

Pre-Operative Anxiety and Coping Strategies in Relation to Post-Operative Recovery Management

Andrea Mae G. Arcamo, Sammy B. Taghoy, Cynthia S. Superable, Maebil Marie B. Go, Charry Jo P. Lian, Merasol O. Duyag

Misamis University, Ozamiz City, Philippines

DOI: <https://doi.org/10.47772/IJRISS.2026.100500255>

Received: 04 May 2026; Accepted: 09 May 2026; Published: 28 May 2026

ABSTRACT

Surgical procedures often elicit significant psychological responses among patients, which can influence their overall recovery experience and outcomes. This study examined the relationship between pre-operative anxiety, coping strategies, and post-operative recovery management among surgical patients, emphasizing how psychological responses prior to surgery and coping behaviors influence recovery outcomes such as pain management, physiological stability, complication prevention, and functional recovery. The study employed a descriptive-correlational research design and was conducted in a tertiary government hospital in Ozamiz City, Philippines. A total of 100 surgical patients undergoing elective procedures were purposively included in the study. Data were gathered through a researcher-made questionnaire and analyzed using the weighted mean, standard deviation, and Pearson's Product-Moment Correlation Coefficient. Patients demonstrated extremely elevated pre-operative anxiety, highly utilized coping strategies, and excellent post-operative recovery management. Pre-operative anxiety does not directly influence post-operative recovery management, whereas coping strategies such as emotion-focused coping and cognitive reframing contribute in limited and specific ways, indicating that recovery outcomes are largely shaped by other clinical and supportive factors. Healthcare providers may integrate structured anxiety screening, coping interventions, and continuous clinical management to enhance both psychological support and post-operative recovery outcomes among surgical patients.

Keywords: cognitive reframing, coping strategies, post-operative recovery, pre-operative anxiety, surgical patients

INTRODUCTION

The perioperative period, encompassing both preoperative and postoperative phases, plays a critical role in determining surgical outcomes, with psychological factors increasingly recognized as influential in recovery processes (Alanazi et al., 2024; Johnston, 2025; Salazar, 2022). The preoperative phase involves both physical and psychological preparation, while the postoperative phase focuses on recovery, stabilization, and prevention of complications (Banasiewicz et al., 2023; Bates et al., 2024; Loriga, 2025). Emerging evidence shows that pre-existing psychological conditions significantly affect recovery trajectories, pain perception, and length of hospital stay (Giordano et al., 2023; Giusti et al., 2022; Page et al., 2024). Heightened emotional distress can trigger physiological stress responses that impair immune function and tissue repair, whereas emotionally prepared patients tend to demonstrate better cooperation and faster recovery (Reza et al., 2023).

Pre-operative anxiety, characterized by fear of anesthesia, anticipated pain, and uncertainty about outcomes, is a common response among surgical patients (Krupic et al., 2025; Shebl et al., 2025). Studies consistently link high anxiety levels with increased postoperative pain, prolonged hospitalization, and delayed recovery (Ali, 2023; Syed et al., 2026; Tadesse et al., 2022). This is explained by physiological mechanisms in which anxiety activates the sympathetic nervous system, releasing stress hormones that suppress immune function and impair healing (Garza-Ulloa, 2024; Hinds & Sanchez, 2022; Oubaid, 2023). Additionally, patients with elevated anxiety often report lower satisfaction and greater discomfort during recovery (Ghobadi et al., 2024; Niyonkuru et al., 2025; Weinerman et al., 2023). Despite its impact, pre-operative anxiety is not consistently assessed in many healthcare settings, highlighting the need for focused investigation.

Coping strategies, defined as cognitive and behavioral efforts to manage stress, play a vital role in mitigating the effects of anxiety (Godor et al., 2024; Oorthuys et al., 2022; Leis et al., 2024). Adaptive strategies such as seeking information, engaging in social support, and practicing relaxation techniques are associated with reduced anxiety and improved emotional stability (Majumdar et al., 2025). Structured preoperative education enhances patient understanding and perceived control (Samadi, 2024; Oliveira et al., 2022; Zhuo et al., 2023), while interventions like guided imagery and breathing exercises reduce anxiety and pain perception (Aydin & Dogan, 2023; Lu et al., 2022). These coping mechanisms act as protective buffers against stress-related physiological effects (Hudson et al., 2025). However, limited research has explored how coping strategies interact with anxiety to influence measurable postoperative recovery outcomes.

