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**COMPETÊNCIAS DOS ENFERMEIROS DE PERIOPERATÓRIO NA SEGURANÇA DA PESSOA EM SITUAÇÃO PERIOPERATÓRIA: REVISÃO SCOPING**

**COMPETENCIES OF PERIOPERATIVE NURSES IN THE SAFETY OF PEOPLE IN A PERIOPERATIVE SITUATION: SCOPING REVIEW**

**COMPETENCIAS DE LAS ENFERMERAS PERIOPERATORIAS EN LA SEGURIDAD DE LAS PERSONAS EN SITUACIÓN PERIOPERATORIA: REVISIÓN SCOPING**

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## RESUMO

**Introdução:** A segurança da pessoa em situação perioperatória é uma componente fundamental da qualidade dos cuidados de saúde. As competências em segurança da pessoa em situação perioperatória referem-se aos conhecimentos, habilidades e atitudes associadas à segurança da pessoa em situação perioperatória.

**Objetivo:** Este estudo tem como objetivo mapear a evidência científica sobre a importância dos instrumentos de avaliação das competências dos enfermeiros perioperatórios na segurança da pessoa em situação perioperatória.

**Métodos:** Esta revisão scoping foi realizada baseada nas recomendações da Joanna Briggs Institute e escrita de acordo com o Preferred Reporting Items for Systematic reviews and Meta- Analyses Extension for Scoping Reviews (PRISMA – ScR). A questão de investigação deste estudo é: “Qual a importância dos instrumentos de avaliação das competências dos enfermeiros perioperatórios na segurança das pessoas em situação perioperatória?” A pesquisa foi realizada em janeiro de 2024.

**Resultados:** Foram incluídos 8 estudos para a revisão, sendo que todos salientaram a importância dos instrumentos de avaliação das competências em segurança nos cuidados prestados à pessoa em situação perioperatória realçando as suas vantagens na mudança de comportamentos.

**Conclusão:** Ao preencher os instrumentos de avaliação em relação às competências, os enfermeiros de perioperatório e os próprios gestores, identificam quais os pontos fortes e fracos, levando a uma reflexão sobre as melhores estratégias para tornar os cuidados prestados à pessoa em situação perioperatória mais seguros.

**Palavras-chave:** segurança do doente; enfermagem de centro cirúrgico; inquéritos e questionários

## ABSTRACT

**Introduction:** The safety of the person in the perioperative situation is a fundamental component of the quality of healthcare. The safety competencies of the person in a perioperative situation refer to the knowledge, skills and attitudes associated with the safety of the person in a perioperative situation.

**Objective:** This study aims to map scientific evidence on the importance of instruments for assessing the skills of perioperative nurses in the safety of people in perioperative situations.

**Methods:** This scoping review was carried out based on the recommendations of the Joanna Briggs Institute and written in accordance with the Preferred Reporting Items for Systematic reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA – ScR). The research question on this study is: “How important are instruments for assessing the skills of perioperative nurses in the safety of people in perioperative situations?” The research was carried out in January 2024.

**Results:** Eight studies were included for the review, all of which highlighted the importance of instruments for assessing safety skills in the care provided to people in perioperative situations, highlighting their advantages in changing behaviors.

**Conclusion:** By completing the assessment instruments regarding the competencies, the perioperative nurses and the managers themselves, they identify the strengths and weaknesses, leading to a reflection on the best strategies to make the care provided to people in perioperative situations safer.

**Keywords:** patient safety; operating room nursing; surveys and questionnaires

## RESUMEN

**Introducción:** La seguridad de la persona en la situación perioperatoria es un componente fundamental de la calidad de la atención sanitaria. Las competencias de seguridad de la persona en una situación perioperatoria se refieren a los conocimientos, habilidades y actitudes asociados con la seguridad de la persona en una situación perioperatoria.

**Objetivo:** Este estudio tiene como objetivo mapear la evidencia científica sobre la importancia de los instrumentos de evaluación de las habilidades de los enfermeros perioperatorios en la seguridad de las personas en situaciones perioperatorias.

**Métodos:** Esta revisión de alcance se llevó a cabo con base en las recomendaciones del Instituto Joanna Briggs y se redactó de acuerdo con los elementos de informe preferidos para revisiones sistemáticas y la extensión de metanálisis para revisiones de alcance (PRISMA – ScR). La pregunta de investigación de este estudio es: “Qué importancia tiene los instrumentos para evaluar las habilidades de las enfermeras perioperatorias en la seguridad de las personas en una situación perioperatoria?” La investigación se llevó a cabo en enero de 2024.

