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RESEARCH ARTICLE (ORIGINAL)

Preoperative nursing consultations: Implementation and evaluation

Consulta de enfermagem pré-operatória: Implementação e avaliação
Consulta preoperatoria de enfermería: Implementación y evaluación

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Abstract
Background: The Enhanced Recovery After Surgery (ERAS®) program is a perioperative care pathway that aims to improve surgical outcomes and patient recovery. Nurses have a key role, particularly in preoperative consultations.
Objectives: To plan, implement and evaluate the preoperative nursing consultation included in the ERAS® program.
Methodology: This is a descriptive, quantitative study with three phases: planning (development of guidance documents), implementation (consultations), and evaluation (through a questionnaire and audit platform). The study was conducted with two non-probability samples, one without consultations before the ERAS® program implementation (n = 65) and the other with consultations (n = 93).
Results: Ninety-six consultations were held, with 74.2% of the patients reporting they were very satisfied and 59.1% considering the information transmitted very important. If new surgery was needed, all patients (100.0%) stated they would want a consultation. The mean length of hospital stay reduced from 7.09 to 6.73 days (p = 0.044), and the time to recover autonomy in mobilization decreased from 3.48 to 2.00 days (p < 0.001).
Conclusion: The consultations were important for patients, had high levels of satisfaction, and positively impacted the recovery of autonomy.

Keywords: perioperative nursing; patient-centered care; enhanced recovery after surgery; perioperative care; patient education as topic; patient satisfaction

Resumo
Enquadramento: O programa *Enhanced Recovery After Surgery* (ERAS®) é um programa de cuidados perioperatórios, que objetiva melhorar resultados cirúrgicos e a recuperação do cliente. O enfermeiro tem uma intervenção importante nomeadamente na consulta pré-operatória.
Objetivos: Planear, implementar e avaliar a consulta de enfermagem pré-operatória inserida no ERAS®.
Metodologia: Estudo descritivo, quantitativo com três fases: planeamento (elaborados documentos orientadores); implementação (realizadas as consultas); avaliação, (através questionário e plataforma de auditoria). Duas amostras não probabilísticas, uma sem consulta e temporalmente anterior ao programa ERAS® (n = 65) e outra com consulta (n = 93).
Resultados: Realizadas 96 consultas, em que 74,2% dos clientes ficaram muito satisfeitos e 59,1% consideraram as informações transmitidas muito importantes. Se necessidade de nova cirurgia todos os clientes (100,0%) gostariam de voltar a ter consulta. Tempo médio de internamento reduziu de 7,09 para 6,73 dias (p = 0,044). Tempo de retorno à autonomia na mobilização diminuiu de 3,48 para 2,00 dias (p < 0,001).
Conclusão: A consulta foi importante para os clientes, com elevados níveis de satisfação e com efeitos positivos no retorno à autonomia.

Palavras-chave: enfermagem perioperatória; assistência centrada no paciente; recuperação pós-cirúrgica melhorada; assistência perioperatória; educação do paciente; satisfação do paciente

Resumen
Marco contextual: El Enhanced Recovery After Surgery (ERAS®) es un programa de cuidados perioperatorios destinado a mejorar los resultados quirúrgicos y la recuperación del cliente. El enfermero tiene una importante intervención en la consulta preoperatoria.
Objetivos: Planear, implementar y evaluar la consulta de enfermería preoperatoria incluida en el ERAS®.
Metodología: Estudio descriptivo, cuantitativo con tres fases: planeamiento (elaborados documentos orientadores); implementación (realizadas las consultas); evaluación (a través de cuestionario y plataforma de auditoría). Dos muestras no probabilísticas, una sin consulta y temporalmente anterior al programa ERAS® (n = 65) y otra con consulta (n = 93).
Resultados: Realizadas 96 consultas, en las que el 74,2% de los clientes quedaron muy satisfechos y el 59,1% consideraron las informaciones transmitidas muy importantes. En caso de necesitar una nueva intervención quirúrgica, todos los clientes (100,0%) desearían volver a tener consulta. El tiempo medio de internamiento se redujo de 7,09 a 6,73 días (p = 0,044). El tiempo de retorno a la autonomía en la movilización disminuyó de 3,48 a 2,00 días (p < 0,001).
Conclusión: La consulta fue importante para los clientes, presentó altos niveles de satisfacción y tuvo efectos positivos en el retorno a la autonomía.