Post-operative recovery management focuses on restoring physiological stability, controlling pain, and preventing complications (Disha, 2025; Silvetti et al., 2024), and is significantly influenced by patients' psychological preparedness (Akbari, 2025; Bates et al., 2024). Lower anxiety and effective coping are associated with faster recovery and reduced need for medical interventions (Chen et al., 2022), while prolonged stress responses may delay healing and increase complications (Chen, 2025; Ivascu et al., 2024; Reza et al., 2023). Although prior studies confirm the independent effects of anxiety and coping strategies (Ali, 2023; Shebl et al., 2025; Vasaya et al., 2024; Bondarchuk et al., 2023; Bondarchuk et al., 2024; Saiwan & Al-showaily, 2025), fewer have examined their combined influence, particularly in government hospital settings. This study addresses this gap by examining the relationship between pre-operative anxiety, coping strategies, and post-operative recovery management to inform perioperative nursing practice and improve patient outcomes.

Methods

The study employed a quantitative, descriptive-correlational design to examine the relationships among pre-operative anxiety, coping strategies, and post-operative recovery management among 100 elective surgical patients in a tertiary government hospital in Ozamiz City, Misamis Occidental. Using purposive sampling, respondents were selected based on specific inclusion criteria, and data were collected during March 2026. A standardized questionnaire was used to measure the levels of anxiety, coping strategies, and recovery outcomes across key dimensions such as fear, emotional regulation, social support, pain management, and functional recovery. Data were gathered through structured, ethically approved procedures ensuring informed consent, confidentiality, and minimal disruption to patient care. Statistical analysis included descriptive measures (frequency, percentage, weighted mean, and standard deviation) and inferential analysis using Pearson's correlation to determine relationships among variables, providing evidence on how anxiety and coping strategies influence post-operative recovery.

RESULTS AND DISCUSSIONs

Level of Pre-Operative Anxiety

The results show that patients experienced an extremely elevated level of pre-operative anxiety, characterized by high fear of surgery, fear of anesthesia, uncertainty about outcomes, and physiological symptoms, with an overall mean indicating consistently severe psychological distress before surgery. This anxiety reflects strong apprehension about the surgical procedure, concerns about anesthetic effects, and uncertainty regarding recovery, all of which are widely recognized as common responses among surgical patients and are linked to negative perioperative outcomes such as increased pain and delayed recovery. The presence of pronounced physiological symptoms also indicates that emotional distress is already manifesting in physical reactions, highlighting the close interaction between psychological and biological stress responses. The low variability of results further suggests that elevated anxiety is a common and consistent experience among patients. These findings underscore the importance of early identification and management of pre-operative anxiety, as it has significant implications for patient readiness, recovery outcomes, and the need for holistic perioperative care that addresses both psychological and physical well-being.

Level of Coping Strategies

The results reveal that patients demonstrated a highly utilized level of coping strategies in managing pre-operative stress, indicating strong engagement in adaptive cognitive and behavioral responses to surgical anxiety. Across all constructs, problem-focused coping, emotion-focused coping, social support seeking, and cognitive reframing, respondents consistently obtained high mean scores, suggesting that they actively employed multiple strategies to regulate emotional distress and prepare for surgery. Problem-focused coping reflects patients' efforts to obtain information, clarify uncertainties, and prepare for postoperative care, thereby enhancing their sense of control and readiness for the procedure. Emotion-focused coping further supports psychological stability through techniques such as relaxation and positive thinking, helping to reduce emotional and physiological stress responses. Likewise, social support seeking highlights the importance of interpersonal relationships in providing reassurance and reducing feelings of isolation, while cognitive reframing enables patients to view surgery more positively, thereby strengthening emotional resilience. The low variability in responses indicates that these coping behaviors are widely practiced and consistently applied among patients. The findings emphasize that patients are not passive recipients of surgical care but active participants who utilize diverse coping strategies to manage anxiety, highlighting the importance of strengthening these mechanisms through education and psychosocial support to further improve perioperative outcomes.

