Perioperative nursing care aimed at surgical patient safety: an integrative review

Assistência perioperatória de enfermagem voltada à segurança do paciente cirúrgico: uma revisão integrativa

Cuidados perioperatorios de enfermería dirigidos a la seguridad del paciente quirúrgico: una revisión integradora

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ABSTRACT: Objective: To identify, in the scientific literature, the perioperative nursing care practices aimed at the surgical patient safety. **Method:** This is an integrative literature review carried out in December 2022, with a search for primary studies in the Virtual Health Library (VHL), National Library of Medicine (PubMed), Scopus, and Embase databases, with a five-year time frame. **Results:** After reading and analysis, we included six articles in the review. In short, they address three groups of care practices carried out to promote patient safety, namely: applying the checklist for safety in surgery; using the predictive risk scale for developing pressure ulcer; and planning the provision of care by using protocols. **Conclusion:** Using instruments that systematize actions, such as checklists, care scales, and protocols, are care practices that provide surgical patient safety in the perioperative period, thus reducing possible adverse events in the period.

Keywords: Perioperative nursing. Perioperative care. Perioperative period. Patient safety.

RESUMO: Objetivo: Identificar na literatura científica as práticas assistenciais de enfermagem perioperatória que visam à segurança do paciente cirúrgico. **Método:** Revisão integrativa da literatura realizada no mês de dezembro de 2022, com busca por estudos primários nas bases de dados da Biblioteca Virtual em Saúde (BVS), da *National Library of Medicine* (PubMed), Scopus e Embase, com recorte temporal de cinco anos. **Resultados:** Após leitura e análise, seis artigos foram incluídos na revisão. Em síntese, eles abordam três grupos de práticas assistenciais realizadas a fim de promover a segurança do paciente, a saber: aplicar a lista de verificação de segurança em cirurgia; usar escala preditiva a formação de lesão por pressão; e planejar a assistência por meio de protocolos. **Conclusão:** A utilização de instrumentos que sistematizem as ações, tais como listas de verificação, escalas de cuidados e protocolos são práticas assistenciais que oportunizam a segurança do paciente cirúrgico em período perioperatório, reduzindo assim possíveis eventos adversos no período.

Palavras-chave: Enfermagem perioperatória. Assistência perioperatória. Período perioperatório. Segurança do paciente.

RESUMEN: Objetivo: Identificar, en la literatura científica, las prácticas de cuidado perioperatorio de enfermería dirigidas a la seguridad del paciente quirúrgico. **Método:** Se trata de una revisión integrativa de la literatura realizada en diciembre de 2022, con búsqueda de estudios primarios en las bases de datos Biblioteca Virtual en Salud (BVS), Biblioteca Nacional de Medicina (PubMed), Scopus y Embase, con un horizonte temporal de cinco años. **Resultados:** Luego de la lectura y análisis, incluimos seis artículos en la revisión. En definitiva, abordan tres grupos de prácticas asistenciales realizadas para promover la seguridad del paciente, a saber: aplicación de la lista de verificación de seguridad en cirugía; utilizando la escala de riesgo predictivo para desarrollar úlcera por presión; y la planificación de la prestación de cuidados mediante el uso de protocolos. **Conclusión:** El uso de instrumentos que sistematizan acciones, como listas de cotejo, escalas de atención y protocolos, son prácticas de atención que brindan seguridad al paciente quirúrgico en el perioperatorio, reduciendo así posibles eventos adversos en el período.

Palabras clave: Enfermería perioperatoria. Atención perioperativa. Periodo perioperatorio. Seguridad del paciente.

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INTRODUCTION

With the increase in life expectancy of the population and the search for safe and quality hospital medical care, patient safety has become a frequent topic in debates about health, gaining even greater strength with the publication of the report *To err is human: building a safer health system*, in 1999. Thereafter, the World Health Organization (WHO), together with other international institutions, has been seeking feasible solutions to eliminate events that could cause harm to patients[1].

With regard to the operating room (OR) environment, this concern with patient safety is more justifiable, considering the high complexity of the unit, both due to the employed technologies and the number of professionals from different specialties involved in the process, as well as the patients' own vulnerable conditions, which characterizes the perioperative period as one of the most susceptible to errors and with the highest rate of adverse events (AE)[2].