Palabras clave: enfermería perioperatoria; atencion dirigida al paciente; recuperación mejorada después de la cirugía; atención perioperatória; educación del paciente; satisfacción del paciente

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Introduction

In the ongoing search for improving the quality of care provided to surgical patients, a preoperative nursing consultation was designed, implemented, and evaluated in a hospital setting as part of a multi-professional perioperative care program. This nursing consultation is a complex and autonomous intervention that includes a set of actions primarily aimed at getting to know patients and informing them about their entire surgical pathway, while considering their needs and expectations, and whose outcomes result in a multidisciplinary care plan.
The objectives set for this study were: to plan the nursing consultation within the ERAS® program for colorectal surgery patients; to implement the nursing consultation; and to evaluate the nursing consultation.
Evaluation *foci* were selected, each of them corresponding to a specific objective, namely: to evaluate the information transmitted; to evaluate the patient's participation in recovery; to evaluate the patient's satisfaction; to evaluate the impact on the recovery of autonomy in mobilization; and to evaluate the impact on the mean length of hospital stay.

Background

Nurses are the best-positioned professionals to inform patients through appropriate language. Thus, relevance is given to nursing consultations with a structure that meets each patient's characteristics and clinical situation (Gonçalves et al., 2017).
Nursing consultations are part of perioperative nursing, which includes delivering nursing care to patients during pre-, intra-, and postoperative periods. It involves a set of interventions performed in different hospital settings to provide the best and most appropriate care to surgical patients. In recent years, the concept of perioperative nursing has evolved to become more patient-centered, reflecting the concern to bring practice closer to patients' needs (Arakelian et al., 2017). Thus, throughout the surgical process, nurses assess patients, collect, organize, and prioritize data, develop nursing diagnoses, identify the expected patient outcomes, and evaluate patient outcomes and responses (Rothrock, 2018).
The Enhanced Recovery After Surgery® (ERAS®) program is a perioperative care pathway that aims to reduce surgical stress, promote/maintain postoperative physiological function, and accelerate recovery after surgery (Gustafsson et al., 2019). It is based on principles such as evidence-based practice, perioperative processes, and a multimodal and multiprofessional approach to teamwork and outcome auditing (Ljungqvist & Hubner, 2018). There are also international guidelines that recommend preoperative education, preoperative optimization, reduction of preoperative fasting time, avoidance of opioid drugs, early reintroduction of oral feeding, multimodal analgesia, and early and aggressive mobilization, among others (Gustaffson et al., 2019). The ERAS® program promotes nursing interventions during the patients' entire surgical pathway, focusing on preoperative education. This education is ensured by planning and implementing a preoperative nursing consultation in accordance with international guidelines and based on patients' needs, characteristics and expectations.
This study's main objective was to implement a preoperative nursing consultation based on a patient-centered care philosophy and simultaneously produce knowledge on this theme, evaluating the implications that such interventions have for patients and their health outcomes. The study developed an intervention based on the best available evidence, which allowed the identification, acquisition, and translation of knowledge. Moreover, the evaluation of this intervention promoted the quality of the service provided and a greater adaptation to the patients' characteristics.

Methodology

Study type

This was a descriptive quantitative study conducted in three phases: Phase 1 - planning, which consisted in the elaboration of consultation support documents (the patient's information guide and nurses' technical guidelines) based on bibliographic research (two scoping reviews were conducted, one on preoperative education and the other on nursing interventions within the ERAS® program) and international guidelines; and nursing team training; Phase 2 - intervention implementation within the context of care delivery; Phase 3 - evaluation of the consultations, based on the selected *foci*.

