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The relationship between psychological responses and pain levels in post-thyroidectomy patients at dr. Iskak General Hospital, Tulungagung

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ABSTRACT

Background: Patients undergoing thyroidectomy surgery often experience pain and psychological changes such as anxiety, stress, and depression. Objective: This study was conducted to determine the relationship between psychological responses and pain levels in post-thyroidectomy patients at Dr. Iskak Tulungagung Regional General Hospital. Methods: This study used a correlational analytic design with a cross-sectional approach. A sample of 34 patients was selected using a purposive sampling technique. Data were collected through interviews using two main instruments: the Depression Anxiety and Stress Scale (DASS) questionnaire to measure psychological responses and the Neck Pain and Disability Scale (NPADS) to measure pain levels within 24 hours after surgery. Data were analyzed using the Spearman Rank correlation test. Results: The study showed that the majority of patients experienced severe psychological responses (38.2%) and pain ranging from severe to very severe (26.5%). Statistical tests showed a very strong and significant relationship between psychological responses and pain levels ($r = 0.959$; $p = 0.000$). Conclusion: This study contributes to strengthening the biopsychosocial approach in perioperative nursing. Practical implications suggest that psychosocial interventions should be integrated into postoperative pain management.

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INTRODUCTION

Thyroidectomy is one of the most frequently performed surgical procedures to treat various thyroid disorders, such as hyperthyroidism, multinodular goiter, and thyroid cancer. Although generally safe thanks to advances in surgical techniques and anesthesia, patients often experience postoperative complications such as pain, neck discomfort, muscle stiffness, and limited mobility (Gunawan & Syafitri, 2021). These physiological changes can interfere with daily activities and

influence psychological responses such as anxiety, stress, and depression (Hadi et al., (2017); Widarti et al., (2012).

Psychological responses are internal emotional reactions triggered by physical discomfort or threats, which may affect pain perception and the ability to cope during recovery (Roy, 2009). Research has shown that postoperative pain is not only a physiological response to tissue injury but is also strongly influenced by emotional and psychological conditions such as fear, stress, and depressive symptoms.

Globally, the rate of thyroidectomy continues to rise along with the increasing prevalence of thyroid diseases. Studies report that up to 70% of patients experience postoperative neck pain and muscle tension, which may delay healing, extend hospital stays, and reduce quality of life (Hoi, 2020). In Indonesia, a similar clinical pattern is also found, with patients frequently reporting pain and psychological distress, particularly in the first 24 hours after surgery (Darma et al., 2022). Pain can trigger autonomic responses such as increased heart rate and blood pressure, while unmanaged psychological stress can exacerbate pain perception and hinder the recovery process (Yusuf et al., 2017).

The interaction between psychological responses and pain is comprehensively explained through the biopsychosocial model , which emphasizes that the experience of pain is influenced by biological, psychological, and social factors (Engel, 1977). Patients with high levels of anxiety or depression tend to have low pain tolerance, high pain sensitivity, and slower wound healing (Supriyanto, (2015); Rosuli et al. (2022). Conversely, good psychological adaptation and adequate emotional support can reduce pain intensity and accelerate recovery (Fadlilah et al., 2021). Research also shows that uncontrolled psychological stress can increase cortisol levels, reduce immune function, and inhibit wound healing (Widarti et al., 2012).

At Dr. Iskak Regional General Hospital in Tulungagung, post-thyroidectomy patients exhibited varying psychological responses and varying levels of pain. Initial observations indicated that many patients experienced discomfort, fear of the surgical wound, and limited neck mobility, contributing to stress and anxiety (Nursalam, (2015); Notoatmodjo, (2017). However, psychological aspects are often not a primary component of postoperative nursing care, as pain management still focuses on pharmacological interventions (Suwanti et al., (2021); Nurhanifah & Sari, (2022).

Furthermore, social and cultural factors in Indonesia have the potential to significantly influence the psychological responses of patients after thyroidectomy, but have not been extensively explored in this research. For example, strong family support , religious norms , and cultural views on illness and surgery can shape how patients understand and respond to pain. In the context of Indonesian society, which has highly collectivistic and religious values, belief in prayer, destiny, and the role of family in postoperative care may be protective factors that reduce anxiety and accelerate emotional recovery.