According to the WHO, more than 234 million surgeries are performed annually in the world and, although they often represent the only possible treatment to relieve pain, disability, and even reduce deaths, it is estimated that over seven million adverse events occur annually, including the occurrence of one million deaths, which happen during or immediately after the procedure. For the WHO, 50% of these events could be avoided[1].

In this context, despite technological advancement that allow safer anesthetic-surgical practice, nursing has the challenge of ensuring that adverse events, such as pressure ulcers (PU), perioperative hypothermia, falls, burns caused by energy devices, among others, do not happen[3,4].

In this scenario, perioperative nursing must seek ways to provide care seeking to reduce AEs, achieving harm-free and safe care for the patient.

Taking this into consideration, we emphasize the importance of deepening knowledge of the topic, as we verified no studies that address the specificity of the set of practices for the safety of surgical patients in the perioperative period, which underlies the need to expand discussions on the subject and encourage future studies.

OBJECTIVE

To identify, in the scientific literature, the perioperative nursing care practices aimed at the surgical patient safety.

METHOD

This is an integrative review, a method that aims to summarize the obtained results on a given subject, contributing to deepening the knowledge of the topic[5]. This method is developed in six steps:

1. Identification of the theme;
2. Choice of databases and descriptors;
3. Definition of inclusion and exclusion criteria for the articles, sampling;
4. Identification of selected studies;
5. Synthesis of studies;
6. Analysis and interpretation of collected data and presentation of results[6].

The elaboration of the research question followed the PICO (population, intervention, comparison and outcome) strategy, in which P corresponds to surgical patients; I, to perioperative nursing care; C, to not applicable; and O, to safety in the perioperative period. Thus, the guiding question was: what are the perioperative nursing care practices aimed at surgical patient safety?

The research was carried out in December 2022, in the Virtual Health Library (VHL), National Library of Medicine (PubMed), Scopus, and Embase databases. The following combination was used: terms from the Health Sciences Descriptors (DeCS), namely *Enfermagem Perioperatória* [Perioperative Nursing], *Assistência Perioperatória* [Perioperative Care], *Período Perioperatório* [Perioperative Period], *Processo de Enfermagem* [Nursing Process], *Segurança do Paciente* [Patient Safety], and *Centro Cirúrgico* [Surgical Center]; terms from the Medical Subject Headings (MeSH), namely "perioperative period," "perioperative care," "nursing care," "nursing care management," "patient safety," "perioperative nursing,"); and Boolean operators "AND" and "OR" in each database. This resulted in the following search strategies, as shown in Chart 1.

The inclusion criteria were: articles published online and with full access, in Portuguese, Spanish, or English languages, in the last five years (2017 to 2022). Exclusion criteria were: publications classified as editorials, letters, dissertations, theses, manuals, and protocols; narrative, integrative, and/or systematic reviews; in addition to articles that addressed interventions by other professionals or in environments other than the surgical one.

At the end of the selection of primary studies in the aforementioned databases, the sample consisted of 1,380 publications. These articles were analyzed according to the inclusion criteria, and pre-selected articles were exported to the Rayyan reference manager, in which duplicates were

Chart 1. Search strategy according to the consulted databases. Curitiba (PR), Brazil, 2023.

Database	Search strategies
VHL	(*período perioperatório*) *OR* (perioperative period) *OR* (perioperative periods) *AND* (*assistência Perioperatória*) *OR* (*assistência na fase perioperatória*) OR (*assistência no período Perioperatório*) *OR* (*cuidados Perioperatório*) *OR* (*cuidados perioperatórios*) *OR* (perioperative care) *OR* (*cuidados perioperatórios*) *AND* (*cuidados de enfermagem*) OR (*assistência de enfermagem*) OR (*atendimento de enfermagem*) OR (*cuidado de enfermagem*) OR (*gestão da assistência de enfermagem*) OR (*sistematização da assistência de enfermagem*) *OR* (nursing care) OR (nursing care management) *OR* (*atención de enfermería*) *AND* (*segurança do paciente*) *OR* (patient safety) *OR* (*seguridad del paciente*).
PubMed	(((((((((“perioperative period”[MeSH Terms])) OR (“perioperative period”[Title/Abstract])) AND (“perioperative care”[MeSH Terms])) OR (“perioperative care”[Title/Abstract])) AND (“nursing care”[MeSH Terms])) OR (management, nursing care[MeSH Terms])) OR (nursing care management[MeSH Terms])) OR (“nursing care”[Title/Abs tract])) AND (patient safety[Title/Abstract])) OR (patient safety[MeSH Terms])) AND (perioperative nursing)
Scopus	(*TITLE-ABS-KEY* (*perioperatório AND enfermagem*) *AND TITLE-ABS-KEY* (*perioperatório AND* care) *AND TITLE-ABS-KEY* (*paciente AND segurança*)).
Embase	(’perioperative care’/exp OR ‘perioperative care’) AND (‘perioperative nursing’/exp OR ‘perioperative nursing’) AND ‘patient safety’:ti,ab,kw AND (‘perioperative period’/exp OR ‘perioperative period’).

