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PREOPERATIVE TELENURSING IN ELECTIVE SURGICAL PROCEDURES TO PROMOTE PATIENT SAFETY: A SCOPING REVIEW PROTOCOL

TELENFERMAGEM PRÉ-OPERATÓRIA EM CIRURGIA ELETIVA PARA PROMOVER SEGURANÇA DO PACIENTE: PROTOCOLO DE REVISÃO DE ESCOPO

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RESUMO

Objetivo: mapear as evidências sobre a telenfermagem pré-operatória no contexto de cirurgias eletivas para promover a segurança do paciente. **Método:** pesquisa registrada na Open Science Framework, conduzida com base na metodologia do Instituto Joanna Briggs: identificação da questão de pesquisa; identificação dos estudos relevantes, seleção do estudo, extração de dados, análise, síntese e apresentação dos dados. A estratégia de busca foi elaborada em consulta aos descritores padronizados e sinônimos em bases de dados eletrônicas em ciências da saúde, bem como repositório de dissertações e teses e sites de sociedades cirúrgicas. Serão considerados todos os estudos quantitativos, qualitativos, de métodos mistos, todos os tipos de revisões, editoriais e literatura cinzenta, publicados ou não, de 2009 até o presente com o auxílio do software Rayyan por dois revisores independentes de forma cegada e com posterior resolução dos conflitos com reunião de consenso. Os dados serão apresentados de forma descritiva.

Descritores: Telenfermagem; Período Pré-operatório; Procedimentos Cirúrgicos Eletivos; Segurança do Paciente; Enfermagem.

ABSTRACT

Objective: To map the evidence on preoperative telenursing in the context of elective surgical procedures to promote patient safety. **Method:** This research was registered on the Open Science Framework, platform and was conducted using the methodology of the Joanna Briggs Institute (nowadays, JBI). That is, identification of the research question, identification of relevant studies, selection of studies, data extraction, data analysis, synthesis, and reporting. The search strategy was developed by consulting standardized descriptors and synonyms in electronic databases on health sciences, as well as repositories of dissertations and theses and websites of surgical societies or associations. All quantitative, qualitative, and mixed-method studies, all types of reviews, editorials, and gray literature, published or not, from 2009 to the present days, shall be considered. To this end, Rayyan software shall be used by two independent reviewers in a blinded manner, with subsequent resolution of conflicts by consensus meeting. The data shall be presented descriptively.

Descriptors: Telenursing; Preoperative Period; Elective Surgical Procedures; Patient Safety; Nursing.

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INTRODUCTION

As patient care needs change, new healthcare models emerge. This was no different during the COVID-19 pandemic, when physical contact was made difficult and the demand for care grew significantly[1]. In this regard, remote nursing care, according to Communication and Information Technologies (telenursing), has become a technological innovation and an important strategy to mitigate the impact of social distancing[2].

In 2022, the Brazilian legislation regulated the validity of professional acts throughout the country regarding remote care. These are new possibilities for offering access to remote healthcare by using Information and Communication Technologies (ICTs) that employ "the secure transmission of health data and information through texts, sounds, images, or other appropriate forms"[3]. In the same year, the Federal Nursing Council standardized the role of nurses in digital health (telenursing), whose practice involves "Nursing consultation, interconsultation, consultancy, monitoring, health education, and reception of spontaneous requests by the ICT"[4].

In the surgical context, scientific evidence has shown the efficiency of nursing actions in the virtual environment regarding the perioperative period. The access of users to quality care and the possibility of expanding the scope of professional activity have also been improved[5-6]. Although the results of the research are encouraging, as this is still an innovative and incipient activity, it is necessary to better understand the situation and map out the existing gaps, especially preoperative telenursing in elective surgical procedures.

A surgical procedure is defined as "any procedure that is carried out in an operating room that involves incision, excision, manipulation, or suturing of tissues, and that typically requires local or general anesthesia or deep sedation for pain control"[7]. A surgical procedure is deemed elective when it can be scheduled on a date that is convenient for the patient. That is, when the time needed to carry out the procedure matches the patient's availability and can be scheduled in advance. The patient's preoperative period begins when deciding on surgical treatment[8-9].

