



	Gema WIRALODRA
	Editor-in-Chief: Yudhi Mahmud
	Publisher: Universitas Wiralodra

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To cite this article:

Nurfadillah, Wahyuningsih, S., Ramadhan, A. F., & Kisworo, N. T. H. (2025). Patterns and Mechanisms of Social Support In Reducing Preoperative Anxiety: A Scoping Review. *Gema Wiralodra*, 6(3), 470 – 482.

To link to this article:

<https://gemawiralodra.unwir.ac.id/index.php/gemawiralodra/issue/view/58>

Published by:

Universitas Wiralodra

Jln. Ir. H. Juanda Km 3 Indramayu, West Java, Indonesia

Patterns and Mechanisms of Social Support in Reducing Preoperative Anxiety: A Scoping Review

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Abstract

Preoperative anxiety is a common psychological problem experienced by surgical patients and may affect both physical and psychological readiness prior to surgery. Various nursing interventions and forms of social support have been developed to reduce preoperative anxiety; however, the scientific evidence regarding their patterns and underlying mechanisms remains fragmented. This study aimed to map the forms of social support, nursing interventions, and mechanisms involved in reducing preoperative anxiety among surgical patients. A scoping review methodology was employed, involving a literature search across four electronic databases. Articles that met the inclusion criteria were analyzed and mapped using a charting table covering study objectives, types of interventions or social support, underlying mechanisms, and reported outcomes. A total of 20 articles were included in this review. The findings indicate that informational support through preoperative education, emotional and professional support from healthcare providers, and non-pharmacological interventions such as breathing relaxation techniques and spiritual approaches play a significant role in reducing preoperative anxiety. The identified mechanisms include reduced uncertainty, enhanced psychological coping, and regulation of physiological stress responses. This scoping review highlights the importance of a holistic nursing approach in preoperative care and provides a foundation for the development of evidence-based interventions to improve the quality of care for surgical patients.

Keywords: Preoperative Anxiety, Social Support, Surgical Patients, Nursing Interventions

1. Introduction

Preoperative anxiety is a common psychological response experienced by patients prior to undergoing surgical procedures. This condition is not solely related to fear of the medical procedure itself, but also encompasses concerns about anesthesia, pain, potential complications, and uncertainty regarding surgical outcomes (Akutay and Ceyhan 2023; Oh et al. 2024). A growing body of evidence indicates that preoperative anxiety can influence patients' physiological responses and contribute to prolonged postoperative length of stay, highlighting the importance of identifying factors that may reduce anxiety in perioperative clinical practice (Baagil et al., 2023; Kassahun et al. 2022) Therefore, comprehensive non-pharmacological approaches that emphasize psychosocial aspects are needed to minimize preoperative anxiety, including the strengthening of protective factors that enhance patients' sense of safety and perceived control before surgery. In the context of perioperative nursing care, unmanaged preoperative anxiety may compromise patient cooperation, delay recovery processes, and increase the risk of adverse clinical outcomes, thereby underscoring the clinical importance of identifying effective, evidence-based psychosocial interventions.

Social support has been widely recognized as a key psychosocial factor in maintaining patients' mental health. It encompasses emotional, informational, and instrumental assistance provided by family members, friends, and healthcare professionals, which helps individuals cope with stress and anxiety in medical contexts (Acoba, 2024). Cross sectional studies have



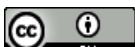
demonstrated that higher levels of social support are associated with lower levels of preoperative anxiety, with patients perceiving greater support reporting reduced anxiety prior to surgery (Ling et al. 2023;Krohne and Slangen 2005). These findings suggest that social support plays an important role in preparing patients' psychological condition before surgical intervention.

Empirical evidence from national contexts further supports these findings. Several studies conducted in Indonesia have reported a significant association between high levels of family support and lower preoperative anxiety among patients scheduled for surgery (Juwariyah et al. 2020;Suratmi et al. 2025). In addition, research conducted at Dr. Soepraoen Hospital in Malang found that greater family support was correlated with reduced anxiety in preoperative patients, further reinforcing the relationship between social support and patients' psychological well-being (Sandi et al., 2023). Collectively, these studies demonstrate consistent evidence that family support plays a crucial role in enhancing patients' psychological readiness prior to surgical procedures.