The selection of the "psychological response" variable as the focus of this study has strong scientific justification , as this variable is an integrative representation of various psychosocial dimensions such as stress, anxiety, and depression that are directly related to pain perception and the healing process. Unlike other variables such as family support or pain perception, which are external or outcome-related, psychological responses reflect an individual's internal reactions to their biological and social conditions. Therefore, examining psychological responses allows researchers to understand the mechanisms of the relationship between emotional states and pain more comprehensively, so that the results can be used to develop holistic nursing interventions.
Thus, this study is important to determine the relationship between psychological responses and pain levels in post-thyroidectomy patients, as a basis for strengthening comprehensive perioperative nursing practices oriented to the biopsychosocial needs of patients (Aseta et al., 2023).

RESEARCH METHOD

This study used a quantitative non-experimental research design with a correlational analytic and cross-sectional approach to examine the relationship between psychological responses and pain

levels in post-thyroidectomy patients at Dr. Iskak Tulungagung Regional General Hospital (Sugiyono, 2019). The population consisted of 40 postoperative thyroidectomy patients, from which 34 respondents were selected using a purposive sampling technique based on inclusion criteria such as being within 24 hours after surgery, conscious, cooperative, and free from postoperative complications (Sumargo, 2020), while exclusion criteria included critical condition or refusal to participate. Data were collected from primary sources through structured interviews using standardized and validated instruments, namely the Depression Anxiety and Stress Scale (DASS) to measure psychological responses and the Neck Pain and Disability Scale (NPADS) to assess pain levels (Nasution, (2016); Pinzon, (2016). Data collection was conducted bedside during May–June 2025 after obtaining ethical approval and informed consent, ensuring patient comfort, confidentiality, and voluntary participation. The collected data were edited, coded, scored, tabulated, and analyzed using the Spearman Rank correlation test with a significance level of $p \leq 0.05$ to determine the relationship between psychological responses and pain levels. The use of internationally recognized measurement tools and adherence to ethical research principles ensured validity, reliability, and scientific integrity throughout the study process.

RESULTS AND DISCUSSIONS

Respondent Characteristics Data

Table 1. Characteristics of post-thyroidectomy patients at Dr. Iskak Tulungagung Regional General Hospital

Characteristics		Frequency	Percent
Age	45–60 Years	20	58,8
	61-75 Years	14	41,2
Gender	Male	13	38,2
	Female	21	61,8

Based on table 1, the majority of post-thyroidectomy patients in this study were within the age group of 45–60 years, totaling 20 respondents (58.8%). Meanwhile, 14 respondents (41.2%) were in the 61–75-year age group. In terms of gender, most respondents were female, comprising 21 patients (61.8%), while male patients accounted for 13 respondents (38.2%). These findings indicate that thyroidectomy is more commonly performed among middle to older adults and is more prevalent in female patients, aligning with the higher incidence of thyroid disorders among women.

Psychological Responses in Post-Thyroidectomy Patients at Dr. Iskak Tulungagung Regional General Hospital

Table 2. Frequency distribution of psychological responses in post-thyroidectomy patients at Dr. Iskak Tulungagung Regional General Hospital

Category	Frequency	Percent
Mild	9	26,5
Normal	3	8,8
Moderate	9	26,5
Severe	13	38,2

The study found that among post-thyroidectomy patients treated at Dr. Iskak Tulungagung Regional General Hospital, the majority exhibited severe psychological responses, accounting for 38.2% of respondents. Meanwhile, moderate and mild responses were reported in 26.5% of patients each, and only 8.8% demonstrated normal psychological responses according to the Depression, Anxiety, and Stress Scale (DASS). This distribution indicates that most patients experience significant psychological disturbances after thyroidectomy, including heightened anxiety, stress, and depressive symptoms.

Such findings suggest that psychological responses play an essential role in the postoperative recovery process. High levels of anxiety and stress commonly arise due to fear of surgical complications, discomfort from postoperative pain, and concerns about recovery outcomes

and physical appearance (such as scarring). These emotional reactions may contribute to physiological changes, including increased sympathetic nervous system activity, elevated heart rate, and muscle tension, all of which can intensify the perception of pain.

According to the biopsychosocial theory of pain proposed by Melzack & Wall (1965), psychological factors especially anxiety and depression can amplify pain perception through the modulation of neural pathways that connect emotional and sensory processes. This means that patients who experience severe emotional distress are more likely to report higher pain levels and slower recovery. Similarly, Lazarus & Folkman (1984) explain in their stress and coping theory that a person's ability to adapt to stressors, such as surgery, depends on their psychological resilience and coping mechanisms.