Level of Post-Operative Recovery Management

The results indicate that patients experienced excellent post-operative recovery management across all measured dimensions, reflecting effective clinical and nursing interventions in the perioperative period. High mean scores in pain management, physiological stability, complication prevention, and functional recovery suggest that patients recovered smoothly following surgery, with well-controlled discomfort, stable vital signs, minimized risk of complications, and a strong return to daily functioning. Pain was effectively managed, supporting early mobilization and improved comfort, while physiological stability reflects efficient monitoring and timely clinical response, ensuring safe progression of recovery. In addition, strong outcomes in complication prevention demonstrate the effectiveness of structured postoperative protocols, such as wound care, early ambulation, and patient education, in reducing surgical risks. The high level of functional recovery further indicates that patients were able to regain independence and resume normal activities more quickly, highlighting the success of rehabilitation and discharge planning. The low variability of responses suggests that these positive outcomes were consistently experienced across patients, underscoring the overall effectiveness of the recovery management system. Collectively, the findings emphasize that well-coordinated, patient-centered post-operative care is essential in ensuring optimal recovery outcomes and enhancing overall surgical success.

Significant Relationship Between the Level of Pre-Operative Anxiety and the Level of Post-Operative Recovery Management

The results show that pre-operative anxiety had no significant relationship with post-operative recovery management, as all correlations between anxiety constructs (fear of surgery, fear of anesthesia, uncertainty about outcomes, and physiological symptoms) and recovery indicators (pain management, physiological stability, complication prevention, and functional recovery) were weak and statistically insignificant. This suggests that although patients experienced varying levels of psychological distress before surgery, these did not translate into measurable differences in their recovery outcomes. The findings imply that structured clinical and nursing interventions—such as standardized pain management, continuous monitoring, early mobilization, and clear discharge planning may have effectively buffered or neutralized the potential negative effects of anxiety on recovery. Advances in anesthetic care, patient education, and perioperative protocols may also have contributed to stable physiological outcomes regardless of pre-operative emotional state. The consistency of non-significant results across all variables further indicates that recovery experiences were more strongly shaped by healthcare systems and the quality of clinical care than by psychological factors alone. Theoretically, this outcome aligns with stress and coping perspectives, which suggest that the impact of stress depends on appraisal and coping resources, and with nursing theories emphasizing the role of structured care in restoring patient stability. Overall, the findings highlight that effective perioperative management can ensure favorable recovery outcomes even in the presence of elevated pre-operative anxiety, reinforcing the importance of high-quality, standardized, and patient-centered surgical care.

Significant Relationship Between the Level of Coping Strategies and the Level of Post-Operative Recovery Management

The findings indicate that coping strategies have a mixed and domain-specific relationship with post-operative recovery management, rather than a uniform influence across all recovery indicators. Problem-focused coping and seeking social support showed no significant relationships with pain management, physiological stability, complication prevention, or functional recovery, suggesting that these strategies alone may not directly affect measurable recovery outcomes when strong clinical protocols and nursing interventions are in place. In contrast, emotion-focused coping was significantly associated with physiological stability and complication prevention, suggesting that emotion regulation techniques such as relaxation and mindfulness may positively influence biological recovery by reducing stress responses. Cognitive reframing showed the strongest effect, with a highly significant relationship with pain management, indicating that patients who interpret surgery more positively tend to experience better pain control, likely due to reduced emotional amplification of discomfort. These results suggest that while not all coping strategies directly influence recovery outcomes, specific adaptive strategies, particularly those involving emotional regulation and cognitive restructuring, can meaningfully contribute to certain aspects of recovery. Overall, the findings emphasize that coping plays a selective role in post-operative recovery, working alongside structured nursing care and clinical management to shape patient outcomes.

CONCLUSION

The study concludes that pre-operative anxiety among surgical patients was consistently high; however, it did not show a significant relationship with post-operative recovery management, suggesting that effective clinical and nursing interventions may mitigate its potential negative effects. Coping strategies, on the other hand, demonstrated a more selective influence, where emotion-focused coping and cognitive reframing showed significant relationships with specific recovery domains such as physiological stability, complication prevention, and pain management, while other coping strategies showed no significant effects.

Post-operative recovery outcomes were generally excellent, indicating that structured perioperative care systems play a dominant role in ensuring positive recovery regardless of patients' psychological states. These findings highlight that while psychological factors are important in the perioperative experience, their impact on recovery is largely shaped and buffered by the quality of nursing care and clinical management provided.

