

Nursing-Led Interventions to Enhance Post-Bariatric Quality of Life: A Literature Review

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Abstract

Introduction. Bariatric surgery is a critical intervention for morbid obesity, yet 30-day hospital readmission rates remain a significant challenge for patient's quality of life and healthcare sustainability. Despite its relevance, a scientific gap remains regarding the synthesis of nursing-led management models. This review aims to identify and categorize clinical and psychosocial predictors and causes of readmission and describe nursing-led interventions and organizational strategies designed to reduce the healthcare burden.

Methods and Materials. A structured narrative review was conducted following SANRA guidelines. Based on a PICO framework, a search was performed across MEDLINE, Embase, and CINAHL databases between February - October 2024, with an integrative update conducted in December 2025. The review included studies published from January 2014 to December 2025. Inclusion criteria focused on studies describing specialized nursing interventions and outcomes like readmission or reoperation. Two independent reviewers performed the screening, resolving discrepancies via third party consensus.

Results. A total of 32 articles were included. Major predictors for readmission include a preoperative BMI >45 kg/m², surgical technique and low socioeconomic status. The most frequent clinical causes are often preventable, including abdominal pain, nausea, vomiting, and dehydration. Major nursing strategies include structured patient education, specialized bariatric nursing, and digital health tools for proactive monitoring. Nurse case management emerged as a core strategy for coordinating multidisciplinary care

Discussion. Preventing readmissions requires an analytical shift toward nursing-led risk stratification and proactive surveillance. Specialized nurses and case managers act as strategic bridges to healthcare equity, overcoming

socioeconomic and geographical barriers. Implementing autonomous nursing roles is essential for the long-term sustainability of bariatric programs, ensuring both clinical excellence and equitable care distribution, optimizing outcomes, improving patients' quality of life and reducing hospital readmission rates.

Keyword: Bariatric Surgery, Patient Readmission, Quality of Life, Obesity, Nursing-led Interventions

Introduction

Morbid obesity presents a growing global health challenge, affecting over 890 million adults worldwide and significantly impacting individuals and healthcare systems (World Health Organization, 2025; Chong et al., 2023; Murray et al., 2020; Rubino et al., 2023). Bariatric surgery is a widely used therapeutic option, intended to improve quality of life in individuals with obesity and to reduce mortality and obesity-related medical risk factors, yet it requires a holistic approach to optimize patient care (Collazo-Clavell & Shah, 2020; Eisenberg et al., 2022). Despite advancements in safety and technique, these procedures can cause metabolic, nutritional, and psychological challenges, increasing the risk of complications such as gastrointestinal disorders, dietary adaptation issues, and mental health concerns (Palermo & Nedelcu, 2021; Schulman & Thompson, 2017; Skelton et al., 2025).

Postoperative complications often lead to hospital readmissions, emergency visits, and additional procedures, raising healthcare costs and affecting patients' quality of life (Accardi, Fave, et al., 2017; Accardi, Lattuada, et al., 2017; Firat et al., 2024; Istituto Superiore della Sanità, 2023; Neil & Roberson, 2015; Schulman & Thompson, 2017). It is reported that readmission rates after bariatric procedures, ranging from 3% to 11% within 30 days, remain a critical concern for healthcare quality and sustainability (Altieri et al., 2018; Dang et al., 2020).

Complications associated with this type of surgical intervention may negatively affect quality of life. Nevertheless, obesity per se is frequently complicated by psychiatric comorbidities, such as depression, which contribute to diminished self-efficacy, body image dissatisfaction, social stigmatization, negative affect, and stress related to prejudice and hostile behaviors toward affected individuals (Neil & Roberson, 2015).

Team-based primary care models highlight the instrumental role of nurses in chronic disease management and prevention through nurse-led clinics, standardized protocols, and patient education (Griffin, 2017). Within this context, the nursing role is fundamental because they are often the primary point of contact for identifying early warning signs and managing the transition from hospital to home (Griffin, 2017; Piwowarczyk et al., 2024).