These findings are also consistent with the broader international literature, including systematic reviews and meta-analyses reporting a negative correlation between social support and preoperative anxiety among patients undergoing elective surgery. Nevertheless, the quality of the available evidence remains heterogeneous across studies, particularly in terms of research design and measurement methods (Ling et al., 2023). This variability underscores the importance of social support as a significant variable contributing to patients' psychological well-being during the preoperative phase. Although the beneficial effects of social support on preoperative anxiety have been widely reported, limitations persist in the literature regarding the understanding of specific patterns of social support and the psychological and biological mechanisms underlying its effectiveness across different types of surgery. The lack of a comprehensive mapping of the variations in social support and their mechanistic pathways highlights a knowledge gap that warrants further systematic exploration. Addressing this gap is essential to support nurses and healthcare professionals in designing targeted, holistic, and context-appropriate social support interventions that can be systematically integrated into perioperative clinical practice. Accordingly, this study was designed as a scoping review to map the patterns and mechanisms of social support reported in the clinical and scientific literature and to elucidate how such support contributes to the reduction of preoperative anxiety. The findings of this review are expected to provide a strong conceptual and empirical foundation for the development of more effective social support based interventions in perioperative clinical practice.

2. Methods

This study employed a scoping review approach to map various forms of social support, nursing interventions, and the mechanisms involved in reducing preoperative anxiety among surgical patients. The scoping review methodology was selected because it allows for a broad and comprehensive exploration of the literature across multiple sources and research designs relevant to the topic under investigation. Through this approach, existing scientific evidence can be systematically identified, categorized, and analyzed in accordance with the study objectives. The development of the scoping review in this study was guided by the framework proposed by Arksey and O'Malley (Arksey & O'Malley, 2005). The steps undertaken included formulating clear and focused research questions, conducting a search for relevant articles, selecting literature that met the inclusion criteria, and extracting the data. Subsequently, the obtained data were organized, summarized, and analyzed.



Stage 1: Research Question

What are the patterns, sources, and mechanisms of social support in reducing preoperative anxiety among patients undergoing surgical procedures?

Stage 2: Identification of Relevant Studies and Search Terms

A systematic literature search was conducted across several electronic databases, including PubMed, Neliti, Garuda, and Google Scholar, using combinations of keywords related to social support and preoperative anxiety with the aid of the Boolean operators AND and OR (**Table 1**). Table 1 provides a detailed overview of the database search strategy used in this scoping review. It outlines the databases searched, the keywords and search terms applied, and the number of articles identified from each database, thereby ensuring transparency and reproducibility of the literature search process. The inclusion and exclusion criteria for this scoping review were defined based on the Population–Concept–Context (PCC) framework. The review included primary studies employing both qualitative and quantitative research designs. Studies involving pediatric populations were excluded, and the search was limited to full-text articles only (**Table 2**).

Table 1.

Database Search Keywords

Database	Keywords	Articles	Access data
PubMed	(“Social Support” OR “Family Support” OR “Emotional Support” OR “Informational Support”) AND (“Preoperative Anxiety” OR “Surgical Anxiety”) AND (“Surgical Patients” OR “Preoperative Patients”)	417904	17 October 2025
Garuda	Dukungan keluarga dan kecemasan praoperasi	1	17 October 2025
Neliti	Social support" AND "preoperative anxiety" AND "hospital patients"	10.000	17 October 2025
Google Scholar	social support" AND "preoperative anxiety" AND "surgical patients	113000	17 October 2025

Table 2.