Population, participants, sampling procedure:

The study considered the patients proposed for colorectal surgery from a private hospital institution. Two convenience non-random samples were selected: the pre-ERAS® sample - surgical patients without nursing consultation (n = 65); and the ERAS® sample - surgical patients with nursing consultation (n = 93).
The following inclusion criteria were defined for the ERAS® sample: being over 18 years old, conscious and oriented, and literate. The exclusion criterion was having already undergone surgery under the ERAS® program. The pre-ERAS® sample was composed of patients who had undergone colorectal surgery but did not have a nursing consultation.

Variables

The following attribute variables were used for sample characterization: sex (female or male); age intervals (30-49 years, 50-69 years, and 70-89 years); the American Society of Anesthesiologists (ASA) Physical Status Classification System (ASA 1-2 and ASA 3-4); the surgical site (colon or rectum); and the surgical approach (open, laparoscopic, robotic, and other/unknown). The nursing consultation was considered an independent variable. The following were defined as dependent variables: the information transmitted, the participation in recovery, the satisfaction, the mean length of hospital stay, and the time to recover autonomy. The following variables were considered as evaluation *foci* of the consultations: (a) Information trans-

mitted – the importance attributed to the information, the adequacy of the amount of information, the themes considered most relevant; (b) Patients' participation in recovery - as part of a patient-centered care philosophy, the patients' engagement in their recovery is key, to evaluate the patients' participation in their recovery and whether this was influenced by the information transmitted in the consultation; (c) Patients' satisfaction - the level of satisfaction was assessed and whether patients, in case of a new surgery, would want another nursing consultation; (d) Recovery of autonomy in mobilization - being early mobilization one of the ERAS® principles, it was assessed whether the consultation and the information transmitted in the preoperative period influenced the recovery of autonomy in mobilization; (e) Mean length of hospital stay: depends on several factors/professionals, but it was considered relevant to assess whether the consultation may have influenced this outcome, since most of the studies published on the ERAS® program mention this variable.

Data collection instruments

Two instruments were used in the evaluation process of the consultation: a questionnaire, specifically developed according to the evaluation *foci* and applied to the ERAS® sample (patients with consultation); and the ERAS® program audit platform, which allowed the comparison of results between the two samples (ERAS® and pre-ERAS®). Considering that no suitable data collection instrument was found to assess the dependent variables, a questionnaire was developed consisting of two parts, one for participant characterization and the other with closed-ended questions (*Likert*-type scale). Only one question allowed more than one answer, namely identifying the education themes patients considered most important during the consultation. The questionnaire was pre-tested, which led to changing an expression that participants identified as unclear. The audit platform is exclusive of the ERAS® program and was developed by an international entity to evaluate the indicators referring to the patients' entire surgical pathway. Among these, the following were considered: the time (in days) each patient took to recover autonomy in mobilization and the length of hospital stay (indicators analyzed and compared between the two samples).

Data collection and analysis procedures

The questionnaire was administered to the ERAS® sample between May 2018 and June 2019. Its administration consisted of distributing the instrument to the patient 1 to 2 days before the expected discharge date, accompanied by an explanation about the study. Patients had the possibility of completing the questionnaire or not (without any prejudice). If they chose to participate, the questionnaire had to be returned at the moment of discharge in a closed envelope at the inpatient unit's administrative reception. The data obtained from the questionnaires and the platform were analyzed using the IBM SPSS Statistics software, version 23.0, and presented using charts and tables.

Ethical considerations

Permissions were requested to the Clinical Research Committee (obtained on 22/01/2018) and the Health Ethics Committee of the hospital (Ref. CES/11/2018/ME, on 05/03/2018), resulting in positive opinions. Each patient included in the sample was asked to give their free and informed consent (article 5 - Parliament Resolution no. 1/2001).

Results

Based on the reviews, an informative guide for patients and technical guidelines for nurses were developed in the consultation planning phase. In this phase, training sessions for nurses were also carried out, involving more than 140 professionals. These training sessions provided information on the consultation, program, and key impacts on nursing practice. The sessions received a very positive assessment from the participants with a total mean score of 4.8 (from a range of 1 to 5).