**Resultados:** Se incluyeron para la revisión ocho estudios, todos los cuales resaltaron la importancia de los instrumentos de evaluación de habilidades de seguridad en la atención brindada a personas en situaciones perioperatorias, destacando sus ventajas en el cambio de conductas.

**Conclusión:** Al completar los instrumentos de evaluación de las competencias, los enfermeros perioperatorios y los propios gestores, identifican las fortalezas y debilidades, lo que lleva a una reflexión sobre las mejores estrategias para hacer más segura la atención brindada a las personas en situaciones perioperatorias.

**Palabras Clave:** seguridad del paciente; enfermería de quirófano; encuestas y cuestionarios

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## INTRODUCTION

Perioperative person safety is a fundamental component of the quality of healthcare, along with equity, efficiency and person-centeredness in the perioperative situation. The importance of a safety culture is fundamental for an organization to achieve the goal of continuous improvement in the quality of care (Simsekler et al., 2020).

The perioperative nurse is part of the multidisciplinary team, being the only health professional who accompanies the person in a perioperative situation throughout the perioperative process. Perioperative person safety skills are critical because nurses are with patients 24 hours a day. These competencies refer to the knowledge, skills and attitudes associated with the safety of the person in a perioperative situation. Most of the tools designed to guarantee the safety skills of people in perioperative situations assess teamwork, risk management and communication skills (Peñetaro-Pintado et al., 2022).

Preliminary research conducted in the Cochrane Database of Systematic Reviews, Medline, Pubmed, JBI and Cinahl databases indicated that there are no published or ongoing scoping reviews on this topic.

This scoping review aims to map the scientific evidence of the importance of instruments for assessing the skills of perioperative nurses in the safety of people in a perioperative situation.

## 1. LITERATURE REVIEW

Nursing care for people in a perioperative situation is highly qualified care provided continuously, which requires a high degree of competence from nurses to respond to affected needs and maintain basic life functions, preventing complications and limiting disabilities, with a view to total recovery of the person (OE, 2019).

The effective and efficient performance of a surgical team depends on the level of cohesion, training, information sharing, communication, current protocols, and mutual respect. These multidisciplinary teams lead to quality standards in surgical care (Teunissen et al., 2020).

Nurses are probably the people who are most focused on safety issues and most concerned about providing high-quality care in their organizations. Therefore, there is evidence that nurses are reliable reporters of information to assess perioperative person safety outcomes, including adverse events (Han et al, 2020).

As nurses are responsible for perioperative person safety in all dimensions of care, perioperative person safety skills become of utmost importance. These competencies refer to the knowledge, skills, and abilities regarding the safety of the person in a perioperative situation (Kılıç & Cevheroglu, 2023).

It is important for healthcare organizations to establish a culture of safety and improve it to reduce adverse events related to healthcare by ensuring that people in perioperative situations are not inadvertently harmed by errors in the provision of care (Occelli et al., 2018).

The perioperative nurse is a professional with specific functions and differentiated practices who takes care of the person in a perioperative situation, promoting the safety of their care throughout their surgical trajectory, carrying out their work within a multidisciplinary team, having a set of skills and skills to provide care in the perioperative area and to guarantee the quality of this care (Vogelsang et al, 2019).

## 2. METHODS

Taking into consideration the review research question and the objectives outlined, a Scoping Review was carried out. The recommendations of the Joanna Briggs Institute (JBI) for this type of review were followed, enabling its application through the Preferred Reporting Items for Systematic Reviews Statement (PRISMA-ScR) checklist as a strategy to answer the research question (Peters et al., 2021).

The research question on this study is: "How important are instruments for assessing the skills of perioperative nurses in the safety of people in perioperative situations?"

The Boolean sentence used in the research was ("questionnaires" OR "surveys") AND "Operating Room Nursing" AND "Patient safety".

### 2.1 Inclusion and exclusion criteria

The mnemonic PCC (Population, Concept, and Context) was used to define the inclusion criteria for articles in accordance with the same recommendations (Peters et al., 2020).

Population- Studies that include nurses who work in the surgical center. No restrictions on gender, ethnicity, or other personal characteristics were applied.

Concept- Studies that refer to assessment instruments that assess the safety of the person in a perioperative situation.

Context- The review was aimed at the hospital context.