Effective management in post-intervention procedure requires structured follow-ups, early complication detection, and patient education to promote long-term health and self-care (Eisenberg et al., 2022; Istituto Superiore della Sanità, 2023). A multidisciplinary approach is reported to enhance surgical outcomes by integrating medical, nutritional, and psychological support (Graham et al., 2019). While surgical techniques have advanced, a significant gap remains in identifying a standardized, evidence-based synthesis that integrates clinical risk factors with specific nursing-led management models.

Therefore, this narrative review aims to identify and categorize the key clinical and psychosocial risk factors for hospital readmission and describe nursing-led interventions and organizational strategies designed to mitigate these risks and reduce the healthcare burden.

Methods and Materials

To address the objective of this study, a narrative literature review was developed following the SANRA guidelines (Baethge et al., 2019), while the PRISMA flow diagram (Page et al., 2021) was utilized to ensure transparency in the selection process. The research question was structured using the PICO framework:

- Population: Adult patients undergoing

bariatric surgery who experience complications such as hospital readmissions, emergency department visits, and reoperations.

- Intervention: Specialized nursing-led care models, interventions or organizational strategies aimed at post-discharge management.
- Comparison: Standard postoperative care (where applicable in the included studies)

- Outcome: Reduction in hospital readmissions, emergency visits, and avoidable reoperations, with the broader aim of lowering healthcare costs and improving patients' quality of life.

Relevant literature was identified between February 2024 and October 2024 using the MEDLINE, EMBASE, and CINAHL databases. A further supplementary search was carried out in December 2025. Search queries used for each biomedical database are detailed in Table 1.