The consultations were implemented between May 2018 and June 2019 and provided to 96 patients proposed for colorectal surgery. The researcher conducted all consultations with a mean duration of 40 minutes and approximately one to two weeks before surgery. Consultations consisted of three moments: (1) information collection on the patients and surrounding context, (2) physical evaluation, and (3) preoperative education with information transmission and doubts clarification.

The evaluation was performed through the questionnaire administered to the sample participating in the consultation - ERAS® sample. Based on the exclusion and inclusion criteria, 93 questionnaires were used. Three patients who had previously undergone surgery under the ERAS® program and, therefore, already knew the consultation dynamics were excluded.

In turn, data from the platform were collected from the ERAS® and pre-ERAS® samples (65 patients without nursing consultation).

The pre-ERAS® and ERAS® samples were compared from a statistical point of view to evaluate the recovery of autonomy and mean length of hospital stay. The variables selected to test comparability were: sex, age intervals, the ASA Physical Status Classification System, the surgical site, and the surgical approach. The Chi-Square test was used to assess the likelihood of an association between these variables and belonging or not to the ERAS® and pre-ERAS® samples. Based on the results presented in Table 1, the two samples were considered comparable.

Table 1

Comparison between pre-ERAS® and ERAS® samples

		Pre-ERAS® (*n* = 65)		ERAS® (*n* = 93)		*p-value*
		n	%	*n*	%	
Sex	Female	32	49.2	41	44.1	*p* = 0.812*
	Male	33	50.8	52	55.9	
Age interval	30-49 years	7	10.8	13	14.0	*p* = 0.140*
	50-69 years	35	53.9	29	31.2	
	70-89 years	23	35.3	51	54.8	
ASA classification	ASA 1-2	52	80.0	79	84.9	*p* = 0.416*
	ASA 3-4	13	20.0	14	15.1	
Surgical site	Colon	51	78.5	67	72.0	*p* = 0.361*
	Rectum	14	21.5	26	28.0	
Surgical approach	Open	9	13.8	11	11.8	*p* = 0.059*
	Laparoscopy	48	73.8	60	64.5	
	Robotic	7	10.8	13	14.0	
	Other/Unknown	1	1.6	9	9.7	

Note. *Chi-Square test; ASA = *American Society of Anesthesiologists*; ERAS® = *Enhanced Recovery After Surgery.*

The evaluation results of the consultations are presented according to the specific objectives of the study.

Evaluation of the information transmitted in the consultation

Regarding the importance given to the information provided, 59.1% (*n* = 55) of participants considered it very important, 34.4% (*n* = 32) important, and 6.5% (*n* = 6) reasonably important. No patient reported that the information provided was not important.

Regarding the amount of information provided, 50.5% (*n* = 47) considered the amount adequate, 38.7% (*n* = 36) thought it was a lot of information, and 10.8% (*n* = 10) considered it reasonable. No patient considered the amount of information provided as insufficient. Regarding the education themes, each patient could mark more than one theme. The total number of answers marked was 461 (100.0%), in which each patient marked an average of five themes. The themes considered most important were: energy drink in the preoperative period to reduce fasting time - 16.3% (*n* = 75); use of chewing gum/tablets for gastrointestinal stimulation - 13.0% (*n* = 60); pain and pain management - 12.8% (*n* = 59); and early postoperative mobilization - 9.5% (*n* = 44). The theme of preparation for discharge, which had been thought to be one of the most important for patients, only had 2.8% (*n* = 13) of answers. Regarding the opportunity to clarify their doubts, 65.6% (*n* = 61) strongly agreed that they had the opportunity to clarify their doubts, 30.1% (*n* = 28) agreed, and 4.3% (*n* = 4) neither agreed nor disagreed. No patients reported having any unanswered questions after the consultation.