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## 2.2 Type of studys

Quantitative, qualitative and mixed primary studies, narrative reviews and secondary studies that answered the research question were considered eligible. Studies in english, spanish, french and portuguese were included, with publication dates from January 2018 to January 2024 so that the evidence found was as recent as possible. The exclusion criteria defined were: gray literature, studies published in other languages, absence of keywords in the title and abstract, articles without full text, which did not answer the research question and publication date outside the defined time frame.

## 2.3 Research strategy and study selection process

The research was carried out in the databases Web of Science, Pubmed, Scopus, B-on, CINHALL Complete and RCAAP. Health Sciences descriptors appropriate to the research were identified " Operating Room Nursing "; " Surveys and Questionnaires"; "patient safety".

The items found were extracted into the Mendeley application and duplicates removed. The selection of studies was carried out by two independent reviewers (PR) and (JR). This selection took place in two stages. Initially, the titles and abstracts were analyzed, eliminating those that did not meet the inclusion criteria. In a second phase, the studies that answered the research question were retrieved in full and analyzed. The data was subsequently extracted and grouped into a table accompanied by a narrative synthesis to achieve the objective of the review.

All these operations are represented in PRISMA, Figure 1, adapted from Page et al. (2021)

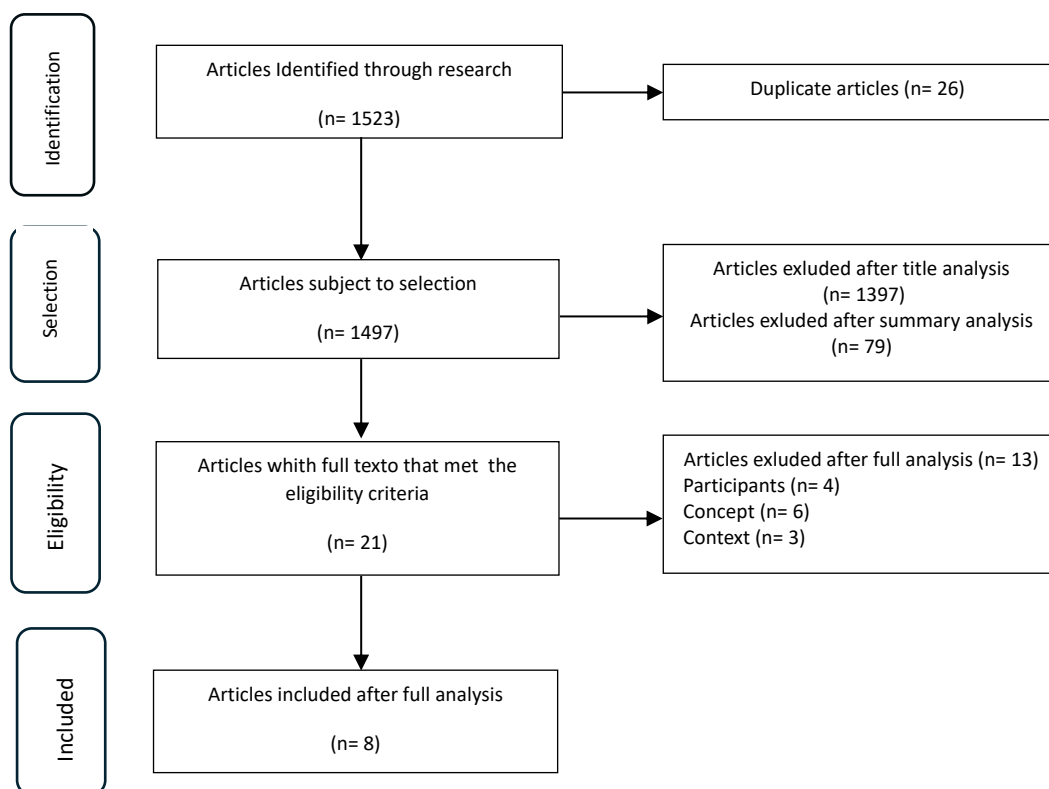


Figure 1 -Flow diagram of study sorting, selection and inclusion (Page et al., 2021)