Article Eligibility Criteria

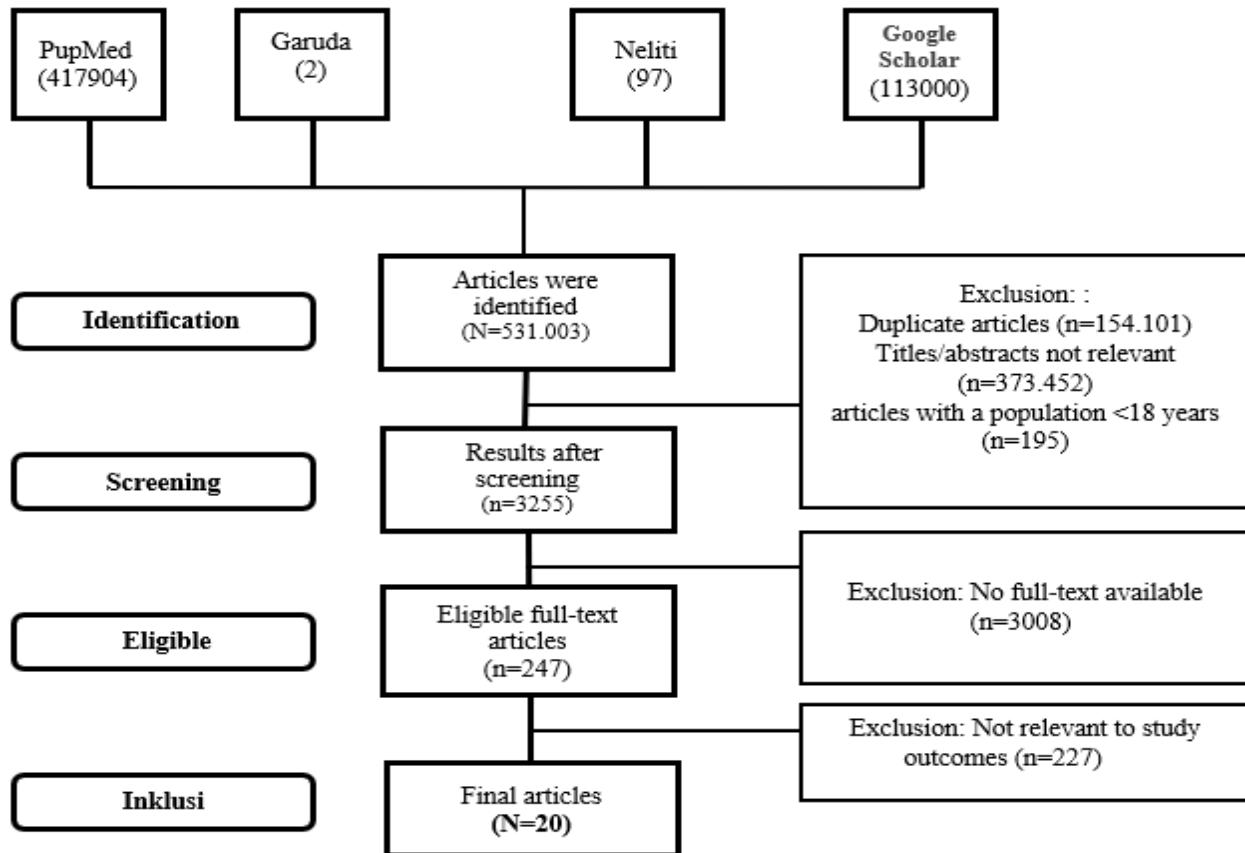
PCC	Eligibility Criteria
Population	Patients scheduled for surgical procedures (preoperative patients)
Concept	Social support (emotional, informational, and instrumental) and its mechanisms in reducing preoperative anxiety
Context	Perioperative healthcare services in hospitals or healthcare facilities

Stage 3: Study Selection

The processes of article identification, screening, and selection were conducted in stages and are presented in the PRISMA flow diagram in the following figure. Figure 1 illustrates the study selection process in this scoping review, including the identification of records from multiple databases, followed by screening and eligibility assessment stages. The diagram also outlines the reasons for article exclusion at each stage, resulting in the final selection of studies included in the review.



Figure 1.
PRISMA flow diagram of study selection.