Evaluation of patients' participation in the recovery

Regarding the impact of information on patients' collaboration, 59.1% (*n* = 55) strongly agreed that the information positively influenced their collaboration in postoperative care, 31.2% (*n* = 29) agreed, and 9.7% (*n* = 9) neither agreed nor disagreed. No patient disagreed. Regarding patients' active participation in recovery, 60.4% (*n* = 56) strongly agreed that they had active participation in their recovery after surgery and 26.9% (*n* = 25) agreed. Approximately 12.9% (*n* = 12) were indifferent to this question.

Evaluation of patients' satisfaction with the consultation

On the importance of consultations for patients, 62.4% (*n* = 58) considered the consultation very important, 31.2% (*n* = 29) important, and approximately 6.5% (*n* = 6) considered it reasonably important. No patient considered it not very or not at all important.

Regarding the level of satisfaction, 74.2% (*n* = 69) were very satisfied, 19.4% (*n* = 18) were satisfied with the consultation, and only 6.5% (*n* = 6) were reasonably satisfied. One hundred percent (*n* = 93) of the patients reported wanting a nursing consultation again if they needed another surgical intervention.

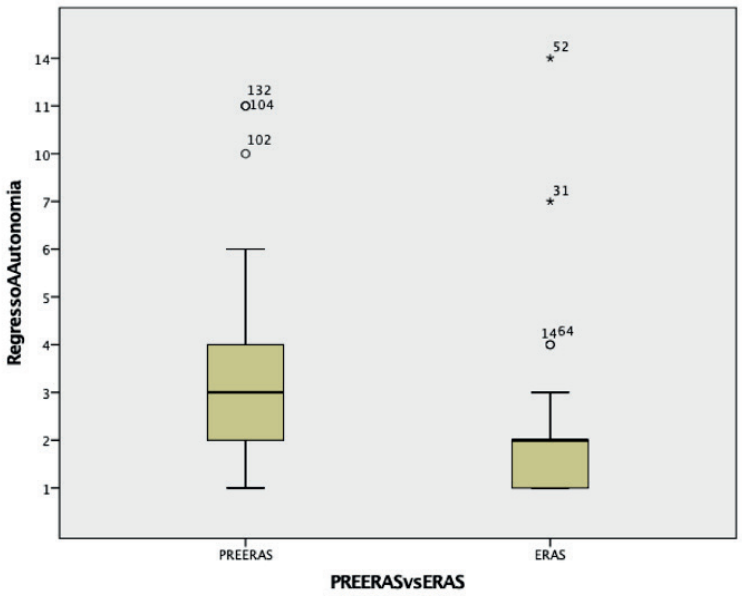
Evaluation of the impact of consultations on the recovery of autonomy in mobilization

With a confidence interval of 95% and a *p*-value = 0.05, this variable was not normally distributed ($p < 0.001$, using the Shapiro-Wilk test). In the pre-ERAS®

sample, the mean time patients took to recover their autonomy was 3.48 days, and the median was 3 with a minimum score of 1 day and a maximum of 11 days. In turn, the ERAS® sample had a mean time of autonomy recovery of 2.00 days, and the median was 2, with a minimum score of 1 day and a maximum of 14 days, according to Figure 1. The reduction in time to recover autonomy during the postoperative period was considered statistically significant ($p < 0.001$, using the Mann-Whitney test).