excluded and the abstracts were carefully read, by applying the exclusion criteria. The remaining studies were read in full, and those that did not respond to the guiding question were excluded. In the end, there were six scientific productions included in the review.

For a better visualization of the steps for article selection, an adaptation of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)[7] model was used, as shown in Figure 1.

For data extraction, a collection form was prepared, with items related to: article identification, year of publication, journal, country of origin; the methodological aspects, objective, study design, and results of the articles, as shown in Chart 2.

Regarding the levels of evidence, these include studies according to the table of the *Oxford Centre for Evidence-Based Medicine*, namely: LE 1A — obtained by meta-analysis of randomized controlled clinical trials; LE 2A — systematic review of cohort studies; LE 2B — cohort study; LE 2C — ecological study; LE 3B — case-control study; LE 4 — case reports; LE 5 — expert opinion without explicit critical appraisal or based on “first principles”[8].

After the development of all stages of the review, the analysis addressed the investigated theme, “care practices of perioperative nursing to surgical patients.” The authors found strategies that could be used in the care and procedures provided by the nursing team to the surgical patient.

RESULTS

The six articles were written in English, and the countries of origin were: Brazil (n=3), Sweden (n=2), and Czech Republic (n=1). Three were written and published in international journals and three in national journals, respectively: *Central European Journal of Nursing and Midwifery*; *BMJ Open Quality*; *BMC Health Services Research*; *Revista Enfermagem UERJ*; *ACTA Paulista de Enfermagem*, and *Revista Brasileira de Enfermagem*. As for the year of publication, they date from 2019 (n=1), 2020 (n=1), and 2021 (n=4). Regarding the study design, four are exploratory research, one is a methodological study, and one is an observational study.

In the synthesis of data from the studies included in the review, we verified that they focused on three groups of care practices that nursing can perform to promote patient safety, namely: applying the Surgical Safety Checklist (SSC)[9-11]; using the predictive risk scale for developing PU[12]; and planning the provision of care by using protocols[13,14].

DISCUSSION

The SSC, mentioned in three studies of this research, is a checklist proposed by the WHO and based on scientific evidence that aims to prevent and reduce the incidence of adverse events, increasing the guarantee of patient safety in the perioperative period, using identification and functionality verification mechanisms, as it is done in the aviation industry[15]. The application of the checklist is the responsibility of all members of the surgical team and its verification includes 20 items from different moments of the intraoperative period, namely: before induction of anesthesia, before skin incision, and before the patient leaves the operating room[16-18].