Therefore, the operating room is a place that can lead to a high rate of the most frequent adverse events. This could be attributed to the complexity of the procedures, the interaction of interdisciplinary teams, working under pressure, use of highly technological equipment, and the complications that could be related to an inadequate preoperative care[9-10].

The preoperative period precedes the anesthetic-surgical procedure and is divided into two phases. The immediate preoperative period begins with the decision-making process on the surgical treatment and lasts up to 24 hours before the surgical procedure. On the other hand, the mediate preoperative period "begins 24 hours before the anesthetic-surgical procedure and ends when the patient is transferred to the operating table"[8]. During this period, complex and specific issues arise, and it is paramount that general and individual care is provided and that this is appropriately followed to ensure an effective preoperative preparation. Throughout the preoperative period, patient care should be organized, customized, and based on scientific evidence. The specific nature of the planned surgical procedure and the procedures that are provided by the institution should be kept in mind[5].

It is also important to observe the time interval between the decision for surgical treatment and the moment of the surgical procedure to plan the preoperative care involving guidance, physical and emotional conditioning, and assessment. This is done to reduce surgical risks, improve recovery, and prevent postoperative complications[11-12]. The success of surgical procedures is directly linked to the safe and effective resolution of the patient's health problems. In this context, preoperative care becomes important to promote safe nursing practice and mitigate the possibility of the surgical procedure being canceled, mainly due to an inappropriate preparation[12-13].

It is important to emphasize the relevance of incorporating new technologies, especially telenursing, to improve access to healthcare, thereby contributing to the achievement of the Sustainable Development Goals (SDGs), in particular SDG 3, "Good Health and Well-being"[14]. In accordance with SDG 3, the Global Patient Safety Action Plan 2021-2030 outlined strategy 3.1 to reduce the risks in all clinical procedures. It is known that a surgical procedure comprises several processes and different and challenging stages and may involve around 60 people or more, with different professional backgrounds[15].

On a global scale, it is estimated that 234 million major surgeries take place and that there is a 3% incidence of surgical adverse events and an overall mortality rate of 0.5%[7]. In 2023, over than 24 million surgical procedures were performed throughout the Brazilian Unified Health System (SUS; *Sistema Único de Saúde*, in Portuguese), with an emphasis in the Southeast region with 44.6% of these anesthetic-surgical procedures[16]. Despite the magnitude of this data, the waiting list for a procedure (it was 1,081,893 in 2023) is still an obstacle, which was aggravated by the COVID-19 pandemic[17-19]. That same year, the Ministry of Health created the National Program to Reduce Waiting Lists for Elective Surgical Procedures, Complementary Examinations, and Specialized Consultations (PNRF), the objective of which is to expand access, in particular to this identified unmet demand[20].

Moreover, a recent literature review found that prolonged intervals until the day of elective surgical procedure reveal a negative aspect of quality management in healthcare, and this is related to the provision of services (structure and process) and the particularities of each request[21]. Regardless of the level of health care, appropriate practices are a non-negotiable feature, and preoperative care becomes relevant to promote the surgical safety that is necessary to mitigate the barriers that prevent access to health care by patients.

The bibliography already shows that telenursing has a positive impact on reducing post-surgical adverse events, such as surgical site infections, complications relating to the use of drains, poor adherence to medication, and hospital readmissions. However, the scientific framework focused on the preoperative period is minimal, and the telenursing in surgical care represents an advance in the model of patient-centered care. The ability to early identify signs of clinical deterioration and properly guide the patient allows for timely and safe procedures. This closer and more effective monitoring is a fundamental aspect for the quality and humanization of care[5,6,8,11,13].

Telenursing, particularly in a country with regional inequalities such as Brazil, offers a strategic opportunity to qualify this care, improve communication between

healthcare providers and patients, and prevent avoidable complications. Its effective implementation requires investment in infrastructure, professional training, and appropriate regulation, in addition to representing a significant step towards safer, more accessible, and humanized surgical care[5,15,22].

A preliminary search on the JBI Evidence Synthesis, the Cochrane Database of Systematic Reviews (CDSR), the International Prospective Register of Systematic Reviews (better known as PROSPERO), the Open Science Framework (OSF) platform, ResearchGate, and the Medical Literature Analysis and Retrieval System Online, or MEDLARS Online (MEDLINE) database was carried out on June 4th, 2024. No current or ongoing scoping reviews or systematic reviews linking preoperative telenursing and patient safety were identified.