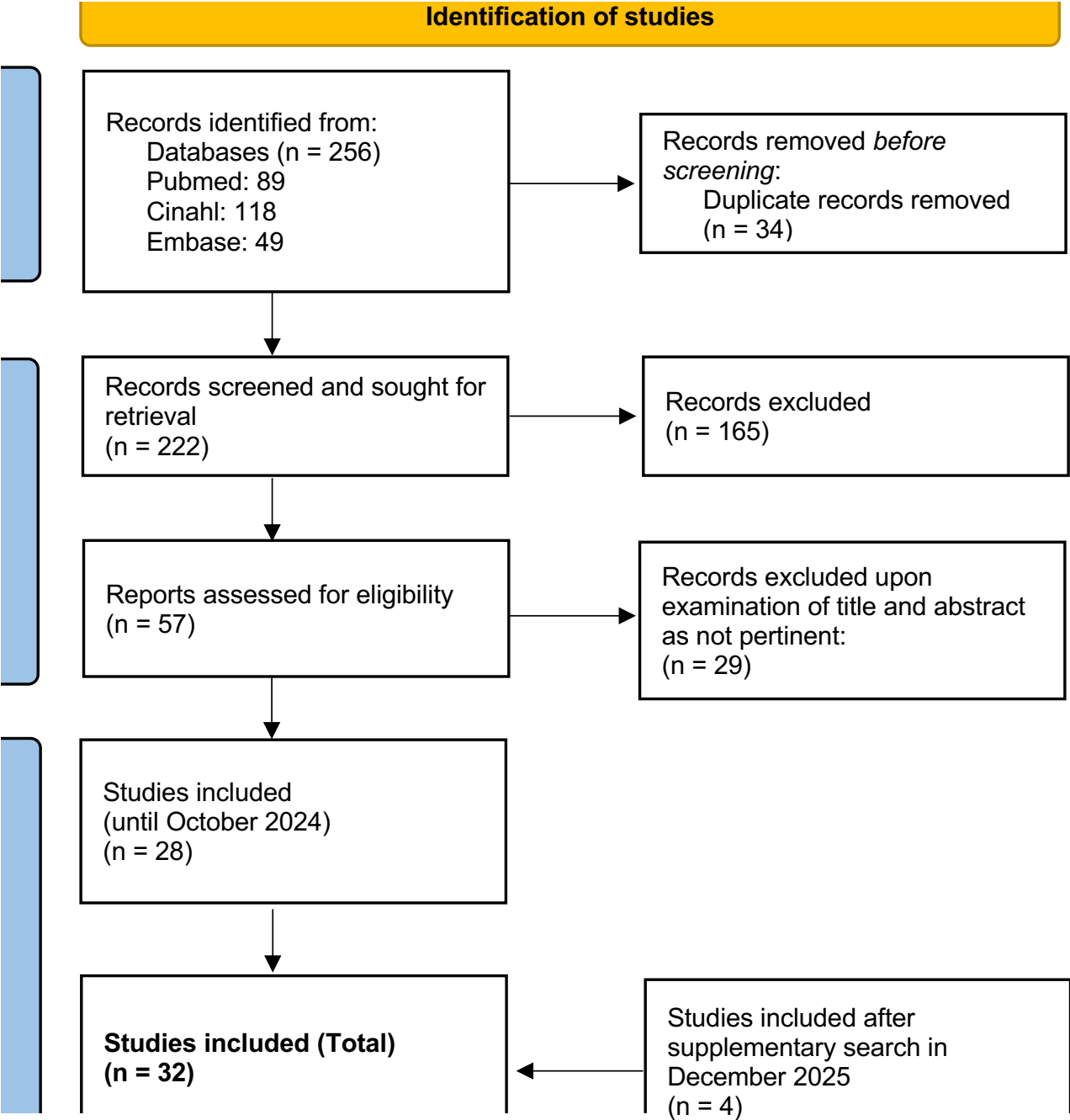


Figure 1. PRISMA Flow Diagram

Table 1. Queries.

Database	Search Queries
MEDLINE	((("Bariatric Surgery"[Mesh] OR ((gastric[tiab] OR stomach[tiab]) AND (bypass[tiab] OR banding[tiab])) OR ((obes*[tiab] OR weight[tiab]) AND (surg*[tiab] OR operat*[tiab])))) AND ("Nursing"[Mesh] OR "Nursing Care"[Mesh] OR "Nurses"[Mesh] OR "Nurse-Patient Relations"[Mesh]))
EMBASE	'bariatric surgery'/exp AND 'nurse'/exp AND 'hospital readmission'/exp
CINAHL	((MM "Bariatric Surgery") OR TI (bariatr* or ((gastric or stomach) n3 (bypass or banding*)) or ((obes* or weight) n3 (surg* or operat*)))) AND (((MH "Nursing Care+") OR (MH "Nurses+") OR (MH "Nurse-Patient Relations") OR (MH "Nursing Role") OR (MH "Nurse Attitudes")) OR (MW "NU") OR (TI nurs* OR AB nurs*))

To minimize selection bias, two authors (CC and JL) independently screened the titles and abstracts of the retrieved records. Discrepancies regarding study eligibility were resolved through discussion and consensus with a third reviewer (RA). A total of 32 studies were ultimately included in this review, 28 from the initial search and 4 from the 2025 update.

Inclusion criteria comprised studies published between 2014 and 2025, focused on adult bariatric surgery patients, and explicitly describing nursing-led interventions. Studies were included if they addressed outcomes such as readmission, rehospitalization, reoperation, or complications related to bariatric surgery.

Exclusion criteria applied to studies involving pediatric populations and to publications that did not examine the role of nursing support during the follow-up phase.

Results

A total of 32 studies were included and reflects a variety of methodological approaches, including retrospective cohort studies, qualitative investigations, and interventional reports. Several common variables were identified, presented in the attached Table 2. To ensure conceptual clarity and hierarchy, variables were categorized as "Major" if they were reported in ≥ 4 included studies, and "Minor" if reported in fewer than 4 studies. This distinction addresses the need for a clearer synthesis of the most frequent predictors and outcomes. *Predictors of*

Table 2. Variables.

Category characteristics	Variable	N° of articles
Risk Factors	Major	
	Body Mass Index (BMI)	6
	Type of surgery	5
	Hospitalization duration	4
	Procedure duration	4
	Socio-economic status	4
	Home location	8
	Comorbidities	5
	Minor	
	Ethnicity	3
	Age	3
	ASA risk class III or IV	2
	Depression	2
	History of alcohol or cannabis abuse	2
	Discharge to rehabilitation	2
	Gender	2
	Psychiatric illness	1
Causes	Major	
	Abdominal Pain	11
	Nausea / Vomiting	9
	Dehydration	6
	Hemorrhage	4
	Anastomotic leak	7
	Surgical site infection	7
	Nutritional deficiencies	5
	Minor	
	Deep vein thrombosis	3
	Gallstone disease	3
	Sepsis	1
	Acute renal failure	1
	Weight issues (regain/loss)	1
	Incisional hernia	1
	Sleeve stenosis	1
	Gastroesophageal reflux	1
	Peritonitis	1
Strategies	Major	
	Patient education	8
	eHealth / Telemedicine	6
	Specialized nurses	10
	Case management	4
	Minor	
	Service access coordination	2
	Timely follow-up access	1
	Medication management	1
	Discharge care planning	1

