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# Nursing care, level of satisfaction and pain in patients undergoing bariatric surgery (BSS): differences between robotic and conventional laparoscopic approaches

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## Abstract

This is a cross-sectional, comparative, descriptive study conducted in the specialty surgery department of the Hospital Salut Sant Joan de Reus-Baix Camp. The study population includes all patients scheduled for laparoscopic or robotic bariatric surgery during 2024. Based on the total number of surgeries performed, data will be collected through satisfaction surveys and pain scales administered during hospital discharge, and through a review of patient records. Descriptive analyses and statistical tests will be applied to compare the differences between the two surgical approaches: laparoscopic versus robotic. The sampling method is purposive, with inclusion and exclusion criteria established. The aim is to identify significant differences in nursing care, satisfaction levels, and postoperative pain between patients undergoing laparoscopic versus robotic bariatric surgery, allowing for improved and standardized nursing care plans for both techniques.

## Keywords:

- Bariatric surgery
- Robotic surgery
- Nursing care
- Postoperative pain
- Patient satisfaction

## Introduction

The prevalence of obesity has increased worldwide in recent decades, becoming a serious public health problem and currently constituting a global pandemic (1). Bariatric surgery is one of the most effective treatments for this condition, especially in patients with morbid obesity or associated comorbidities (2).

Until now, all procedures were performed laparoscopically, but recently, da Vinci robotic surgery, the most advanced platform on the market, has been launched since April 2024. The versatility and technology of the new robot allows for multi-specialty surgical interventions. Some studies suggest that it is more precise than conventional surgery and less invasive. This reduces hospitalization times and makes patient recovery faster and more satisfactory. (3)

The new surgical implementation of the da Vinci model (robotic approach) raises concerns about the need to rethink nursing care for these patients. This opens a new line of research in nursing care, questioning whether standardized care for conventional laparoscopic surgeries will be the same as the recently implemented robotic method, following the postoperative period and the patient's admission to the hospital's specialized surgery unit.

Thus, the purpose of this study is to compare the care required and the outcomes perceived by patients undergoing robotic bariatric surgery versus the conventional laparoscopic approach.

To determine the variances that arise with the new robotic approach in the standardized nursing care plan for patients undergoing bariatric surgery and to compare the level of satisfaction and pain at discharge of patients treated using both approaches.

## Material y Method

A descriptive, comparative, cross-sectional study. Purposeful sample of 61 adult patients undergoing robotic or laparoscopic BSA (sleeve gastrectomy or gastric bypass)

between April and December 2024. Patients with psychiatric disorders or verbal/cognitive disabilities were excluded.

Data collection was performed using a hospital satisfaction questionnaire included in the clinical pathway of the Spanish Society of Obesity Surgery (SECO) and the Visual Analogue Scale (VAS) for pain at hospital discharge. Data collected from the medical records were also analyzed in a structured manner. Statistical analysis included descriptive measures: median and standard deviation, and comparative tests (Student t test for independent samples) with a significance level of $p > 0.05$.

The study was approved by the Ethics Committee of the Pere Virgili Health Research Institute, with registration number CEIM:160/2024. All patients signed informed consent before participating, in compliance with the principles of the Declaration of Helsinki and current data protection regulations (LOPD and RGPD).

The study is still ongoing and the results presented here correspond to the preliminary analysis of the first 61 patients..

## Results

No significant differences were found between the two groups in terms of postoperative pain levels and hospital satisfaction ($p > 0.05$).

Regarding the outcomes of nursing care provided, both groups showed minimal wound problems (6.25%) and hemodynamic stability (93.75% robotic vs. 88.89% laparoscopic). Dietary tolerance was higher in robotic surgery (87.5% vs. 71.1%). Fig. 1.

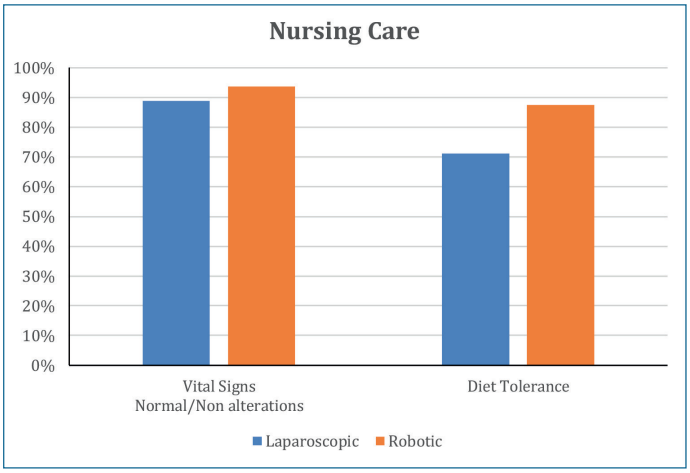


*Figure 1. Post-surgical diet tolerance and vital signs*

The most common postoperative complications were pain (33.33%) and nausea/vomiting (11.11%), with low rates of serious complications. Fig. 2.