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### 3. RESULTS

**Table 1 - Characteristics of the studies included in the review**

Author/ Year/ Country	Objectives	Type of study
Nilsson, U., Göras, C., Wallentin, F. Y., Ehrenberg, A., & Unbeck, M., 2018, Sweden	Validate the version of the Swedish Safety Attitudes Questionnaire – Operating Room (SAQ-BO), reassessing its psychometric properties.	Cross-sectional Study
Lourenção&Tronchin,2019, Brazil	Analyze the factorial structure of the version of the questionnaire that assesses Safety Attitudes in the surgical center, translated and culturally adapted to the Brazilian language.	Methodological study
Ahn & Lee, 2021, South Korea	Develop a program to improve teamwork with the aim of increasing the safety of people in the perioperative situation. The team strategies and tools used in this study to improve the safety of people in the perioperative situation are called TeamSTEPPS	Quasi-experimental study
Gomes, J.A., Martins, M.M., Tronchin, D. & Fernandes, C.S., 2021, Portugal	Evaluate the quality of care provided in the surgical center of portuguese hospitals in terms of its structure, process and results.	Quantitative and cross-sectional study
Peñataro-Pintado, E., Rodríguez-Higuera, E., Llauredó-Serra, M., Gómez-Delgado, N., Llorens-Ortega, R., Díaz-Agea, J.L., 2022, Spain	The objective of this study is design, validate and analyze the properties psychometrics of CUCEQS which is a questionnaire that evaluates the perception of perioperative nurses about their skills related to person's safety in perioperative situation.	Study quantitative descriptive
Brás, C.; Ferreira, M. & Figueiredo, M., 2023, Portugal	Build and validate the Interprofessional Health Communication Scale (ECIPs).	Psychometric Study
Gillespie, B. M., Harbeck, E., Sutherland-Fraser, S., Nicholson, P., & Boric, T., 2023, Australia	Obtain a short version of the Perioperative Perceived Competence Scale-Revised (PPCS-R) scale, the (PPCS-R-SF), with the primary objective of reducing completion time and associated costs.	Quantitative study
Pevec, 2023, Slovenia	Establishing the reliability and validity of the Slovenian translated version of the SAQ (BO version)	Cross-sectional Study

In their studie Nilsson et al., translated the Safety Attitudes Questionnaire (SAQ-BO) to Swedish and tested for its psychometric properties in a population of operating room nurses. The Swedish version of the SAQ-BO has good construct and validity, and reliability analysis suggests that some items needed further refinement to establish stronger internal consistency. Based on the evidence above, we conclude that the SAQ-BO is a reasonably reliable and valid instrument for measuring the safety climate of people in a perioperative situation in relation to the surgical team. However, the results related to the different analyzes varied among the different professionals on the team, requiring additional research using larger samples.

The questionnaire used by Lourenção & Tronchin was consolidated as a reliable instrument to measure the safety climate in the surgical environment in the Brazilian context. Furthermore, this tool can provide data and facilitate senior management and future researchers on how to implement measures and strategies aimed at ensuring the safety of care provided in the operating room by nurses and in carrying out research to evaluate the safety culture of the person in situation perioperative.

Ahn & Lee developed a TIP in this study, that was effective in improving perioperative nurses' teamwork skills. There was an improvement in teamwork with the program (TIP). The Team Strategy and Tools for Improving Performance and Perioperative Person Safety (TeamSTEPPS) has been applied in hospitals and has proven to be effective using an evidence-based team training method developed to improve perioperative person safety , improve communication between healthcare professionals and teamwork skills.

The data collection instruments used by Gomes et al., in this study were: a sociodemographic questionnaire; three scales referring to the evaluation of Structure, Process and Result. (Indicators of Structure in the Surgical Center - IEBO Scale, Quality of Care Processes in the Surgical Center - PQABO Scale and Quality Results in the Surgical Center - RQBO Scale). From the application of the instrument used, with regard to its structure, an average quality is observed in most factors. Of the different factors on the scale, the factor referring to “continuity of nursing care provided” stands out negatively, the quality of which was considered low. This factor reflects the importance of pre- and postoperative visits carried out by the surgical center nurse. When pre- and post-operative evaluation visits become common practice, they increase the efficiency and effectiveness of care in a human and economic sense. With regard to Structure, the factor “specificities of professional groups”, which was considered of high quality, highlights the need for adequate management and coordination of the different professional groups in order to have better planning and greater efficiency in the rooms of the surgical center. The importance of the quality of care provided was also demonstrated, guaranteed by the implementation of continuous quality improvement systems. As part of the process evaluation, high-quality was reported in the factors “communication flows,” “safety control,” and “teamwork,” whose indicators allow for improving the quality of processes. The factor “strategies to support care work processes” was considered to be of medium quality,

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which includes, among others, the use of checklists as a quality and safety strategy and which has undergone great growth in recent years, associated with the investment of national and international policies on safe surgery.