Note. Variables were categorized as "Major" if they were reported in 4 or more included studies, and "Minor" if reported in fewer than 4 studies, based on an inductive frequency based threshold.

Readmission

Major Predictors: Obesity severity significantly correlates with readmission risk, with a preoperative BMI > 40 or 45 kg/m² being a key factor (Argueta et al., 2022; De Luca, 2017; Rashdan et al., 2024). Higher BMIs (> 50 or 60 kg/m²) further increase the risk, as does a BMI rise between the postoperative period and emergency visits (Garg et al., 2016; Kim et al., 2023; Rashdan et al., 2024; Tayne et al., 2014). The type of surgery is a critical predictor; readmission rates are higher for Mini Gastric Bypass, Sleeve Gastrectomy, and Roux-en-Y Gastric Bypass (De Luca, 2017; Ferreira-Santos et al., 2024; Kim et al., 2023). Laparotomy Roux-en-Y presents higher risks than laparoscopic or adjustable gastric banding (Rashdan et al., 2024), while adjustable gastric banding shows more readmissions than sleeve gastrectomy or Roux-en-Y (Ahmed et al., 2017).

Other major predictors include hospitalization duration (3 - 4 days) and procedure times over 120 minutes (Argueta et al., 2022; Garg et al., 2016; Kim et al., 2023; Tayne et al., 2014). Regarding socioeconomic factors, low income, disability, or government insurance increase readmission risk (Argueta et al., 2022; Kim et al., 2023; Tayne et al., 2014; Telem et al., 2016). Finally, pre-existing comorbidities as hypertension or diabetes, and a Charlson Comorbidity Index ≥ 3 predict readmissions (Ahmed et al., 2017; Dreifuss et al., 2022; Garg et al., 2016; Kim et al., 2023; Nijland et al., 2020), a home location with greater distance from healthcare facilities are confirmed major risk factors (Accardi, Fave, et al., 2017; Ahmed et al., 2017; Cooley, 2017; Dreifuss et al., 2022; Garg et al., 2016; Kim et al., 2023; Nijland et al., 2020; Telem et al., 2016).

Minor Predictors: Factors reported in fewer than 4 studies include advancing age (Ahmed et al., 2017; Argueta et al., 2022; Telem et al., 2016), ASA risk class III or IV (Argueta et al., 2022; Dreifuss et al., 2022), and ethnicity that also affects readmission rates, with African-Americans having a higher risk compared to Caucasians (Dreifuss et al., 2022; Garg et al., 2016; Telem et al., 2016). Psychological factors such as depression (Rashdan et al., 2024; Telem et al., 2016) or general psychiatric illness (Rocha et al., 2024) also influence outcomes. Additional minor predictors include a history of alcohol or cannabis abuse (Argueta et al., 2022; Kim et al.,

2023), discharge to rehabilitation centers (Telem et al., 2016). Gender differences in readmission rates remain inconclusive (Argueta et al., 2022; Dreifuss et al., 2022).

Clinical Causes of Readmission

Major Causes: The most frequent clinical cause of readmission is abdominal pain (Ahmed et al., 2017; Argueta et al., 2022; De Luca, 2017; Dreifuss et al., 2022; Garg et al., 2016; Hernández et al., 2023; Nijland et al., 2020; Patil & Melander, 2015; Rashdan et al., 2024; Tayne et al., 2014; Telem et al., 2016). This is often associated with nausea and vomiting (Ahmed et al., 2017; Argueta et al., 2022; Cooley, 2017; Dreifuss et al., 2022; Garg et al., 2016; Kim et al., 2023; Nijland et al., 2020; Rashdan et al., 2024, 2024; Telem et al., 2016), frequently leading to dehydration (Argueta et al., 2022; Dreifuss et al., 2022; Hernández et al., 2023; Rashdan et al., 2024; Tayne et al., 2014; Telem et al., 2016).