Stage 4: Data Extraction

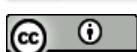
Data were extracted to capture key information, including the authors and year of publication, study objectives, patterns of social support, mechanisms of social support, and reported outcomes.

Table 3.
Mapping of Social Support in Preoperative Anxiety

Authors, Year	Objective	Patterns of Social Support	Underlying Mechanisms	Results
(Ding et al., 2025)	Reducing Patients Preoperative Anxiety	Emotional support through preoperative music intervention	Emotional regulation and reduction of stress responses (psychological and neurophysiological)	Reducing preoperative anxiety and improving patient satisfaction
(Degree et al., 2023)	Reducing preoperative anxiety and improving operative cooperation in elderly patients	Informational and emotional support through two way communication (teach-back) between nurses and patients	Preoperative education was delivered in stages, with patients asked to restate the information in their own words, followed by clarification and	Preoperative anxiety decreased, intraoperative cooperation improved, perioperative knowledge

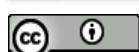
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			reinforcement until adequate understanding was achieved.	increased, and physiological stress responses (blood pressure and heart rate) became more stable.
(Li et al., 2021)	Reducing preoperative anxiety among patients awaiting outpatient surgical procedures	Emotional and non-pharmacological therapeutic support through a machine-assisted hand massage intervention facilitated by healthcare professionals	Tactile stimulation of the hands induces relaxation, reduces sympathetic nervous system activation, enhances parasympathetic activity, and provides a sense of comfort and being cared for.	A significant reduction in preoperative anxiety was observed (decreased STAI-S scores), with no significant changes in vital signs.
(Peng et al., 2020)	Reducing preoperative anxiety	Informational and emotional support through interactive preoperative communication with anesthesiologists via a digital platform (ASP)	Improved understanding of anesthesia and increased feelings of safety and trust in healthcare professionals	Reduced preoperative anxiety, improved general well-being, and shortened length of hospital stay (LOS).
(Abadi et al., 2018)	Reducing preoperative anxiety in patients undergoing surgery	Emotional and non-pharmacological therapeutic support through acupressure intervention delivered by healthcare professionals	Application of pressure to specific acupressure points helps patients become more relaxed and calm, thereby reducing anxiety.	Preoperative anxiety decreased
(Moharam et al., 2025)	Reducing perioperative anxiety and stress in patients undergoing total hip arthroplasty	Emotional and non-pharmacological therapeutic support through virtual reality intervention facilitated by healthcare professionals	Patients' attention was redirected to a calming virtual environment (nature scenes and soft music), promoting relaxation and a sense of calm.	Perioperative anxiety and stress decreased
(Karalar et al., 2023)	Reducing preoperative anxiety in patients with kidney stones undergoing flexible ureteroscopic lithotripsy	Informational support (video)	The video provided clear visual explanations of the surgical procedure and anesthesia, enhancing patients' understanding, reducing confusion, and promoting a sense of calm.	Preoperative anxiety decreased (lower APAIS and STAI-State scores), informational needs were reduced, and patients' willingness to undergo



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(Yuzkat et al., 2020)	Reducing preoperative anxiety and stabilizing hemodynamics in hypertensive patients undergoing surgery	Informational support (operating room orientation)	Patients were directly introduced to the operating room environment, enhancing their understanding, familiarity, and preparedness; confusion and fear were reduced, and stress responses decreased.	surgery again increased. Anxiety decreased and hemodynamics became more stable
(Kanyeki et al., 2022)	Reducing preoperative anxiety (state and trait anxiety) in adult patients undergoing elective cesarean section	Preoperative video-based information provision	The video provided clear visual explanations of the cesarean procedure and anesthesia.	A significant decrease was observed in preoperative state anxiety scores, while trait anxiety scores showed no significant change.
(Garson, 2019)	Reducing preoperative anxiety in patients scheduled for knee replacement surgery	Informational support through motivational interviewing conducted by nurses	Empathy and focused communication	A significant reduction in anxiety was observed
(Platto et al., 2019)	Reducing preoperative anxiety in patients undergoing dermatologic surgery	Informational support (animated video)	The animated video provided a simple and visual explanation of the surgical procedure, enhancing patient understanding, reducing confusion, and promoting a sense of calm.	Animated educational video during surgical consultation can reduce preoperative anxiety
(Zhou Baozhu & Zhenzhen Hu, 2025)	Reducing perioperative anxiety in patients undergoing open-heart surgery	Emotional and informational support through a combination of music listening and preoperative education	Promoting relaxation and enhancing understanding	The combination of music and preoperative education provides an effective anxiolytic effect
(Khoram et al., 2020)	Reducing preoperative anxiety in patients undergoing open-heart surgery	Emotional and non-pharmacological therapeutic support through acupressure intervention delivered by healthcare professionals	Application of pressure to specific acupressure points (Yintang [EX-HN3], Shenmen [HT7], and Fengchi [GB20])	Preoperative anxiety decreased