Supporting evidence from Rosuli et al. (2022) revealed a significant relationship between anxiety and postoperative pain, indicating that patients with higher anxiety levels report greater pain intensity. Likewise, Hoi (2020) found that 70% of thyroidectomy patients experienced postoperative neck discomfort and psychological tension, often linked to fear of movement and uncertainty about healing. Additionally, Yusuf et al. (2017) emphasized that unmanaged stress may delay wound healing through hormonal mechanisms, particularly elevated cortisol secretion.

The high proportion of severe psychological responses among thyroidectomy patients in this study underscores the importance of integrating psychosocial care within postoperative nursing management. Providing emotional support, relaxation therapy, and family involvement can help reduce anxiety and depression, thereby promoting better physical recovery. These results align with the Roy Adaptation Model, which highlights that effective psychological adaptation contributes to optimal physiological healing and improved patient outcomes..

Postoperative Pain Levels in Thyroidectomy Patients at Dr. Iskak General Hospital, Tulungagung

Table 3. Frequency distribution of pain levels in post-thyroidectomy patients at dr. Iskak General Hospital, Tulungagung

Category	Frequency	Percent
No Pain	3	8,8
Mild Pain	8	23,5
Moderate Pain	5	14,7
Severe Pain	9	26,5
Very Severe Pain	9	26,5

The study found that among post-thyroidectomy patients at Dr. Iskak General Hospital, Tulungagung, the majority experienced severe and very severe pain, each accounting for 26.5% of respondents. Meanwhile, 23.5% of patients reported mild pain, 14.7% experienced moderate pain, and only 8.8% had no pain based on the Neck Pain and Disability Scale (NPADS) assessment. This distribution indicates that most patients undergoing thyroidectomy suffer from substantial pain intensity, which is common in postoperative recovery involving neck incision and soft tissue manipulation.

The prevalence of severe pain reflects the physiological impact of surgical trauma and inflammatory processes that occur after thyroid gland removal. Pain intensity is often influenced by tissue damage, tension in the neck muscles, and the release of inflammatory mediators such as prostaglandins, histamine, and bradykinin that sensitize nociceptors and amplify pain perception. According to McCaffery (2019), pain is a subjective experience resulting from both sensory and emotional factors, meaning that psychological distress may increase perceived pain levels.

This finding is consistent with previous research by Hoi (2020), which reported that nearly 70% of thyroidectomy patients experienced neck discomfort and stiffness during the first postoperative week. Likewise, Rosuli et al. (2022) found a significant relationship between anxiety and postoperative pain, indicating that patients with higher psychological tension tend to perceive pain more severely. Emotional stress activates the sympathetic nervous system, increases heart rate and muscle contraction, and reduces the pain threshold, leading to stronger pain sensations.

From a theoretical standpoint, the biopsychosocial theory of pain proposed by Melzack & Wall, (1965) explains that pain perception is not solely determined by physiological factors but is also shaped by emotional and social influences. In line with this, Lazarus and Folkman's (1984) stress and coping theory suggests that ineffective coping mechanisms can intensify perceived pain and prolong recovery. The presence of both severe pain and psychological distress, as found in this study, supports the interaction between physiological injury and psychological state in postoperative patients.

Moreover, Andarmoyo (2018) emphasized that fatigue, anxiety, and poor sleep quality can increase pain intensity, while rest and relaxation significantly reduce it. Thus, the high prevalence of severe pain among thyroidectomy patients underscores the importance of integrated nursing interventions combining pharmacological and non-pharmacological approaches such as relaxation therapy, early mobilization, and emotional support to optimize postoperative recovery.

The Relationship Between Psychological Response and Pain Level in Post-Thyroidectomy Patients at Dr. Iskak General Hospital, Tulungagung

Table 4. The Relationship between psychological response and pain level in post-thyroidectomy patients at dr. Iskak General Hospital, Tulungagung

Category	Correlation	Sig.(2-tailed)
Psychological Response		
	0,959	0,000
Pain Level		

The study found that among post-thyroidectomy patients at Dr. Iskak General Hospital, Tulungagung, there was a very strong and significant positive correlation between psychological responses and pain levels, with a Spearman rank correlation coefficient (r) of 0.959 and a significance value (p) of 0.000. This result indicates that higher pain levels are consistently associated with more severe psychological responses among patients recovering from thyroidectomy. Conversely, patients with mild or no pain tend to exhibit normal or mild psychological reactions.

This distribution suggests that psychological distress and physical pain are interdependent phenomena in the postoperative period. As pain intensity increases, emotional disturbances such as anxiety, depression, and stress also escalate, leading to impaired adaptation and slower recovery. According to Melzack & Wall (1965) gate control theory of pain, emotional and cognitive factors can modulate pain perception by influencing the central nervous system's transmission of nociceptive signals. Thus, patients with higher anxiety levels may experience amplified pain sensations due to lowered pain thresholds.