Other major drivers include gastrointestinal hemorrhages (Ahmed et al., 2017; Kim et al., 2023; Nijland et al., 2020) and anastomotic leakage (Ahmed et al., 2017; De Luca, 2017; Dreifuss et al., 2022; Garg et al., 2016; Hernández et al., 2023; Kim et al., 2023; Nijland et al., 2020). Surgical site infections and nutritional deficiencies are also categorized as major causes (Ahmed et al., 2017; Argueta et al., 2022; Cooley, 2017; Dreifuss et al., 2022; Garg et al., 2016; Hernández et al., 2023; Tayne et al., 2014).

Minor Causes: Although associated with high mortality, deep vein thrombosis is reported less frequently in this specific context (Argueta et al., 2022; Dreifuss et al., 2022; Tayne et al., 2014). Other minor causes include gallstone disease (Cooley, 2017; Hernández et al., 2023; Rashdan et al., 2024), nephrolithiasis (Collazo-Clavell & Shah, 2020), renal failure, peritonitis and sepsis (Argueta et al., 2022). Reoperation is typically triggered by minor-frequency causes such as incisional hernia, weight regain, sleeve stenosis, or gastroesophageal reflux (Hernández et al., 2023).

Nursing and Management Strategies

Major Strategies: Structured patient education and multidisciplinary programs are essential for promoting self-care and long-term health

(Finkelstein et al., 2025; Güven & Akyolcu, 2020; Huang et al., 2023; Li et al., 2024; Mendes et al., 2023; Pfeil, 2014; Williams & Derouin, 2025; Yıldız & Karagözoğlu, 2023). Digital health tools, including e-Health and telemedicine, provide critical home support and monitoring of clinical parameters (Arnaert et al., 2022; Huang et al., 2023; Maqueda-Martínez et al., 2024; Mendes et al., 2023; Pfeil, 2014; Yıldız & Karagözoğlu, 2023). Furthermore, specialized bariatric nurses significantly reduce readmissions and improve quality of life (Arnaert et al., 2022; Cheng et al., 2021; Coleman et al., 2016; Ferreira-Santos et al., 2024; Güven & Akyolcu, 2020; Huang et al., 2023; Maqueda-Martínez et al., 2024; Mendes et al., 2024; Mohammed et al., 2025; Yang et al., 2024). Nurse case management, also emerges as a major strategy, showing high effectiveness in coordinating multidisciplinary care (Li et al., 2024; Mendes et al., 2023, 2024; Williams & Derouin, 2025)

Minor Strategies: Other minor strategies include discharge care planning, ensuring timely follow-up access (Güven & Akyolcu, 2020), medication management, and service access coordination (Mendes et al., 2023, 2024).

Discussion

This review highlights that hospital readmission after bariatric surgery is a multifactorial phenomenon requiring a systematic and personalized nursing approach. A structured hierarchy of risk factors and clinical causes has been identified, which nursing-led models should prioritize to improve long-term recovery and patient wellbeing.

The findings draw a distinction between predictors, which identify the patient profiles most at risk of readmission, and clinical causes, which elucidate the specific reasons for their return to care. The identification of body mass index and the type of surgery as major predictors (Argueta et al., 2022; De Luca, 2017; Hernández et al., 2023; Rashdan et al., 2024; Semlitsch et al., 2019) suggests that patients' preoperative stratification is essential. Furthermore, the significance of socioeconomic status as a major risk factor, complemented by the influence of ethnicity and geographical distance from healthcare facilities (Dreifuss et al., 2022; Telem et al., 2016) highlights a critical gap in healthcare equity. Patients with lower income or those

living far from specialized centers require more intensive surveillance during the transition from hospital to home (Cooley, 2017).

Regarding clinical causes, the high frequency of abdominal pain, nausea, and vomiting leading to dehydration is particularly noteworthy as these conditions are often preventable through early intervention and patient education, they represent the primary target for nursing-led management models (Hernández et al., 2023). The presence of dehydration and abdominal pain as leading clinical causes of readmission reveals a critical vulnerability in the post-discharge transition phase rather than a failure of the surgical procedure itself.