Orginal Article

(Annisa & Suhermanto, 2019)	Analyzing the relationship between family support and preoperative anxiety levels in patients in Indonesia	Family support (emotional, informational, instrumental, and appraisal)	Family presence and involvement provide a sense of safety, reduce fear and anxiety, and help patients manage their emotions before surgery.	Preoperative anxiety was lower
(Farahnaz Farnia et al., 2019)	Comparing the effectiveness of nurse-led and peer-led education methods in reducing preoperative anxiety in infertile women	Professional Informational Support (education provided by nurses) and Peer Informational Emotional Support (education provided by peers with similar experiences)	Nurse-led education enhanced cognitive understanding and trust in medical procedures, while peer-led education increased empathy, a sense of togetherness, and emotional validation.	Both methods effectively reduced preoperative anxiety, but the peer-led approach showed a more significant decrease.
(Silviani et al., 2021)	Examining the effect of finger grip relaxation technique on preoperative anxiety levels in patients undergoing cesarean section	Emotional and instrumental support facilitated by nurses through direct guidance of relaxation techniques	Somatosensory stimulation of the fingers enhances relaxation, reduces sympathetic nervous system activity, and improves patients' self-control and sense of safety	The finger grip relaxation technique significantly reduced preoperative anxiety levels in cesarean section patients.
(Zahroh & Maslahatul, 2017)	Analyzing the effect of slow deep breathing technique on preoperative anxiety levels in cesarean section patients	Emotional and instrumental support facilitated by nurses through guidance and supervision of breathing exercises	Slow deep breathing activates the parasympathetic nervous system, reduces sympathetic activity, lowers heart rate, and decreases stress responses.	A significant reduction in preoperative anxiety levels was observed in cesarean section patients following the intervention.
(Aisah et al., 2021)	Examining the effect of deep breathing relaxation technique on preoperative anxiety levels	Pattern of Professional Therapeutic Support through therapeutic interaction and guidance	Therapeutic interaction enhances patients' sense of safety, self-control, and adaptive coping.	The deep breathing relaxation technique significantly reduced preoperative anxiety levels.
(Tamah & Yulia, 2019)	Analyzing the relationship between preoperative information provision and patients' anxiety levels	Informational support provided by healthcare professionals regarding the surgical procedure, risks, and preparation	Provision of information enhances patient understanding, reduces uncertainty, and lowers perceived threat related to the surgical procedure.	A significant relationship was found between preoperative information provision and reduced patient anxiety levels.
(Cahyanto et al., 2025)	Exploring the experiences of	Emotional support from healthcare	Therapeutic relationship	Patients reported



surgical patients in coping with preoperative anxiety	professionals and family through empathy, accompaniment, and reassurance	enhances patient trust and strengthens emotional coping	reduced anxiety when receiving empathy and attention from healthcare professionals.
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Stage 5: Synthesis of Research Findings

In the fifth stage, the results of studies meeting the inclusion criteria were compiled and summarized to provide a comprehensive overview of the topic under investigation. Data from each article were extracted and mapped using tables that included the study objectives, patterns of social support, identified social support mechanisms and coping strategies, and the main findings. Subsequently, these findings were analyzed narratively and grouped into key themes, including informational support, emotional support, professional support, and the physiological and psychological mechanisms involved in reducing preoperative anxiety. This process aimed to comprehensively map the available evidence in accordance with the characteristics and objectives of the scoping review approach.