Figure 1

Chart with the mean time for recovery of autonomy in mobilization



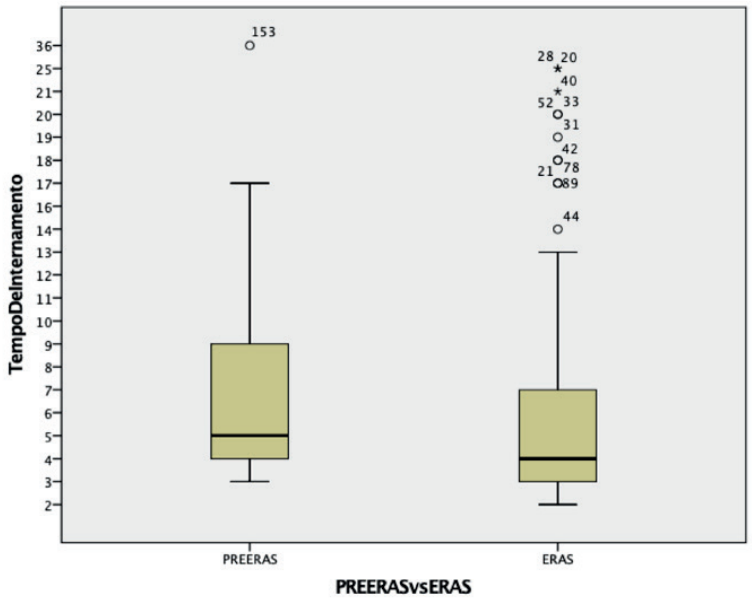
Regarding autonomy in mobilization, the percentage of patients who, during the postoperative period, moved to standing position for the first time on the day of surgery was also evaluated, corresponding to 80.6% ($n = 75$) in the ERAS® sample and 3.2% ($n = 3$) in the pre-ERAS® sample.

Evaluation of the impact of consultations on the mean length of hospital stay

With a confidence interval of 95% and a p-value = 0.05, this variable was also not normally distributed ($p < 0.001$, using the Shapiro-Wilk test). In the pre-ERAS® sample, the mean length of hospital stay was 7.09 days, and the median was 5, with a minimum score of 3 days and a maximum score of 36 days until discharge. The ERAS® sample had a mean length of hospital stay of 6.73 days, and the median was 4, with a minimum score of 2 days and a maximum of 25 days, as shown in Figure 2. The application of the Mann-Whitney test demonstrated that the reduction in length of hospital stay was statistically significant ($p = 0.044$). However, despite this p-value, the existence of several outliers in Figure 2 may confer some fragility to the analysis of this variable.

Figure 2

Chart with results of the mean length of hospital stay



Discussion

The consultations had a mean duration of 40 minutes which is in line with the literature, with variations between 30 minutes per consultation (Louw et al., 2013) and a mean of 33 minutes per consultation (Petterson et al., 2018). The consultations took place approximately two weeks before the planned surgery date, as scheduled in the planning. The preoperative education was highly valued by all parties involved, and it was observed that it is essential that patients obtain detailed information of their interest for them to feel better prepared to manage the necessary care during the postoperative period and the recovery period at home (Deng et al., 2019).

When evaluating the consultation, most patients considered it as very important/important, which may be related to the fact that the transmission of information can increase patients' sense of control and also because patients increasingly express their interest in having adequate information that allows them to participate in the health decisions that concern them (Forsberg et al., 2015). In turn, the amount of information transmitted proved, for the most part, to be adequate. Transmitting the right amount of information is key since too much information can make it difficult for patients to understand (Pereira et al., 2016). Regarding the themes addressed in the consultation and considered by patients as the most relevant, the most frequently mentioned was the ingestion of energy drinks before the surgical procedure, possibly because it differs from the predefined concept of mandatory prolonged fasting before surgery. This is an important measure to reduce the organic stress response caused by surgery, which also positively impacts patients' insulin resistance and well-being during postoperative recovery (Sena et al., 2013). The second most mentioned theme was gastrointestinal stimulation through chewing gum/tablets during the postoperative period, which may be due to the fact of being a curious and little-known indication. Patients also frequently mentioned early and aggressive mobilization because they were informed during the consultation that they would move to a standing position for the first time on the day of surgery, which caused some surprise. Early postoperative patient mobilization is considered an important measure for recovery and reduction of postoperative complications (Petterson et al., 2017). Its implementation mostly depends on the nursing team, which reinforces the importance of the training sessions included in this study. Most patients had the opportunity to clarify their doubts in the consultation, which was considered very positive, and emphasized the importance of having a moment to clarify doubts during the preoperative education (Pereira et al., 2016).

