D. (2020). Enhanced recovery after surgery (ERAS): a perspective review of postoperative pain management under ERAS pathways and its role on opioid crisis in the United States. *The Clinical journal of pain*, 36(3), 219-226.
- Fang, L., Xu, Y., Wu, B., & Wang, P. (2025). Nurse-Led Service Model for Outpatient Pain-Free Management Under Anesthesiologist Supervision: A Single Center, Observational Study in China. *Pain Management Nursing*.
- Gallagher, M. C. (2022). Examining the Relationship Between Primary Care Provider Emotional Intelligence and Glycemic Control.
- Garpenhag, L., & Dahlman, D. (2021). Perceived healthcare stigma among patients in opioid substitution treatment: a qualitative study. *Substance abuse treatment, prevention, and policy*, 16, 1-12.

- Gizaw, Z., Astale, T., & Kassie, G. M. (2022). What improves access to primary healthcare services in rural communities? A systematic review. *BMC Primary Care*, 23(1), 313.
- Gordon, J. (2022). Influence of Pain Management Education for Providers on Veterans Completing Opioid Use Disorder (OUD) Treatment. Saint Francis Medical Center College of Nursing.
- Gummin, D. D., Mowry, J. B., Beuhler, M. C., Spyker, D. A., Rivers, L. J., Feldman, R., ... & Weber, J. A. (2022). 2021 annual report of the National Poison Data System©(NPDS) from America's poison centers: 39th annual report. *Clinical Toxicology*, 60(12), 1381-1643.
- Hadland, S. E., Agarwal, R., Raman, S. R., Smith, M. J., Bryl, A., Michel, J., ... & Flinn, S. K. (2024). Opioid Prescribing for Acute Pain Management in Children and Adolescents in Outpatient Settings: Clinical Practice Guideline. *Pediatrics*, 154(5).
- Henningfield, J. E., Wang, D. W., & Huestis, M. A. (2022). Kratom abuse potential 2021: an updated eight factor analysis. *Frontiers in Pharmacology*, 12, 775073.
- Hickey, T., Abelleira, A., Acampora, G., Becker, W. C., Falker, C. G., Nazario, M., & Weimer, M. B. (2022). Perioperative buprenorphine management: a multidisciplinary approach. *Medical Clinics*, 106(1), 169-185.
- Hyland, S. J., Brockhaus, K. K., Vincent, W. R., Spence, N. Z., Lucki, M. M., Howkins, M. J., & Cleary, R. K. (2021, March). Perioperative pain management and opioid stewardship: a practical guide. In *Healthcare* (Vol. 9, No. 3, p. 333). MDPI.
- Hyland, S. J., Brockhaus, K. K., Vincent, W. R., Spence, N. Z., Lucki, M. M., Howkins, M. J., & Cleary, R. K. (2021, March). Perioperative pain management and opioid stewardship: a practical guide. In *Healthcare* (Vol. 9, No. 3, p. 333). MDPI.
- Jones, C. P. (2024). An Exploration of Turnover Intentions of Substance Abuse Treatment RNs During the COVID-19 Pandemic: A Qualitative Study.
- Jones, K. F. (2022). A Multimethod Approach to Understanding the Biopsychosocial Underpinnings of Chronic Cancer-Related Pain in Cancer Survivors (Doctoral dissertation, Boston College).
- Kohan, L., Potru, S., Barreveld, A. M., Sprintz, M., Lane, O., Aryal, A., ... & Viscusi, E. (2021). Buprenorphine management in the perioperative period: educational review and recommendations from a multisociety expert panel. *Regional Anesthesia & Pain Medicine*, 46(10), 840-859.
- Liu, L., Zhang, C., Bonny, A. E., & Nahata, M. C. (2025). Strategies to improve access to care for patients with opioid use disorder. *Annals of Pharmacotherapy*, 59(4), 378-389.
- Macintyre, P. E., Roberts, L. J., & Huxtable, C. A. (2020). Management of opioid-tolerant patients with acute pain: approaching the challenges. *Drugs*, 80, 9-21.
- Mardian, A. S., Hanson, E. R., Villarroel, L., Karnik, A. D., Sollenberger, J. G., Okvat, H. A., ... & Rehman, S. (2020). Flipping the pain care model: a sociopsychobiological approach to high-value chronic pain care. *Pain Medicine*, 21(6), 1168-1180.
- Munday, J., Higgins, N., Mathew, S., Dalglish, L., Batterbury, A. S., Burgess, L., ... & Coyer, F. (2020). Nurse-led randomized controlled trials in the perioperative setting: A scoping review. *Journal of Multidisciplinary Healthcare*, 647-660.
- Nunes, J. C., Costa, G. P., Weleff, J., Rogan, M., Compton, P., & De Aquino, J. P. (2024). Assessing pain in persons with opioid use disorder: Approaches, techniques and special considerations. *British Journal of Clinical Pharmacology*, 90(12), 2985-3002.
- Roselli, E. E., Deeb, G. M., & Sade, R. M. (2021). Should patients with opioid addiction have a second valve replacement for endocarditis?. *The Annals of Thoracic Surgery*, 111(2), 401-406.
- Rucinski, K., & Cook, J. L. (2020). Effects of preoperative opioid education on postoperative opioid use and pain management in orthopaedics: a systematic review. *Journal of orthopaedics*, 20, 154-159.



- Smith, K., Wang, M., Abdulkalikov, R., McAullife, A., Whitesell, D., Richard, J., ... & Quaye, A. (2022). Pain management considerations in patients with opioid use disorder requiring critical care. *The Journal of Clinical Pharmacology*, 62(4), 449-462.
- Strathdee, S. A., Bristow, C. C., Gaines, T., & Shoptaw, S. (2021). Collateral damage: a narrative review on epidemics of substance use disorders and their relationships to sexually transmitted infections in the United States. *Sexually transmitted diseases*, 48(7), 466-473.
- Turner, H. N., Oliver, J., Compton, P., Matteliano, D., Sowicz, T. J., Strobbe, S., ... & Wilson, M. (2022). Pain management and risks associated with substance use: Practice recommendations. *Pain management nursing*, 23(2), 91-108.
- Vaismoradi, M., Lillo Crespo, M., & Turjamaa, R. (2024). Nurse-Led Medication Management for Older People in Home Care: A Systematic Review of Evolving Nurse Responsibilities in Technology-assisted Care. *Home Health Care Management & Practice*, 10848223241283415.
- Veazie, S., Mackey, K., Peterson, K., & Bourne, D. (2020). Managing acute pain in patients taking medication for opioid use disorder: a rapid review. *Journal of General Internal Medicine*, 35, 945-953.
- Whitfield, M. M. (2023). Practicing on the verge: Nurse practitioner capability development in the care of individuals with opioid use disorder (Doctoral dissertation).
- Zweben, J. E., Sorensen, J. L., Shingle, M., & Blazes, C. K. (2021). Discontinuing methadone and buprenorphine: a review and clinical challenges. *Journal of addiction medicine*, 15(6), 454-460.