The scope of this scoping review is to map the evidence on preoperative telenursing in the context of elective surgical procedures to promote patient safety. The question for this review is: What is the evidence on preoperative telenursing in the context of elective surgical procedures to promote patient safety?

METHOD

The proposed scoping review shall be carried out in accordance with the provisions of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) tool, the methodology of which belongs to the Joanna Briggs Institute[23-24].

Eligibility criteria

The eligibility criteria were developed according to the acronym PCC ("Patient, Concept, and Context")[23]. For participants, the review shall consider studies that include patients over the age of 18 years. The concept under study in this review is the mapping of evidence relating to preoperative telenursing. Studies that include and relate these two concepts and that guide or describe the practices carried out in the preoperative period, with the following definitions: Telenursing: "the use of Information and Communication Technology (ICT) resources to create and make available reliable information on health status for those who need it, when they need it, by a nursing professional"[4]. Preoperative: "the period that begins when the decision to perform the surgical procedure is made and ends when the individual is transferred to the operating room"[25]. In terms of context, this scoping review shall include studies carried out in elective surgical procedures to promote patient safety, with the following definitions: elective surgical procedure: "the individual shall undergo a surgical procedure; failure to perform a surgical procedure is not irremediable"[25]; and patient safety: "a framework of organized activities that creates cultures, processes, and procedures, behaviors, technologies, and environments in healthcare, which consistently and sustainably reduces risks and the likelihood of error, as well as the occurrence of preventable damage and its impact when error occurs"[15].

Search strategy

An initial limited search was initially carried out in the Medical Literature Analysis and Retrieval System Online (MEDLINE), and Cumulative Index to Nursing and Allied Health Literature (CINAHL) databases to identify articles on the subject. The terms in the titles and abstracts of the relevant articles and the descriptors were used to develop a comprehensive search strategy. Significant articles were obtained, which allowed this review to continue. A second search using all the identified keywords and synonyms shall be carried out in the following databases: MEDLINE (PubMed), CINAHL, Excerpta Medica dataBASE (Embase), Latin American and Caribbean Health Sciences Literature (LILACS; *Literatura Latino-Americana e do Caribe em Ciências da Saúde*, in Portuguese) via the Virtual Health Library (VHL) (BVS; *Biblioteca Virtual en Salud*, in Spanish), Scopus (Elsevier) and Web of Science (Clarivate), WorldCat, OpenGrey, the Brazilian Digital Library for electronic Theses and Dissertations (BDTD; *Biblioteca Digital Brasileira de Teses e Dissertações*, in Portuguese), the Brazilian Association of Surgical Center Nurses, Anesthetic Recovery and Material and Sterilization Center (*Associação Brasileira de Enfermeiros de Centro Cirúrgico, Recuperação Anestésica e Centro de Material e Esterilização*, in Portuguese) (SOBECC), American Nurses Association (ANA), and the Association of periOperative Registered Nurses (AORN). In the third stage, the reference lists of the articles in the review shall be screened for additional articles.

The search strategy used descriptors in combination with the Boolean operators "AND" and/or "OR", as needed in each database. The Medical Subject Headings (MeSH) and DeCS (Health Sciences Descriptors/Descriptors in Health Sciences) were consulted to define the descriptors to make up the search strategy: preoperative period; telenursing; elective surgical procedures; and patient safety (see Chart 1).

The review shall consider studies in any language and include those published since 2009, when the World Health Organization launched the Second Global Patient Safety Challenge "Safe Surgery Saves Lives". This challenge was focused on developing procedures to ensure the safety of surgical procedures for patients anywhere in the world, due to the large number of surgical procedures and the perception that the operating room is a particularly complex environment[7]. The scoping review shall consider quantitative, qualitative, mixed-method studies, all types of reviews, editorials, and gray literature. This will result in greater sensitivity in the search, thus broadening the collection of published and unpublished studies, as it is a recent subject in Brazil. In addition, it will carry out broad and synthetic mapping, which is suitable for this scoping review.

