Competencies of nurses in the fight against Covid-19: a scoping review

Competências de enfermeiros no combate à Covid-19: revisão de escopo

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ABSTRACT
Objective: to map the available scientific evidence on nurses' competencies in the fight against Covid-19. **Method**: this is a scoping review, with a search strategy performed in MEDLINE, Scopus, CINAHL, WOS, LILACS, BDENF, IBECS, and in the reference lists of the sources used, grouped in the Rayyan software, whose duplicates were removed. Independent reviewers performed the extraction and analysis of retrieved data. **Results**: the final sample consisted of 11 articles. Competencies were described in three conceptual categories defined in the International Council of Nurses framework of competencies for general nurses. **Conclusion**: the results identified can help construct new guidelines aiming at improving nursing care during pandemics.
Descriptors: Nurses; Nurse's Role; Coronavirus Infections.

RESUMO
Objetivo: mapear as evidências científicas disponíveis sobre as competências de enfermeiros no combate à Covid-19. **Método:** revisão de escopo, com estratégia de busca realizada nas bases de dados MEDLINE; Scopus; CINAHL; WOS; LILACS; BDENF; IBECS, assim como nas listas de referências das fontes utilizadas, agrupadas no software *Rayyan,* cujas duplicatas foram removidas. A extração e análise dos dados recuperados foram realizadas por revisores independentes. **Resultados:** a amostra final foi composta por 11 artigos. As competências foram descritas em três categorias conceituais definidas no marco de competências para enfermeira generalista do Conselho Internacional de Enfermeiras. **Conclusão:** os resultados identificados podem auxiliar na construção de novas diretrizes, visando melhorias da assistência de enfermagem em tempos de pandemia.
Descritores: Enfermeiros; Papel do Profissional de Enfermagem; Infecções por Coronavírus.

INTRODUCTION

In December 2019, a cluster of pneumonia cases of unknown etiology was discovered in China, which, in January 2020, was identified as a new type of virus from the Coronaviridae family, later referred to as SARS-CoV- 2, causing the disease called Covid-19[1]. With its wide dissemination in several continents, the World Health Organization (WHO)[2] declared a pandemic, whose rapid evolution exhausted the health system's capacity.

In this context, Nursing has been essential, and the International Council of Nurses (ICN) has followed the WHO initiative to prevent the spread of the coronavirus, constantly monitoring data and supporting National Nursing Associations. The top twelve priorities of the International Council of Nurses (ICN) Call to Action[3] against Covid-19 outline the importance of ensuring that nurses are adequately trained in evidence-based infection prevention and control measures, as well as updated and specific trained on Covid-19 control. This monitoring and updating to face the pandemic are necessary, as they comprise one of the essential skills of nurses, as the work process involves management and care, which requires the development of this and other professional skills. These are defined as the ability to articulate values, knowledge, skills, and attitudes necessary for efficiency and achievement

of work objectives, such as decision-making, communication, leadership, administration, management, and continuing education, which are indispensable for the management of care[4]. While nurses are trained to strengthen disaster and emergency response capacity, in fragile environments such as the current pandemic, there is an increase in the workload and complexity of nursing functions. Based on this, nursing competencies are expected to meet the environment's and patients' new needs[5]. In this sense, this study aimed to map the available scientific evidence on nurses' competencies in the fight against Covid-19.

METHOD

Study design

This is a scoping review study conducted following the methodology proposed by the Joanna Briggs Institute (JBI). This method allows mapping the main concepts, clarifying research areas, and identifying knowledge gaps[6]. To accomplish this, the five steps listed by Arksey and O'Malley[7] were followed: identification of the guiding question, identification of relevant studies, selection of studies, information mapping, and summarizing, synthesizing, and reporting the results.

Data collection

To construct the research question, the mnemonic strategy Population, Concept and Context (PCC) was used to review the scope, as the JBI protocol recommends: P – nurses; C – competencies, and C – Covid-19. Based on these definitions, the following guiding question was established: What is the scientific evidence on nurses' competencies in the fight against Covid-19?