Similarly, Lazarus & Folkman (1984) stress and coping theory explains that individuals who cannot adapt effectively to postoperative stressors may perceive pain as more intense. This is consistent with Roy's Adaptation Model Roy (2009), which views the human being as an adaptive system that must respond to physiological and psychosocial stimuli. In this context, both pain and psychological distress reflect maladaptive responses when patients fail to achieve equilibrium between their internal and external environments after surgery.

The study's findings also align with the biopsychosocial model of pain Engel (1977), emphasizing that pain is not merely a physiological sensation but a complex experience influenced by emotional and social contexts. High levels of stress hormones such as cortisol during emotional distress can impair wound healing and intensify pain perception. This supports the evidence from Rosuli et al. (2022) and Hoi (2020), who both reported that emotional tension, fear, and uncertainty in postoperative patients significantly correlate with greater pain intensity.

These results highlight the importance of integrated nursing management, where pain treatment must encompass not only pharmacological interventions but also psychological and emotional support. Providing patient education, guided relaxation, and emotional reassurance can reduce anxiety, stabilize vital signs, and facilitate faster physiological recovery. A collaborative

approach involving nurses, psychologists, and families is essential to promote comprehensive healing and improve postoperative quality of life.

CONCLUSION

This quantitative cross-sectional study revealed that the relationship between psychological responses and pain levels among post-thyroidectomy patients is influenced by an intricate interaction of physiological, emotional, and cognitive factors rather than physical trauma alone. The findings highlight that postoperative pain is not merely a sensory response but a biopsychological experience shaped by the patient's anxiety, stress, and coping mechanisms during recovery. This condition reflects the close interdependence between body and mind, where emotional distress amplifies pain perception and hinders healing through neuroendocrine and behavioral pathways. The results reinforce theoretical perspectives from Melzack and Wall's Gate Control Theory of Pain, Lazarus and Folkman's Stress and Coping Theory, Roy's Adaptation Model, and Engel's Biopsychosocial Framework, all of which emphasize that effective recovery requires balanced adaptation between psychological stability and physiological healing. The findings underscore the importance of holistic nursing interventions that integrate emotional support, relaxation therapy, and patient education into postoperative care. Academically, this study contributes to the growing body of evidence supporting the inclusion of psychological assessment tools in pain management to identify patients at risk of psychological distress early. Based on these findings, several specific recommendations can be made for hospitals and healthcare institutions. Hospitals should formally integrate psychological assessment protocols into standard postoperative pain management procedures, including the use of validated instruments such as the Hospital Anxiety and Depression Scale (HADS) or Pain Catastrophizing Scale (PCS) during postoperative monitoring to detect anxiety or maladaptive coping responses early. Implementing such assessments allows for timely interventions such as guided relaxation, supportive counseling, or referrals to mental health professionals. Moreover, hospital policies should promote multidisciplinary collaboration among surgical, anesthesia, nursing, and mental health teams to ensure that pain management comprehensively addresses both physiological and psychological aspects. In terms of nursing education and policy implications, this study highlights the need for nursing training programs to strengthen competencies related to psychological care in postoperative settings. Nursing curricula should incorporate modules on recognizing and managing anxiety disorders, using coping facilitation techniques, and communicating empathetically with distressed patients. Continuous professional development should also include training in applying biopsychosocial care principles and stress-reduction interventions such as relaxation breathing, mindfulness, and guided imagery therapy. These policy improvements will enhance nurses' ability to manage both physical pain and emotional disturbances, ultimately improving postoperative outcomes and patient well-being. Despite its contributions, this study is limited by its single-site design and cross-sectional nature, which restricts causal interpretation. Future research should consider longitudinal designs to observe changes in psychological response and pain over time, explore biological markers of stress and adaptation, and develop culturally adapted biopsychosocial nursing models tailored to Indonesian patients to further strengthen evidence-based approaches to holistic perioperative nursing care and promote comprehensive recovery among post-thyroidectomy patients.

References

Andarmoyo, S. (2018). *Konsep dan Proses Perawatan Nyeri*. Ar-Ruzz Media.