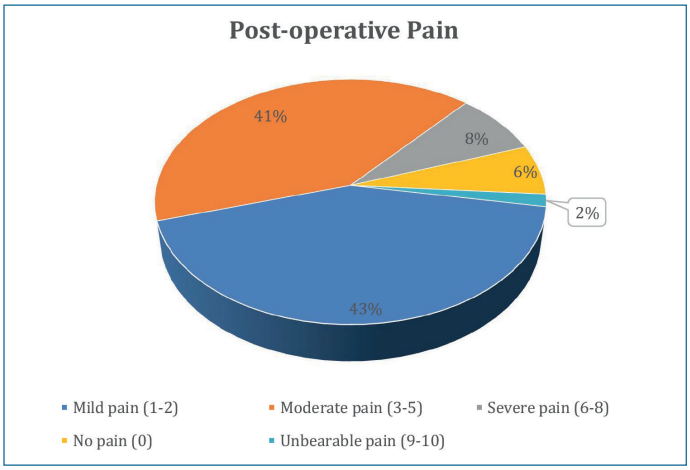


*Figure 2. Postoperative pain level according to surgical technique*

Regarding hospitalization days, the average length of stay was shorter in robotic surgery patients (1.73 days) than in laparoscopic surgery patients (2.43 days). Fig. 3.

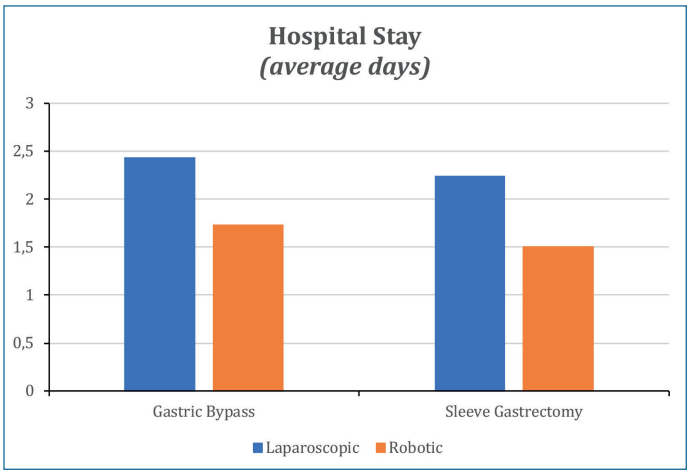


*Figure 3. Average days of admission according to surgical technique*

Emotional support from the community during hospitalization positively influenced patient satisfaction. Those with emotional support reported greater satisfaction with the care received, highlighting its importance in the postoperative recovery process. Fig. 4.

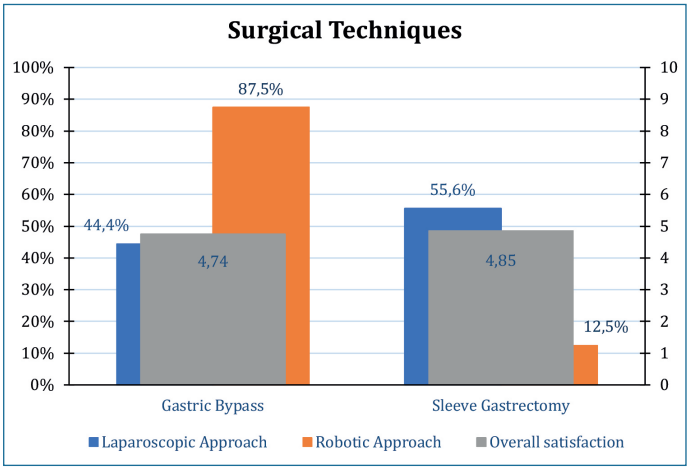


*Figure 4. Hospital satisfaction according to surgical technique*

## Discussion

The fact that a statistically significant correlation was not found between the variables analyzed does not mean that the results are not useful. In fact, this study provides important evidence of the effectiveness of standardized care in bariatric surgery and also highlights the need to explore further factors that may influence patients' postoperative experience.

Overall, the results indicate that robotic surgery offers advantages in terms of perceived pain and patient satisfaction at discharge. Reduced tissue manipulation and the precision of robotic technology could explain these differences (4).

However, the cross-sectional design and limited sample size prevent establishing firm causal relationships. Therefore, longitudinal, randomized studies are suggested to confirm these findings and evaluate the sustainability of the long-term benefits.

## Conclusions

This study found no significant differences between the two types of surgery in terms of hospital satisfaction or postoperative pain, suggesting that both laparoscopic and robotic surgeries are equally effective.

However, it provides important evidence of the effectiveness of standardized care in CBA, indicating that robotic surgeries tend to result in shorter hospital stays. Furthermore, emotional support had a positive impact on satisfaction and postoperative recovery.

Future research is recommended to delve deeper into how emotional support influences patient outcomes and recovery.

## Acknowledgment

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