The literature search was carried out from December 2020 to January 2021, using the following search descriptors for the databases in Portuguese: Health Sciences Descriptors (DeCS): *enfermeiros*, *papel do profissional de enfermagem* and *infecções por coronavírus*; in the English databases, the following Medical Subject Headings (MeSH) descriptors were used: Nurse, Nursing, Clinical Competence and Coronavirus Infections. The Boolean terms were used combining the descriptors: AND and OR, to compose the search keys in the databases.

The process of searching and selecting the articles was carried out in the appropriate databases for the study theme: Medical Literature

Analysis and Retrieval System Online – MEDLINE (via PubMed); Scopus; Cumulative Index to Nursing and Allied Health Literature (CINAHL); Web of Science (WOS); Latin American and Caribbean Health Sciences Literature (LILACS); Nursing Database (BDENF); and Bibliographic Index on Health Sciences from Spain (IBECS), the last three being accessed via the Virtual Health Library (VHL). The search took place in three stages: (1) In the first search, the appropriately controlled descriptors for each database were used (Medical Subject Headings - MeSH, CINAHL Headings, and Health Sciences Descriptors – DeCS); (2) Subsequently, uncontrolled descriptors were used, using the terms specific to the current topic in all chosen databases and repositories; (3) In the third stage, studies were identified and selected from the reference lists of the sources used. Figure 1 describes the search strategy performed in the different databases. Studies available in the most varied methodologies were established as inclusion criteria: primary studies, literature reviews, editorials, preprints, letters to the editor, and reflective articles in English, Spanish or Portuguese, published until January 6, 2021, addressing the skills of nurses in the context of Covid-19. Articles that did not meet the study's objective or did not contribute with pertinent information were excluded.

Data analysis

For the organization and storage of references, Rayyan QCRI software manager was used, which allows access to references by more than one researcher. Two independent reviewers with access to the same search results verified the relevance of the included studies. Disagreements regarding the inclusion of studies were resolved through discussion among peers or the assessment of a third reviewer.

The methodological quality of the primary studies was not evaluated, as this aspect is not considered in a scoping review. However, for data extraction, the form recommended by the JBI[6] was adopted to facilitate the synthesis of information and the assessment of the quality of the recommendations.

A form adapted from the JBI was used to extract data containing the items: publication data (year, authors, and country); study objectives; methodological characteristics (characteristics of the study population); main results (measurement of outcomes and main findings or contributions). In this way, the results were summarized and