Recommendation

Healthcare institutions should continue strengthening standardized perioperative care protocols, particularly in pain management, monitoring, and complication prevention, to sustain high-quality recovery outcomes. Nurses and healthcare providers should integrate routine psychological assessment into pre-operative care to identify anxiety levels early and provide targeted interventions such as preoperative education and reassurance.

Moreover, hospitals should promote adaptive coping strategies, especially emotion-focused coping and cognitive reframing, through patient education, counseling, and relaxation techniques to further enhance patient comfort and recovery experience. Training programs for healthcare professionals should also emphasize holistic perioperative care that combines clinical excellence with psychological support to improve overall patient outcomes and satisfaction.

REFERENCES

1. Akbari, A. (2025). The effects of preoperative education on postoperative outcomes in cardiac surgery patients.
2. Alanazi, A. H. K., Alhazmi, A. M., Alruwaili, F. B., Alenzi, R. R. S., Alhazmy, A. M., & Alshammari, N. S. M. (2024). NURSING CARE FOR PATIENTS BEFORE AND AFTER SURGERY: STRATEGIES TO ENSURE SAFE AND EFFECTIVE RECOVERY. *Gland Surgery*, 9(2), 478-484.
3. Ali, N. N. (2023). Assessment of preoperative anxiety, its contributing factors, and impact on immediate postoperative outcomes among cardiac surgery patients-A cross-sectional study.

4. Banasiewicz, T., Kobiela, J., Cwaliński, J., Spychalski, P., Przybylska, P., Kornacka, K., ... & Kłęk, S. (2023). Recommendations on the use of prehabilitation, ie comprehensive preparation of the patient for surgery.
5. Bates, A., West, M. A., Jack, S., & Grocott, M. P. (2024). Preparing for and not waiting for surgery. *Current Oncology*, 31(2), 629-648.
6. Bondarchuk, O., Balakhtar, V., Pinchuk, N., Pustovalov, I., & Pavlenok, K. (2023). Adaptation of coping strategies to reduce the impact of stress and lonelines on the psychological well-being of adults. *Journal of Law and Sustainable Development*, 10(11).
7. Bondarchuk, O., Balakhtar, V., Pinchuk, N., Pustovalov, I., & Pavlenok, K. (2024). Coping with stressfull situations using coping strategies and their impact on mental health. *Multidisciplinary Reviews*, 7, 2024spe034.
8. Chen, L. (2025). Perioperative Inflammation and Immune Response in Anesthesia: Implications for Recovery and Postoperative Outcomes. *Journal of Cardiothoracic and Vascular Anesthesia*.
9. Chen, Y. Y. K., Soens, M. A., & Kovacheva, V. P. (2022). Less stress, better success: a scoping review on the effects of anxiety on anesthetic and analgesic consumption. *Journal of anesthesia*, 36(4), 532-553.
10. Folkman, S. (2023). Stress, coping, and health outcomes in medical populations: A 2023 perspective. *Journal of Health Psychology*, 28(2), 145–159.
11. Folkman, S., & Lazarus, R. S. (1980). An analysis of coping in a middle-aged community sample. *Journal of Health and Social Behavior*, 21(3), 219–239.