3. Results and Discussion

Results

A total of 20 articles meeting the inclusion criteria were analyzed in this scoping review. These studies included quantitative, qualitative, and mixed-method designs, focusing on preoperative anxiety among various surgical patient groups. Mapping of the findings indicated that social support and non-pharmacological nursing interventions were consistently reported to play a role in reducing preoperative anxiety. Informational support, particularly through preoperative education and information provision, emerged as the most dominant theme. In addition, emotional and professional support from healthcare professionals, delivered via therapeutic communication and guidance, also contributed to anxiety reduction. Several articles reported the effectiveness of relaxation interventions (deep breathing, slow deep breathing, finger grip relaxation), psychoeducation, and spiritual interventions (e.g., Murattal therapy), which operated through physiological and psychological mechanisms to enhance patients' adaptive coping.

Discussion

This scoping review demonstrates that the reduction of preoperative anxiety is not the result of a single intervention but rather the outcome of the interaction between informational, emotional, professional, and social support received by patients prior to surgery. Among the 20 analyzed articles, a relatively consistent pattern emerged, showing that patients who received comprehensive support tended to exhibit lower anxiety levels and better readiness for surgical procedures.

Informational support as the foundation of patients' psychological preparedness

The findings indicate that informational support was the most frequently reported form of support and the most consistently associated with reductions in preoperative anxiety. Preoperative education through videos, operating room orientation, digital communication, and teach-back approaches helped patients gain a clearer understanding of surgical procedures and anesthesia (Peng et al., 2020; Karalar et al., 2023; Yuzkat et al., 2020; Degree et al., 2023). Adequate understanding reduces uncertainty, fear of the unknown, and perceived threats that often arise before surgery. This underscores that preoperative anxiety is often not solely an emotional response but also related to limited patient knowledge. Clearly structured, patient-centered education has been shown to enhance a sense of safety and trust in healthcare providers



and procedures, consistent with previous studies indicating that preoperative anxiety is often triggered by insufficient information (Johnston & Vögele, 1993). Therefore, informational support can be regarded as a fundamental basis for building patients' psychological readiness before surgery.

The role of emotional and professional support in enhancing coping

In addition to informational support, emotional and professional support from healthcare providers, particularly nurses, emerged as a key element in managing preoperative anxiety. Studies included in this review showed that therapeutic communication, empathy, nurse presence, and interpersonal relationship-focused approaches provided patients with a sense of safety and calmness (Annisa & Suhermanto, 2019; Cahyanto et al., 2025; Garson, 2019). Patients who feel heard and attended to are more likely to trust the care process. This aligns with social support theory, which posits that emotional support can function as a stress buffer in high-pressure situations (Jerath et al., 2006; Cohen & Wills, 1985; Of & Support, 1988). In the preoperative context, emotional support not only directly reduces anxiety but also helps patients develop more adaptive emotional coping strategies when facing uncertainty and fears related to surgery.

Effectiveness of non pharmacological relaxation based interventions

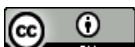
The review also indicated that various nurse-facilitated, non-pharmacological relaxation interventions effectively reduce preoperative anxiety. Techniques such as slow deep breathing, deep breathing relaxation, finger grip relaxation, hand massage, music, virtual reality, and acupressure work through complementary physiological and psychological mechanisms (Li et al., 2021; Zahroh & Maslahatul, 2017; Silviani et al., 2021; Ding et al., 2025; Moharam et al., 2025; Khoram et al., 2020). Physiologically, breathing and relaxation techniques activate the parasympathetic nervous system and reduce sympathetic responses, helping stabilize heart rate and stress responses (Jerath et al., 2006; Lehrer et al., 2014). Interventions such as finger grip relaxation and hand massage provide distraction and enhance patients' sense of control, contributing to anxiety reduction. These findings reinforce evidence that nursing-based non-pharmacological interventions are safe, easily implemented, and relevant in preoperative clinical practice.