The results of the tool CUCEQS®, elaborated by Peñataro-Pintado et al., show that it is a tool that measures the level of competence perceived by perioperative nurses in relation to the safety of the person in the perioperative situation. This tool is significant for this purpose, and its validity, values, and reliability are very consistent.

Brás et al. created the Interprofessional Health Communication Scale (EClpS). This scale consists of 24 items, organized into three dimensions: "Teamwork," "Conflict management," and "Leadership." The study of the psychometric characteristics of the EClpS allows us to affirm that it is a robust instrument and certifies its quality and the theoretical relevance of each of the items included in the three dimensions that constitute it. The EClpS constitutes a valuable resource for evaluating interprofessional communication skills in health, raising awareness among nurses and other health professionals about this topic, and building collaborative interfaces necessary to better converge in responding to health challenges. The EClpS generally presented good reliability and validity indicators.

The Perceived Perioperative Competence Scale- short form (PPCS)- SF was constructed by Gillespie et al, to replace the PPCS-R with the aim of reducing completion time and associated costs. Perioperative skills were distributed across six domains: Fundamental knowledge and skills, leadership, proficiency, empathy, professional development, and collaboration. These six domains were operationalized in the PPCS-R into 40 items and are intended for use in continuing education through action programs supervised by nurse educators to assess the levels of competencies perceived by perioperative nurses. The results obtained with the application of this scale made it possible to evaluate the levels of skills (technical and non-technical) perceived by perioperative nurses, allowing them to carry out a personal reflection on their performance.

Pevec carried out a Slovenian-translated version of the SAQ-BO, which demonstrated good psychometric abilities for studying the safety culture of a workplace. After applying the questionnaire, it demonstrates its potential as a useful tool for evaluating safety culture. Professionals are satisfied with their work, but management has not participated in promoting the safety of people in perioperative situations.

#### 4. DISCUSSION

The philosophy of perioperative nursing is based on scientific principles and skill development.

The use of self-completion instruments allows the development of comprehensive, reflective, critical, and creative thinking. The construction and validation of instruments that assess communication skills in healthcare teams are fundamental tools for healthcare professionals who intend to provide excellent care. According to studies by Gillespie et al. (2023) and Peñataro-Pintado et al. (2022), it is important to have instruments that assess the skills in providing care to people in a perioperative situation in order to guarantee their safety.

The Perioperative Perceived Competence Scale-Revised (PPCS-R) was developed to fill a gap that existed in the literature regarding specialized skills to guide practice in the Operating Room (Gillespie et al, 2023). To promote safe nursing practice, nursing managers and leaders must also actively participate in creating an environment that supports the implementation of teamwork strategies. Effective teamwork is an essential factor in the success of care provided in the Operating Room and can be learned using a systematic skills-based teamwork program.

We can consider that the CUCEQS questionnaire, constructed by Peñataro-Pintado et al. (2022) with the aim of evaluating the perioperative nurse's perception of their skills related to the safety of people in a perioperative situation, it will also help nurses to reflect and become aware of their weaknesses and strengths. Furthermore, through the results obtained, the professional can take both individual and team actions to improve the care provided, taking into account the safety of the person in the perioperative situation, including their managers, in order to increase patient safety, which could result in a reduction in adverse events and errors.

Kılıç & Cevheroglu (2023) identifies nurses as responsible for patient safety in all dimensions of care and realize that patient safety skills are of utmost importance. These competencies refer to the knowledge, skills, and abilities regarding the safety of the person in a perioperative situation.

The study by Ahn & Lee (2021) recommends the development of an improvement program based on teamwork and perioperative nursing skills with the aim of increasing the safety of people in a perioperative situation. When applying teamwork, there are several strategies that contribute to the safety of the person in the perioperative situation, promoting effective communication, leadership, monitoring and mutual support with other professionals on the healthcare team. This program provides teamwork training and educational materials that reflect professionals' health care and clinical environments and allow for reflection to strengthen the connection between perioperative person safety concepts and teamwork. The team strategies and tools used in this study to improve patient safety are called TeamSTEPPS. This has been applied in several hospitals and has proven to be effective in improving perioperative person safety, improving communication between healthcare professionals and teamwork skills. Application of this tool in the future can be used not only with nursing staff, but also with other healthcare professionals who work together in the operating room with the aim of providing safer care.