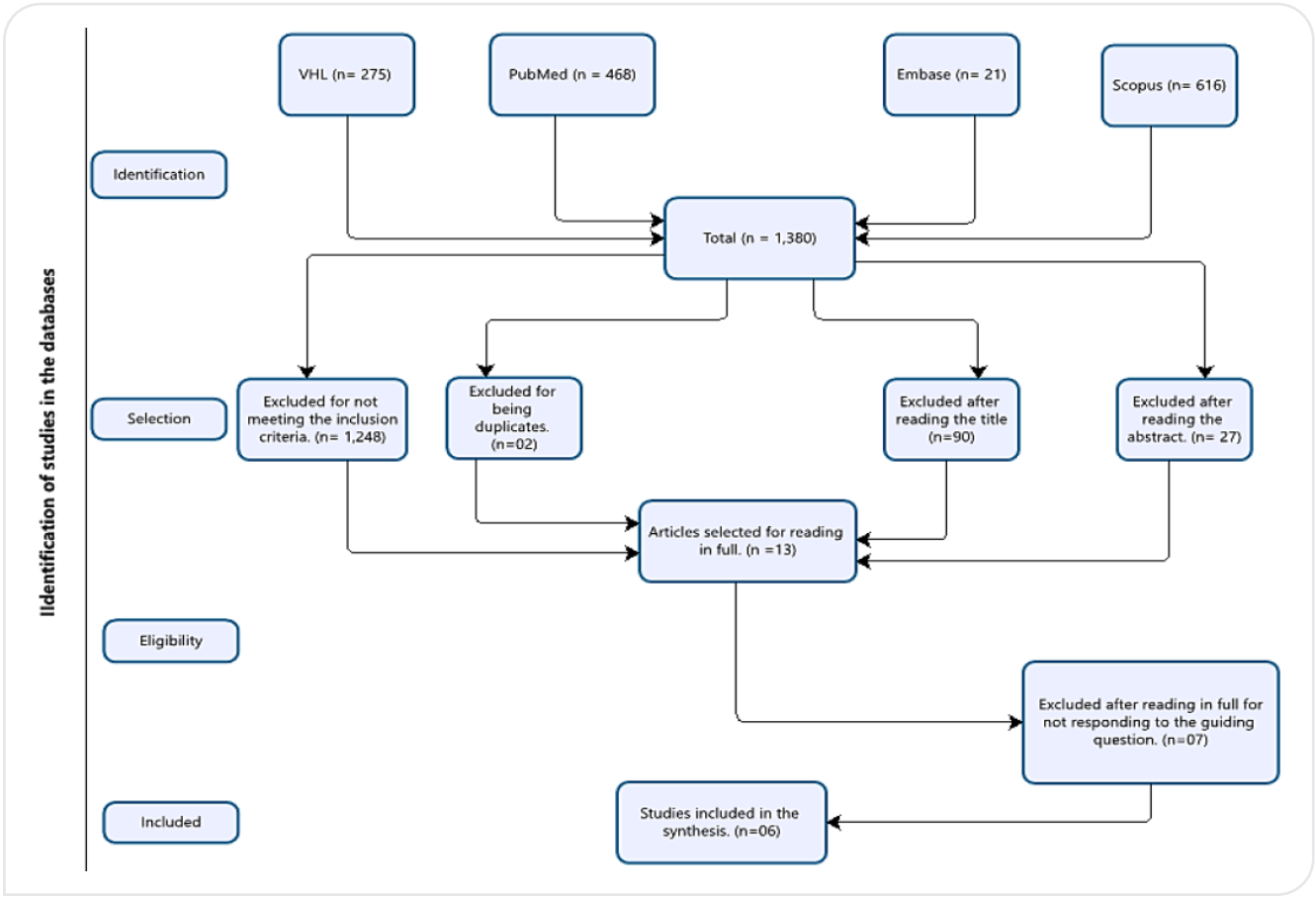

Figure 1. Flowchart of the study selection process adapted from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). Curitiba (PR), Brazil, 2023.

The literature provides evidence that the use of the SSC improves communication between the multidisciplinary team, which is reflected in the provision of quality and safe care[16,17] — considering the proven results in the implementation of this checklist, in which there was a decrease in AEs by one third and mortality associated with surgical procedures by 50%[2].

However, despite the beneficial effects of its use, the checklist has weaknesses in terms of adherence by the teams, highlighting training as an awareness strategy for incorporating the use of the instrument into daily practices[16-18].

With regard to PU, it is an AE with a high potential for negative consequences for the patient, ranging from discomfort, pain, risk of infection and increased length of stay to, possibly, death[19]. Considering that they are classified as a risk diagnosis in nursing, risk for injury related to the surgical procedure, they may be present in 100% of patients depending on the type of surgery[20].

In this context, the use of an instrument with the degree of reliability of the Risk Assessment Scale for the Development of Injuries due to Surgical Positioning (*Escala de Avaliação de Risco para o Desenvolvimento de Lesões Decorrentes do Posicionamento Cirúrgico do Paciente* – ELPO)[21,22] provides perioperative nurses with guidance for the elaboration of an individualized, safe care plan, with precise interventions and awareness of resources. This minimizes the risk of PU development and results in quality and safe care[19,20,21,23].