12. Garza-Ulloa, J. (2024). Theory for Anxiety Disorders. *Anxiety and Anguish-Psychological Explorations and Anthropological Figures: Psychological Explorations and Anthropological Figures*, 49.
13. Ghobadi, A., Moradpoor, H., Sharini, H., Khazaie, H., & Moradpoor, P. (2024). The effect of virtual reality on reducing patients' anxiety and pain during dental implant surgery. *BMC Oral Health*, 24(1), 186.
14. Giordano, N. A., Kent, M. L., Kroma, R. B., Rojas, W., Lindl, M. J., Lujan, E., ... & Highland, K. B. (2023). Acute postoperative pain impact trajectories and factors contributing to trajectory membership. *Pain Medicine*, 24(7), 829-836.
15. Giusti, E. M., Lacerenza, M., Gabrielli, S., Manzoni, G. M., Manna, C., D'Amario, F., ... & Castelnuovo, G. (2022). Psychological factors and trajectories of post-surgical pain: a longitudinal prospective study. *Pain Practice*, 22(2), 159-170.
16. Godor, B. P., van der Horst, F. C., & Van der Hallen, R. (2024). Unravelling the roots of emotional development: Examining the relationships between attachment, resilience and coping in young adolescents. *The Journal of Early Adolescence*, 44(4), 429-457.
17. Hinds, J. A., & Sanchez, E. R. (2022). The role of the hypothalamus–pituitary–adrenal (HPA) axis in test-induced anxiety: assessments, physiological responses, and molecular details. *Stresses*, 2(1), 146-155.
18. Hudson, G., Fung, C., Sureshkumar, D. S., Gómez-Restrepo, C., Uribe-Restrepo, J. M., Ariza-Salazar, K., ... & Kirkbride, J. B. (2025). Do coping mechanisms moderate the effect of stressful life events on depression and anxiety in young people? A case–control study from Latin America. *BMJ Mental Health*, 28(1).
19. Ivascu, R., Torsin, L. I., Hostiuc, L., Nitipir, C., Corneci, D., & Dutu, M. (2024). The surgical stress response and anesthesia: a narrative review. *Journal of Clinical Medicine*, 13(10), 3017.
20. Johnston, M. (2025). Perioperative models of care. *Medicine*, 53(1), 1-4.
21. Krupic, F., Krupic, M., Dervisevic, E., Kovacevic, M., & Bujakovic, T. (2025). Preoperative information as predictor of the patient's fear and anxiety before surgery Systematic review of qualitative and quantitative literature. *Saudi Journal of Anaesthesia*, 19(4), 487-493.
22. Kumar, R., Sharma, P., & Gupta, N. (2023). Postoperative recovery management and its impact on surgical outcomes. *International Journal of Surgery*, 110, 106734. <https://doi.org/10.1016/j.ijsu.2023.106734>
23. Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York, NY: Springer.
24. Lee, H., & Kim, S. (2023). Coping strategies and anxiety among caregivers of hospitalized patients: A transactional perspective. *Journal of Nursing Research*, 31(1), e182.
25. Lee, H., Kim, S., & Park, J. (2022). Application of Orem's self-care deficit nursing theory in post-operative orthopedic care. *Journal of Clinical Nursing*, 31(15–16), 2500–2512.
26. Leis, O., Sharpe, B. T., Pelikan, V., Fritsch, J., Nicholls, A. R., & Poulus, D. (2024). Stressors and coping strategies in esports: A systematic review. *International review of sport and exercise psychology*, 1-31.