Selection of studies

After the search, all the identified studies shall be grouped and uploaded to the Intelligent Systematic Review (Rayyan), developed by the Qatar Computing Research Institute (QCRI)[25], and duplicates shall be removed. The titles and abstracts shall be screened by two independent reviewers to assess the eligibility of the studies against the initially defined inclusion criteria. A pilot screening test with random sampling shall be carried out independently by both reviewers on an initial total of 25 titles and abstracts. The reviewers shall discuss the disagreements and make modifications to the eligibility criteria and definitions as appropriate. This pilot test shall continue until at least 75% agreement is reached between the reviewers[23].

Chart 1 - Examples of the used search strategies. Rio de Janeiro, 2025

Base	Search strategy	
PUBMED	(Preoperative Care[mh] OR Preoperative Period[mh] OR Preoperative[tiab] OR Pre-operative[tiab] OR Presurgery[ti] OR Pre-surgery[ti]) AND (Telemedicine[mh] OR Telemedicine[tiab] OR Mobile Health[tiab] OR mHealth[tiab] OR eHealth[tiab] OR Telehealth[tiab] OR Telenursing[mh] OR Telenursing[tiab] OR Remote Consultation[mh] OR Remote Consultation*[tiab] OR Teleconsultation*[tiab] OR Telecare[tiab] OR Telephone Consultation*[tiab] OR Video Consultation[tiab]) AND (Elective Surgical Procedures[mh] OR Elective Surgical Procedure*[tiab] OR Outpatient Surger*[tiab] OR Office Surger*[tiab] OR Ambulatory Surger*[tiab] OR Day Surger*[tiab] OR Surgical Procedures, Operative[mh] OR Surger*[tiab] OR Surgical[tiab] OR Operative[tiab]) AND (“patient safety” [MeSH Terms] OR “patient safet*” [Title/Abstract] OR “patient harm” [MeSH Terms] OR “patient harm” [Title/Abstract] OR “patient risk*” [Title/Abstract] OR “safety” [MeSH Terms] OR “adverse event” [Title/Abstract] OR “patient outcomes” [Title/Abstract]) NOT (Child*[ti] OR Adolescent*[ti] OR Teen*[ti] OR Neonat*[ti] OR Newborn*[ti] OR Infant*[ti] OR Pediatric*[ti] OR Paediatric*[ti])	**22**
EMBASE	('preoperative care'/exp OR 'preoperative care':ti,ab OR 'preoperative preparation':ti,ab OR 'preoperative period'/exp OR 'preoperative period':ti,ab OR preoperative:ti,ab OR 'preoperative treatment'/exp OR 'preoperative treatment':ti,ab OR 'pre operative':ti OR presurgery:ti,ab OR 'pre surgery':ti,ab) AND ('safety'/exp OR patient OR safet*:ab,ti OR patient OR harm OR patient:ab,ti) AND ('telemedicine'/exp OR 'tele medicine':ti,ab OR 'telemedicine':ti,ab OR 'virtual medicine':ti,ab OR 'video consultation'/exp OR 'telemedicine video-consultation':ti,ab OR 'video consultation':ti,ab OR 'videoconsultation':ti,ab OR 'mobile health':ti,ab OR mhealth:ti,ab OR 'telehealth'/exp OR 'e-health':ti,ab OR 'ehealth':ti,ab OR 'tele- health':ti,ab OR 'telehealth':ti,ab OR 'telenursing'/exp OR 'tele-nursing':ti,ab OR 'telenursing':ti,ab OR 'virtual nursing':ti,ab OR 'teleconsultation'/exp OR 'long distance consultation':ti,ab OR 'remote consultation':ti,ab OR 'teleconsultation':ti,ab OR 'teleconsultation':ti,ab OR 'telephone consultation':ti,ab OR 'telephone-based consultation':ti,ab OR 'telecare'/exp OR 'e-care':ti,ab OR 'e-health care':ti,ab OR 'e-healthcare':ti,ab OR 'tele-care':ti,ab OR 'telecare':ti,ab OR 'virtual care':ti,ab OR 'virtual health care':ti,ab OR 'virtual healthcare':ti,ab) AND ('elective surgery'/exp OR 'elective surgery':ti,ab OR 'elective surgery':ti,ab OR 'elective surgical procedures':ti,ab OR 'ambulatory surgery'/exp OR 'ambulant surgery':ti,ab OR 'ambulatory surgery':ti,ab OR 'ambulatory surgical procedures':ti,ab OR 'day surgery':ti,ab OR 'outpatient surgery':ti,ab OR 'office surgery':ti,ab OR 'surgery'/exp OR 'operation':ti,ab OR 'resection':ti,ab OR 'surgery':ti,ab OR surgical:ti,ab OR operative:ti,ab) NOT ('child*':ti OR 'adolescent*':ti OR 'teen*':ti OR 'neonat*':ti OR 'newborn*':ti OR 'infant*':ti OR 'pediatric*':ti OR 'paediatric*':ti) AND [embase]/lim NOT ([embase]/lim AND [medline]/lim) AND (2009:py OR 2010:py OR 2011:py OR 2012:py OR 2013:py OR 2014:py OR 2015:py OR 2016:py OR 2017:py OR 2018:py OR 2019:py OR 2020:py OR 2021:py OR 2022:py OR 2023:py OR 2024:py)	**387**
CINAHL	(“Preoperative Care” OR “Preoperative Period” OR Preoperative OR Pre-operative OR Presurgery OR Pre-surgery) AND (Telemedicine OR Telemedicine OR “Mobile Health” OR mHealth OR eHealth OR Telehealth OR Telenursing OR Telenursing OR “Remote Consultation” OR “Remote Consultations” OR Teleconsultation* OR Telecare OR “Telephone Consultation”) AND (AB (patient safet* OR patient harm OR patient risk OR adverse event) OR (“MH patient safety”) OR (MH “safety”) OR (MH “cultural safety”) OR (MM “health care errors”) OR (MM “adverse health care event”)) AND (“Elective Surgical Procedure” OR “Elective Surgical Procedures” OR “Elective Surgery” OR “Elective Surgeries” OR Surger* OR Surgical OR “Ambulatory Surgical Procedure” OR “Ambulatory Surgical Procedures” OR “Ambulatory Surgery” OR “Ambulatory Surgeries” OR “Outpatient Surgery” OR “Outpatient Surgeries” OR “Office Surgery” OR “Office Surgeries” OR “Day Surgery” OR “Day Surgeries” OR Operative) NOT (Child* OR Adolescent* OR Teen* OR Neonat* OR Newborn* OR Infant* OR Pediatric* OR Paediatric*)	**8**