Of the relevant studies in our review, 3 address this instrument - The Security Attitudes Questionnaire (SAQ/BO). The Safety Attitudes Questionnaire (SAQ) is one of the instruments that measures the safety climate and has been consolidated as a reliable instrument for

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measuring the safety climate in the surgical environment. It has a version of the SAQ adapted to the operating room, the Safety Attitudes Questionnaire/surgical unit (SAQ/BO). The study by Lourenção&Tronchin (2019) considers that this tool can provide data and provide senior management and future researchers a way to implement measures and strategies aimed at ensuring the safety of care provided in the surgical center by nurses and in carrying out research to evaluate the safety culture for people in the perioperative situation. Pevco (2023), after applying the questionnaire (SA/BO), found that it is a useful tool for evaluating safety culture.

Safety culture mainly refers to individual and group values, attitudes, perceptions, and skills regarding safety. As the operating room is a service where there can be a high prevalence of errors, measuring the safety climate in such a workplace is an important step toward understanding a person's safety in a perioperative situation. Nilsson et al. (2018), when applying the SAQ/BO, also concluded that it is a reliable instrument for evaluating the safety of people in a perioperative situation with regard to the care provided by the multidisciplinary team. The safety and efficiency of care provided to people in the perioperative situation depend on interprofessional activities and teamwork

Nurses play an important role in ensuring the safety of people in the perioperative situation due to the nature of their work, which includes continuous monitoring and care coordination (Han et al, 2020).

Health organizations constitute spaces for strong interaction between different professionals. Interprofessional communication in a clinical context is fundamental, given the need for safe and effective responses in health care. Brás et al. (2023) constructed the Interprofessional Health Communication Scale (ECIPs) with the aim of evaluating communication skills in health teams. This scale is organized into three dimensions: "Teamwork," "Conflict management," and "Leadership." It constitutes a valuable resource for evaluating interprofessional communication skills in health, sensitizing nurses and other health professionals to this topic in order to build collaborative interfaces necessary to better converge in responding to health challenges.

Gomes et al. (2021) evaluated the quality of care provided in the surgical centers of Portuguese hospitals in terms of its structure, process, and results. The data collection instruments used in this study were: a sociodemographic questionnaire; three scales referring to the assessment of Structure, Process, and Result - Structure Indicators in the Surgical Center - IEBO Scale, Quality Processes of care in the Surgical Center - PQABO Scale, and Quality Results in the Surgical Center - RQBO Scale. Regarding the results obtained about the structure, the need for adequate management and coordination of the different professional groups is highlighted in order to have better planning and greater efficiency in the operating room. The importance of the quality of care provided was also demonstrated, and it was guaranteed by the implementation of continuous quality improvement systems. As part of the process evaluation, high-quality was reported in the factors "communication flows", "control for safety and "teamwork", whose indicators allow for improving the quality of processes. The factor "strategies to support care work processes" was considered to be of medium quality, which includes, among others, the use of checklists as a quality and safety strategy, and which have undergone great growth in recent years, associated with the investment of national and international policies on safe surgery. This study made it possible to identify areas in need of improvement, constituting a valuable tool for use in a hospital or research environment that is capable of being replicated in future studies.

## CONCLUSION

With this scoping review, it was possible to demonstrate and prove the influence of instruments for assessing the skills of perioperative nurses on the safety of people in a perioperative situation.

The instruments/questionnaires/scales used in this review proved to be important, as the results obtained allowed expert nurses and perioperative managers to identify existing gaps in teams with regard to safety skills.

A reflection on the results obtained with these instruments, that is, on the strengths and weaknesses and limitations of the teams are opportunities to improve both technical and non-technical skills, allowing professional development. This can be achieved through training and coaching with the aim of improving performance.

The identification of these findings is particularly relevant for nursing, as nurses actively participate in strategic decision-making and health care. We believe that the importance of using the various instruments that exist to assess the various skills of nurses will be demonstrated for the provision of safer perioperative care.

The main limitations we encountered when carrying out this work was the existence of few instruments specifically for use in the operating room to safely assess the skills of perioperative nurses.

## AUTHORS' CONTRIBUTION

Conceptualization, P.R.; data curation, P.R. and A.S.B.; formal analysis, P.R. and A.M.D.; investigation, P.R. and A.M.D.; methodology, P.R. and A. S.B.; project administration, P.R.; supervision, P.R. and A.M.D.; validation, P.R. and A.M.D.; visualization, P.R. and A.S.B.; writing-original draft, P.R. and A.S.B.; writing-review and editing, P.R., A.S.B. and A.M.D.

## CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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