27. Loriga, L. (2025). Pre-operative Risk Assessment and Post-operative Risk Behaviours. In *Body Integrity Dysphoria and the Ethical Dilemma of On-Demand Amputation: Redefining Wholeness: Identity, Autonomy, and the Moral Boundaries of the Human Body* (pp. 49-57). Cham: Springer Nature Switzerland.
28. Lu, Y. J., Lee, M. C., Chen, C. Y., Liang, S. Y., Li, Y. P., & Chen, H. M. (2022). Effect of guided imagery meditation during laparoscopic cholecystectomy on reducing anxiety: a randomized controlled trial. *Pain Management Nursing*, 23(6), 885-892.
29. Majumdar, J. R., Barton-Burke, M., Gilliland, J. L., & Jairath, N. N. (2025). Coping strategies and psychological distress in postoperative recovery: A repeated-measures study in women undergoing breast-conserving surgery. *Asia-Pacific Journal of Oncology Nursing*, 12, 100674.
30. Ni, K., Zhu, J., & Ma, Z. (2023). Preoperative anxiety and postoperative adverse events: A narrative overview. *Anesthesiology and Perioperative Science*.
31. Niyonkuru, E., Iqbal, M. A., Zhang, X., & Ma, P. (2025). Complementary approaches to postoperative pain management: a review of non-pharmacological interventions. *Pain and therapy*, 14(1), 121-144.
32. Oh, J., Lee, W., Ki, S., Suh, J., & Hwang, S. (2024). Assessment of preoperative anxiety and influencing factors in patients undergoing elective surgery. *Medicina (Kaunas)*, 60(3), 403.
33. Oliveira, P., Pires, R., Silva, R., & Sequeira, C. (2024). Design of a nursing psychoeducation program to reduce preoperative anxiety in adults. *Frontiers in Public Health*, 12, 1391764.
34. Oliveira, P., Porfirio, C., Pires, R., Silva, R., Carvalho, J. C., Costa, T., & Sequeira, C. (2022). Psychoeducation programs to reduce preoperative anxiety in adults: a scoping review. *International journal of environmental research and public health*, 20(1), 327.
35. Oorthuys, A. O., Ross, M., Kreukels, B. P., Mullender, M. G., & van de Grift, T. C. (2022, December). Identifying coping strategies used by transgender individuals in response to stressors during and after gender-affirming treatments—an explorative study. In *Healthcare* (Vol. 11, No. 1, p. 89). MDPI.
36. Orem, D. E. (2001). *Nursing: Concepts of practice* (6th ed.). St. Louis, MO: Mosby.
37. Oubaid, V. (2023). Psychological stress and the autonomic nervous system. In *Primer on the Autonomic Nervous System* (pp. 301-304). Academic Press.
38. Patel, R., & Kumar, S. (2023). Enhancing self-care in post-cardiac surgery patients: Application of Orem's theory. *Nursing Practice Today*, 10(2), 45–53.
39. Reza, T., Grezenko, H., Barker, C., Bakht, D., Faran, N., Yahya, N. A., ... & ALMADHOUN, M. K. I. K. (2023). Emotional stress and immune response in surgery: a psychoneuroimmunological perspective. *Cureus*, 15(11).
40. Saiwan, M. J., & Al-showaily, J. S. (2025). Psycho-educational programs: Enhancing coping strategies and mitigating anxiety in chemotherapy patients. *Babcock University Medical Journal*, 8(2), 360-377.
41. Salazar Maya, Á. M. (2022). Nursing care during the perioperative within the surgical context. *Investigacion y educacion en enfermeria*, 40(2).
42. Samadi, S. (2024). The effect of preoperative education on preoperative anxiety in patients waiting for surgery: a literature review.
43. Shebl, M. A., Toraih, E., Shebl, M., & Tolba, A. (2025). Preoperative anxiety and its impact on surgical outcomes: A systematic review and meta-analysis. *Journal of Clinical and Translational Science*, 9(1), e33.
44. Silva, F., Santos, L., & Oliveira, R. (2024). Physiological stability and enhanced recovery in postoperative patients: Evidence from tertiary care hospitals. *Frontiers in Public Health*, 12, 1432156. <https://doi.org/10.3389/fpubh.2024.1432156>
45. Silveti, S., Aloisio, T., & Bertini, P. (2024). Post-operative Implications. In *Fast-Track in Cardiac Anesthesia: Cardiac Surgery in the Era of ERAS* (pp. 229-237). Cham: Springer Nature Switzerland.
46. Syed, A., Menezes, T., Bisenius, A., Sic, A., & Knezevic, N. N. (2026). The Burden of Preoperative Stress: Biological Mechanisms and Postoperative Outcomes. *Brain Sciences*, 16(2), 219.
47. Tadesse, M., Ahmed, S., Regassa, T., Girma, T., Hailu, S., Mohammed, A., & Mohammed, S. (2022). Effect of preoperative anxiety on postoperative pain on patients undergoing elective surgery: Prospective cohort study. *Annals of medicine and surgery*, 73, 103190.
48. Weinerman, J., Vazquez, A., Schurhoff, N., Shatz, C., Goldenberg, B., Constantinescu, D., & Hernandez, G. M. (2023). The impacts of anxiety and depression on outcomes in orthopaedic trauma surgery: a narrative review. *Annals of medicine and surgery*, 85(11), 5523-5527.

49. Zhang, Y., Li, Q., & Wang, H. (2023). Postoperative pain management and recovery outcomes in elective surgery: A multicenter study. *Pain Management Nursing*, 24(3), 224–232. <https://doi.org/10.1016/j.pmn.2023.05.007>
50. Zhuo, Q., Ma, F., Cui, C., Bai, Y., Hu, Q., Hanum, A. L., ... & Liang, H. (2023). Effects of pre-operative education tailored to information-seeking styles on pre-operative anxiety and depression among patients undergoing percutaneous coronary intervention: A randomized controlled trial. *International Journal of Nursing Sciences*, 10(2), 174-181.