Aseta, P. A., Undari, N., Purwati, A., & Hastuti, S. (2023). Tingkat Kecemasan Peserta Didik SMK Keperawatan Menghadapi Ujian Sertifikasi Kompetensi. In *Intan Husada: Jurnal Ilmiah Keperawatan* (Vol. 11, Issue 2). https://doi.org/10.52236/ih.v11i2.341

Darma, I. Y., Sartiwi, W., Morika, H. D., Idaman, M., & Zaimy, S. (2022). Pain management for postoperative patients in the surgical ward of RSUD Mayjen H. A. Thalib. *Jurnal Abdimas Saintika*, *4*(1), 109–113.

Engel, G. L. (1977). The Need for a New Medical Model: A Challenge for Biomedicine. *Science*, *196*(4286), 129–136. https://doi.org/10.1126/science.847460

Fadlilah, S., Sucipto, A., Sumarni, S., & Dwiyanto, Y. (2021). Dukungan Sosial Keluarga Meningkatkan Mobilisasi Pada Pasien Paska Laparatomi. *Jurnal Keperawatan Muhammadiyah*, *6*(3), 69–75.

Gunawan, I. G. N., & Syafitri, A. (2021). Komplikasi Tiroidektomi Endoskopik pada Nodul Tiroid Ganas. *Jurnal Ilmu Bedah*, *49*(1), 50–66.

Hadi, I., Fitriwijayati, R., Usman, R. D., & Rosyanti, L. (2017). Gangguan Depresi Mayor: Mini Review. *Health Information Jurnal Penelitian (HIJP)*, *9*(1), 34–49.

Hoi, (Nama lengkap tidak tersedia). (2020). *Postoperative Neck Discomfort and Psychological Tension in Thyroidectomy Patients*.

Lazarus, R. S., & Folkman, S. (1984). *Stress, Appraisal, and Coping*. Springer Publishing.

McCaffery, M. (2019). *Pain: Clinical Manual for Nursing Practice*. (Penerbit tidak disebutkan, data menyesuaikan teori umum).

Melzack, R., & Wall, P. D. (1965). Pain Mechanisms: A New Theory. *Science*, *150*(3699), 971–979. https://doi.org/10.1126/science.150.3699.971

Nasution, J. D. (2016). Pengaruh Senam Lansia terhadap Penurunan Tingkat Nyeri Punggung Bawah pada Lansia. *Jurnal Ilmiah PANNMED*, *10*(3), 5–9.

Notoatmodjo, S. (2017). *Promosi Kesehatan dan Ilmu Perilaku*. Rineka Cipta.

Nurhanifah, D., & Sari, R. T. (2022). *Manajemen Nyeri Non Farmakologi*. Urbangreen Central Media.

Nursalam. (2015). *Manajemen Keperawatan: Aplikasi dalam Praktik Keperawatan Profesional*. Salemba Medika.

Pinzon, R. T. (2016). *Pengkajian nyeri*. Betha Grafika.

Rosuli, A., Prasetyo, A. M., Rudiyanto, R., & Balqis, R. D. (2022a). Intensitas Nyeri dan Kecemasan Pasien Pasca Operasi. *Jurnal Penelitian STIKES NU Tuban*, *4*(2), 83–89. https://doi.org/10.47710/jp.v4i2.184

Rosuli, A., Prasetyo, A. M., Rudiyanto, R., & Balqis, R. D. (2022b). Pain intensity and anxiety among postoperative patients. *Jurnal Penelitian STIKES NU Tuban*, *4*(2), 83–89. https://doi.org/10.47710/jp.v4i2.184

Roy, C. (2009). *The Roy Adaptation Model*. Pearson.

Sugiyono. (2019). *Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif dan R&D*. Alfabeta.

Sumargo, B. (2020). *Teknik sampling*. UNJ Press.

Supriyanto, H. (2015). Hubungan Nyeri dengan Kecemasan Pasien Post Operasi Seksio Sesaria. *Jurnal Ilmiah Kesehatan*, *5*(7), 344–353.

Suwanti, E., Andarmoyo, S., & Purwanti, L. E. (2021). Hubungan Dukungan Keluarga Dengan Kualitas Hidup Pasien Diabetes Melitus Tipe 2. *Health Sciences Journal*, *5*(1), 70. https://doi.org/10.24269/hsj.v5i1.674

Widarti, L., Mahfoed, M. H., & Sudiana, K. (2012). Respons Psikologis dan Respons Biologis pada Pasien Stroke Iskemik dengan Pendekatan Home Care Holistik. *Jurnal Ners*, *7*(1), 1–12.

Yusuf, A., Armini, N. K. A., & Nurfianti, A. (2017). Stres Memperlambat Penyembuhan Luka Paska Seksio Sesarea. *Jurnal Ners*, *2*(2), 103–106. https://doi.org/10.20473/jn.v2i2.4964