These symptoms represent 'soft' complications that are inherently preventable through high-quality patient self-efficacy and literacy. Unlike late complications like gallstones, these early clinical drivers can be mitigated through proactive monitoring (Argueta et al., 2022; Rashdan et al., 2024). The classification of factors like psychological distress as "Minor" should not imply clinical insignificance but rather prioritize these areas for future research efforts.

The nurse case manager emerged as a major strategy in this review, playing a pivotal role in ensuring continuity of care and coordinating the treatment pathway. As part of a multidisciplinary team, it provides support throughout the entire continuum, from preoperative preparation to long-term follow-up, using care models grounded in holistic management (Cheng et al., 2021; Williams & Derouin, 2025).

This approach is not only clinical but also behavioral. Obesity management must extend beyond the surgical procedure to include psychological and relational support, addressing comorbidities like type 2 diabetes and psychiatric disorders (Mendes et al., 2023; Rubino et al., 2023). Furthermore, nursing interventions should consider aesthetic outcomes alongside metabolic parameters, as these significantly influence the patient's self-image and quality of life (Accardi, Fave, et al., 2017; Accardi, Lattuada, et al., 2017; Rocha et al., 2024).

One of the strongest findings of this review is the effectiveness of Digital Health interventions in reducing readmissions. These tools facilitate nurses' patient education, remote monitoring of wounds and symptoms, allowing nurses to resolve minor issues before they escalate into emergency department visits (Arnaert et al.,

2022; Maqueda-Martínez et al., 2024; Rocha et al., 2024). Combining face-to-face consultations with digital support, promotes greater postoperative therapeutic adherence and reduces dropout rates (Piwowarczyk et al., 2024; Semlitsch et al., 2019).

Therefore, nurse's role is not merely supportive but serves as a clinical safeguard and mitigate the primary drivers of readmission. This interpretation positions nursing education not just as a complementary task, but as a core clinical intervention that directly influences the success of bariatric outcomes.

Nursing interventions acts as a strategic bridge between clinical excellence and healthcare equity, reducing the impact of social determinants such as socioeconomic status and geographical distance. By integrating Digital Health tools into a case management model, specialized nurses ensure continuous, personalized coordination that overcomes systemic barriers for marginalized populations, enhancing patient-centered care and cost-effectiveness through proactive care coordination (Cheng et al., 2021; Griffin, 2017; Pfeil, 2014).

Consequently, the autonomous nursing role improves clinical outcomes and higher satisfaction levels for both patients and healthcare providers, ensuring the long-term sustainability of bariatric programs and optimal postoperative management (Skelton et al., 2025).

Despite the growing evidence, this review highlights a significant scientific gap, particularly within the Italian context (Accardi et al., 2019; Accardi, Lattuada, et al., 2017; De Luca, 2017), where studies examining the autonomous role of bariatric nurses are lacking. Further research is needed to evaluate the impact of specialized nursing-led interventions or nursing case management models to optimize resource allocation and support sustainable, high-quality bariatric postoperative management.

Limitations

The narrative design itself and the inherent heterogeneity of the included studies, ranging from retrospective cohorts to qualitative reports. Additionally, despite the additional search update in December 2025, a degree of selection bias may exist. Finally, the variability in how readmission is defined across different healthcare systems may affect the generalizability of the categorized

predictors and causes.

Conclusions

In conclusion, this review underscores the need for an integrated and multidisciplinary approach in managing bariatric patients, with the active involvement of specialized healthcare professionals. It has been reported that while clinical predictors as preoperative BMI and surgical technique and major causes as dehydration and abdominal pain are well-documented, their management requires structured nursing-led interventions.

The nurse case manager or specialized nurses emerge as central and well supported professionals in coordinating care, enhancing treatment adherence, and supporting patients across the care continuum. Implementing patient-centered care models with designated professionals is essential to improving quality of life, reducing avoidable readmissions, and ensuring the sustainability of bariatric programs. However, the lack of specific training and structured systems in many settings remains a challenge, highlighting the urgent need for professional recognition and further research into autonomous nursing roles in bariatric surgery.

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