Complete studies that meet or potentially meet the inclusion criteria shall be reviewed. The full text of the selected references shall be evaluated against the inclusion criteria by two independent reviewers. Any disagreements between reviewers at each stage of the selection process shall be resolved by consensus. The references of eligible studies recovered in full shall be transferred into Rayyan. Any reasons for excluding studies shall be recorded and reported in the scoping review. The search results shall be reported in full in the final scoping review and presented in a PRISMA flowchart[24].

Data extraction

Data shall be extracted from the selected studies in the scoping review by two independent reviewers by using a data extraction tool, which is developed by the reviewers; the following information shall be included: author(s), year of publication, country of origin (where the source was published or the study was conducted), objectives, study design, population/participants, sample size, type of surgical procedure, telenursing mode, results, and main conclusions relating to the issue of this scoping review. The instrument shall be modified and revised as necessary during the data extraction from each included article. Modifications shall be detailed in the full review. Any possible disagreements between the reviewers shall be resolved by a consensus meeting. If necessary, the authors of the included articles may be consulted for any clarifications.

The data shall be analyzed by mapping the obtained information by using this study's extraction tool. A descriptive analytical framework shall be used to examine the content of each article. To this end, a qualitative analysis shall be conducted on all the texts, which will make possible the creation of emerging categories from the in-depth reading of the publications to illustrate the topics of interest. When processing the data, a critical evaluation of the texts shall be carried out, with an emphasis on methodological aspects, in accordance with the expertise of the reviewers.

EXPECTED RESULTS

The aim is to identify the nursing interventions that are remotely carried out in the preoperative period, as well as the outcomes relating to their implementation. It is also intended to describe the types of technologies to be used, the

skills of nursing professionals, and the elements of the protocols to be adopted. In addition, the review should highlight the benefits of telenursing in preventing the occurrence of adverse events, adhering to preoperative guidelines, reducing the number of cancellations of surgical procedures, and improving the patient's clinical and emotional preparation. It should also reveal gaps in knowledge, indicate the need for future research, and conduce the making of standardized protocols, safe practices, and evidence-based health policies.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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