As for care planning, it is cited in two international studies[13,14] as a means of providing a safe and quality practice. Both studies address planning, but also flexibility and adaptation to unforeseen situations. In the national context, this action is based on the Resolution of the Federal Nursing Council (*Conselho Federal de Enfermagem* – COFEN) No. 358/2009, which deliberates on the operationalization of the nursing process, by the nursing care systematization (NCS); in the case of the OR, by the perioperative nursing care systematization (PNCS)[24].

Chart 2. Presentation of the synthesis of articles of the integrative review. Curitiba (PR), Brazil, 2023

Author/country	Study design Level of evidence	Objective	Main results
Cardoso et al.[9] Brazil	Methodological 2B	To analyze the strategies of the surgical safety checklist proposed by the WHO and to identify nursing taxonomies as inputs for a PNCS registration and operationalization model.	A model for recording and operationalizing the PNCS applied to patient safety in perioperative nursing care was developed, for each phase of a normal flow of surgical procedure.
Buso et al.[12] Brazil	Observational and longitudinal study 2C	To analyze the development of pressure ulcer resulting from surgical positioning and associated factors.	The occurrence of pressure ulcer due to surgical positioning was 37.7%. Age (adult) and those identified as at higher risk according to the ELPO scale were predictors for the development of pressure ulcers.
Pavlová et al.[10] Czech republic	Exploratory research 2B	To describe the current status of perioperative safety processes regarding the work of perioperative nurses.	Over 96% of institutions included in the sample have formally established procedures (n=68).
Poveda et al.[11] Brazil	Cross-sectional study 2B	To identify the implementation process of the WHO Surgical Safety Checklist in Brazilian hospitals.	A total of 84.27% reported the implementation of the checklist in the work environment. In the "Sign-in" stage, 79.65% confirmed the patient's identification with two indicators; in the "Time-out" stage, 51.36% of surgeries started regardless of the confirmation of one of the items. At the "Sign-out" stage, 69.34% of professionals did not count or occasionally counted surgical instruments and suture needles, and only 36.36% reviewed the concerns about postoperative recovery.
Nyberg et al.[13] Sweden	Qualitative study using semi-structured interview 3B	To explore aspects of patient safety practice during surgery by assessing the experiences of operating room nurses.	The nurses described experiences with risks to patient safety at the organizational, personnel, and individual levels. Uncertainties about a credible plan for procedure and functional reporting, as well as documentation practices, were identified as important.
Göras et al.[14] Sweden	Qualitative exploratory study 3B	To investigate how complexity is managed by operating room nurses, nurse anesthetists, and surgeons, and how these professionals adapt to create safe care practices in the operating room.	Three generic categories were found, which encompass ways of creating safe care practices in the operating room: prerequisites and resources, planning and preparation for the expected and unexpected, and adaptation to the unexpected.

WHO: World Health Organization; PNCS: perioperative nursing care systematization; ELPO: Risk Assessment Scale for the Development of Injuries due to Surgical Positioning.

PNCS supports critical thinking to meet the needs of surgical patients in a comprehensive, individual, continuous, participatory, recorded, and assessable manner at all stages of the perioperative period[25]. The topic was addressed in an integrative review, whose authors found that the implementation of PNCS provides nurses with interaction in the perioperative process, enabling care planning according to the individual needs of each patient. This, in turn, promotes a safer environment for the surgical patient[26].

As this is a review study, and considering the descriptors and databases listed, we may not have identified all articles addressing the research question. However, a visible gap was the lack of strategies to prevent the risk of falls. Therefore, we emphasize the need to develop research on this issue.

This review contributed to the health area by grouping perioperative nursing care practices that promote surgical patient safety.

CONCLUSION

This study allowed the identification of perioperative nursing care practices aimed at surgical patient safety. The use

of instruments that systematize actions, such as checklists and scales of care and protocols, favor the safety of surgical patients during the perioperative period, thus reducing the occurrence of possible AEs in the period.

Although the implementation of these instruments is effective for patient safety, it is important that teams are trained and made aware of their correct use.

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CONFLICT OF INTERESTS

The authors declare no conflict of interests.

AUTHORS' CONTRIBUTIONS

MTRD: Data curation, Supervision. CMS: Conceptualization, Data curation, Research, Methodology, Writing – original draft, Writing – review & editing. MGBC: Writing – review & editing.

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