Social, peer, and spiritual support in cultural context

Several studies highlighted the importance of social support from family and peers, as well as approaches considering patients' cultural and spiritual context. Family support was associated with lower preoperative anxiety, as the presence of family provided a sense of safety, emotional validation, and meaningful psychological support (Annisa & Suhermanto, 2019). Peer-based education was more effective than professional education in certain groups due to empathy and shared experiences (Farnia et al., 2019). Spiritual and psychoeducational interventions, including Murattal therapy, were reported to provide inner calm and help patients positively interpret the preoperative experience, particularly for those with strong cultural and religious backgrounds. These findings align with previous research indicating that spiritual coping and religious meaning contribute to reducing anxiety and enhancing patients' readiness for medical procedures (Michaelis et al., 2020; Koenig, 2012).

Theoretical Implications

The findings of this scoping review provide important theoretical insights into the role of social support as a multidimensional mechanism for reducing preoperative anxiety. The synthesis of evidence indicates that social support operates through interconnected informational, emotional, professional, and cultural pathways, reinforcing stress-buffering theories that emphasize the protective role of social resources in psychologically demanding situations. Informational support reduces uncertainty and cognitive threat appraisal, while emotional and



professional support facilitate emotional regulation and adaptive coping during the preoperative phase.

This review also extends existing theoretical frameworks by highlighting that social support is not a singular construct but a dynamic process influenced by interpersonal relationships, cultural context, and spiritual meaning. By mapping diverse patterns and mechanisms of support across clinical settings, this scoping review addresses gaps in the literature where evidence has remained fragmented, thereby contributing to a more integrated conceptual understanding of how social support influences preoperative anxiety.

Practical (Clinical) Implications

From a clinical perspective, the findings of this review have important implications for perioperative nursing practice. The evidence suggests that social support should be considered a core component of non-pharmacological interventions aimed at reducing preoperative anxiety. Nurses play a crucial role in providing emotional reassurance, delivering clear and structured information, and facilitating family involvement to strengthen patients' psychological readiness before surgery.

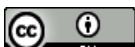
In practical terms, these findings support the integration of structured social support strategies into preoperative nursing care, such as preoperative counseling, patient education, and family-centered approaches. Incorporating these interventions into routine perioperative protocols may help reduce anxiety levels, improve patient cooperation, and potentially enhance postoperative recovery outcomes. Therefore, healthcare institutions are encouraged to recognize and optimize the role of social support within perioperative nursing care as part of a holistic approach to patient-centered surgical management.

Strengths And Limitations

The findings of this scoping review show that informational, emotional, and professional support play important roles in reducing preoperative anxiety in surgical patients. Clear preoperative education helps reduce patients' doubts and fears, while emotional support and therapeutic communication from nurses strengthen psychological coping mechanisms. Additionally, non-pharmacological interventions such as breathing relaxation techniques and spiritual approaches support anxiety reduction through physiological and psychological mechanisms, highlighting the importance of a holistic nursing approach in preoperative care. The strength of this scoping review lies in its comprehensive mapping of various forms of social support and nursing interventions across diverse study designs, providing a thorough overview of the patterns and mechanisms for reducing preoperative anxiety. However, the review is limited by its literature search being restricted to four databases, which may have resulted in some relevant studies being overlooked. Future reviews are recommended to expand database searches, include gray literature, and progress toward systematic reviews or meta-analyses to quantitatively evaluate the effectiveness of individual interventions.

4. Conclusion

This scoping review demonstrates that social support and non-pharmacological nursing interventions, particularly informational and emotional support, play crucial roles in reducing preoperative anxiety among surgical patients. Preoperative education, therapeutic communication, and various relaxation techniques help patients enhance understanding, strengthen coping, and regulate stress responses before surgery. Based on these findings, future research is recommended to examine the effectiveness of combined nursing interventions while considering patient characteristics and surgery types, thereby producing more comprehensive and applicable evidence for clinical nursing practice.



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