Regarding the patients' participation in recovery, most of them considered that the information transmitted influenced their collaboration in care as it is more difficult for them to participate actively when they do not have sufficient information. Thus, it is essential to create a structured and realistic system of information transmission that allows patients to improve their adherence to the care plan, bearing in mind that better adherence to the plan can lead to better health outcomes (Cavallaro et al., 2018). Most patients felt they had an active role in their recovery, with patient acceptance and participation in the recovery process being key in accelerated recovery programs (Hughes et al., 2015). If patients feel that their characteristics and wishes are considered, it will be easier for them to become more involved in the surgical process, thus becoming more participatory (Arakelian et al., 2017).

In the satisfaction assessment, most patients considered the consultation as very important/important, reinforcing the relevance of evaluating the interventions including the patients' perceptions to improve their adaptation and achieve better results (Kruse et al., 2009). Moreover, most patients were very satisfied with the consultation, which was very positive considering that this is a direct indicator of quality and allows developing strategies and services tailored to the patients' needs and expectations (Chahal & Mehta, 2013). The most common and simplest way to perform this assessment is through written questionnaires and subsequent data processing (Jones et al., 2017), which is in line with what was done in this study. It was also observed that if another surgery was needed, all the patients surveyed would want to have the consultation again. This is thought to be associated with the patient-centered care philosophy that includes the evaluation of patient satisfaction and experience in the care process (Van Zelm et al., 2018).

The consultation positively influenced the recovery time of autonomy in mobilization after surgery, promoting a significant decrease, possibly associated with patients being more informed, prepared, and confident (Gillis et al., 2017). Implementing a consultation that allows getting to know patients, identifying their weaknesses and strengths, and properly allocating resources can enhance patient participation in their recovery and accelerate it (Petersson et al., 2018). The responsibility of ensuring that patients move to a standing position on the day of surgery falls approximately 80% on the nurse and 20% on the patient (Roulin et al., 2017). In this study, information was transmitted to the patient about early mobilization, and training was provided to nurses, which is believed to have been instrumental in the positive outcomes.

A downward trend was observed in the decrease of the mean length of hospital stay. Literature shows a mean length of hospital stay of 12-15 days for colorectal surgery in most countries (Ljungqvist & Hubner, 2018). In this sense, the results in both samples were already very positive. Although nursing interventions directly impact the course of hospital stays, this is an aspect that depends on several other intervening agents and factors. This downward trend may also be associated with the concepts of patient empowerment, preoperative education, and patients' expectations and participation in care.

This study provided a detailed assessment of the information transmitted to patients and which themes they considered most important for preoperative education, a key aspect for a nursing consultation based on the patient-centered care philosophy. The nursing consultation was also directly associated with health outcomes, such as autonomy in mobilization and mean length of hospital stay, which are growing concerns for health care providers, thus paving the way for promoting the assessment of nursing interventions and determining nursing-sensitive outcomes.

The study's main limitation was the sampling technique because, from the moment consultations started, all colorectal surgery patients were included (due to institutional reasons), thus constituting a convenience sample. On the other hand, the pre-ERAS® sample corresponds to a group of patients from a period before the implementation of the consultation.

Conclusion

The implementation of the preoperative nursing consultation, based on the best available evidence in hospital settings, promoted a change in care practice. It improved processes and outcomes through better patient preparation, more information, and greater collaboration. In the postoperative period, patients recovered their autonomy in mobilization earlier than expected, were better informed, participated more, and had a more positive surgical experience. A downward trend regarding the mean length of hospital stay was also observed. The obtained outcomes motivated the recognition of this nursing intervention, raising the interest in the multidisciplinary team and promoting the expansion of the consultation to other surgical areas.

This study suggests that the consultation may be important to improve patient outcomes from other surgical areas, especially complex surgeries with high mean lengths of hospital stay and slower and more difficult recoveries. A change in the practice of postoperative care was also observed at the institution, with an earlier recovery of autonomy in mobilization and the anticipation of patients' first transition to standing position during the postoperative period, the majority of which on the day of surgery. It is important to perform this consultation in other surgical areas and assess it through other *foci* of attention, such as self-care or postoperative symptom management, or even from the health care team's perspective.

Author contributions

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