Databases	Search strategies
MEDLINE-Pubmed	(((((((("Nurses"[Mesh]) OR "Nursing"[Mesh] OR ("nurses"[All Fields])) OR ("nursing"[All Fields])) OR ("personnel, nursing"[All Fields])) OR ("nursing personnel"[All Fields])) AND ((((((("Clinical Competence"[Mesh]) OR ("clinical competence"[All Fields])) OR ("competency, clinica"[All Fields])) OR ("clinical competency"[All Fields])) OR ("clinical competencies"[All Fields])) OR ("culturally competent care"[All Fields]))) AND ((((((("Coronavirus Infections"[Mesh]) OR ("coronavirus infections"[All Fields])) OR ("coronavirus infection"[All Fields])) OR ("infection, coronavirus"[All Fields])) OR ("middle east respiratory syndrome"[All Fields])) OR ("covid 19"[All Fields]))
CINAHL	((MH "Nurses") OR "Nurses" OR "Nursing" OR "Personnel, Nursing" OR "Nursing Personnel") AND ((MH "Clinical Competence") OR "Clinical Competence" OR "Competency, Clinical" OR "Clinical Competency" OR "Clinical Competencies" OR "Culturally Competent Care") AND ((MH "Coronavirus Infections") OR "Coronavirus Infections" OR "Coronavirus Infection" OR "Infection, Coronavirus" OR (MH "Middle East Respiratory Syndrome") OR "Middle East Respiratory Syndrome" OR (MH "COVID-19") OR "covid-19")
VHL (BDENF, LILACS and IBECS)	((mh:(Enfermeiros)) OR (Enfermeiros) OR (Nurses) OR (mh:("enfermeiras e enfermeiros")) OR ("enfermeiras e enfermeiros") OR (Enfermeros) OR (mh:("profissionais de enfermagem")) OR ("profissionais de enfermagem") OR ("Nurse Practitioners") OR ("Enfermeras Practicantes")) AND (((mh:("Competência Clínica")) OR ("Competência Clínica") OR ("Clinical Competence") OR ("Competencia Clínica") OR ("Habilidade Clínica")) OR ((mh:("Papel do Profissional de Enfermagem")) OR ("Papel do Profissional de Enfermagem") OR ("Nurse's Role") OR ("Rol de la Enfermera") OR ("Papel do Enfermeiro") OR ("Papel da Enfermeira") OR ("Papéis dos Enfermeiros") OR ("Papel dos Enfermeiros") OR ("Perfil de Competências de Enfermeiros"))) AND ((mh:("Infecções por Coronavirus")) OR ("Infecções por Coronavirus") OR ("Coronavirus Infections") OR ("Infecciones por Coronavirus") OR (COVID-19) OR ("Doença pelo Novo Coronavírus (2019-nCoV)") OR ("Doença por Coronavírus 2019-nCoV") OR ("Doença por Novo Coronavírus (2019-nCoV)") OR ("Infecção por Coronavirus 2019-nCoV") OR ("Infecção por Coronavírus 2019-nCoV"))
Web of Science	(TS=("nurses") OR TS=("nursing") OR TS=("personnel, nursing") OR TS=("nursing personnel")) AND (TS=("clinical competence") OR TS=("competency, clinica") OR TS=("clinical competency") OR TS=("clinical competencies") OR TS=("culturally competent care")) AND (TS=("coronavirus infections") OR TS=("coronavirus infection") OR TS=("infection, coronavirus") OR TS=("middle east respiratory syndrome") OR TS=("covid 19"))
SCOPUS	((TITLE-ABS-KEY ("nurses") OR TITLE-ABS-KEY ("nursing") OR TITLE-ABS-KEY ("personnel, nursing") OR TITLE-ABS-KEY ("nursing personnel"))) AND ((TITLE-ABS-KEY ("clinical competence") OR TITLE-ABS-KEY ("competency, clinica") OR TITLE- ABS-KEY ("clinical competency") OR TITLE-ABS-KEY ("clinical competencies") OR TITLE-ABS-KEY ("culturally competent care"))) AND ((TITLE-ABS-KEY ("coronavirus infections") OR TITLE-ABS-KEY ("coronavirus infection") OR TITLE-ABS-KEY ("infection, coronavirus") OR TITLE-ABS-KEY ("middle east respiratory syndrome") OR TITLE-ABS-KEY ("covid 19")))

Figure 1 - Search strategies used in the searched databases. Teresina, PI, Brazil, 2021
Source: Prepared by the authors, 2021.

presented in tables, one of which is composed of the items from the JBI form described above. The framework with the grouping and classification of competencies was carried out following those defined by the ICN framework of competencies for general nurses: Professional, ethical, and legal practice, Care provision and management, and Enhancement of the profession[8]. Both aligned with the objective of this review, followed by a narrative discussion.

The search in the selected databases resulted in 137 potentially eligible studies (MEDLINE/PubMed: 43; CINAHL: 40; VHL: 20; SCOPUS: 20; and WOS: 2). Of these, 28 duplicates were detected by Rayyan QCRI and consequently excluded, thus leaving 109 articles for title and abstract screening. Of these, 44 articles were selected, of which 33 were excluded due to unavailability of access to the full text and inconsistency with the study's objective. Thus, the final sample

comprised 11 articles that were fully read and analyzed by two study authors. For selection and inclusion of studies, the PRISMA ScR extension (specific for scoping reviews)[9] was used, contributing to this review's suitability. The process of selection and inclusion of studies is depicted in Figure 2.

RESULTS

The final sample consisted of 11 articles. The studies included in this review were developed by researchers from the United States of America (USA) (n=04), Brazil (n=03), China (n=01), France (n=01), Spain (n=01), and Portugal (n=01). The studies were published between January 1, 2020 and January 6, 2021, in different types of journals, in English, Spanish, Brazilian Portuguese, and Portuguese from Portugal.

Concerning the research designs, four experience reports, three theoretical-reflective studies, one letter to the editor, one brief communication, one commentary paper, and one editorial article were retrieved. In addition to general nurses, the roles of perianesthesiologist, perisurgical, anesthetist, clinical, and intensive care specialist nurses were addressed. Figure 3 summarizes the analyzed studies and presents detailed information such
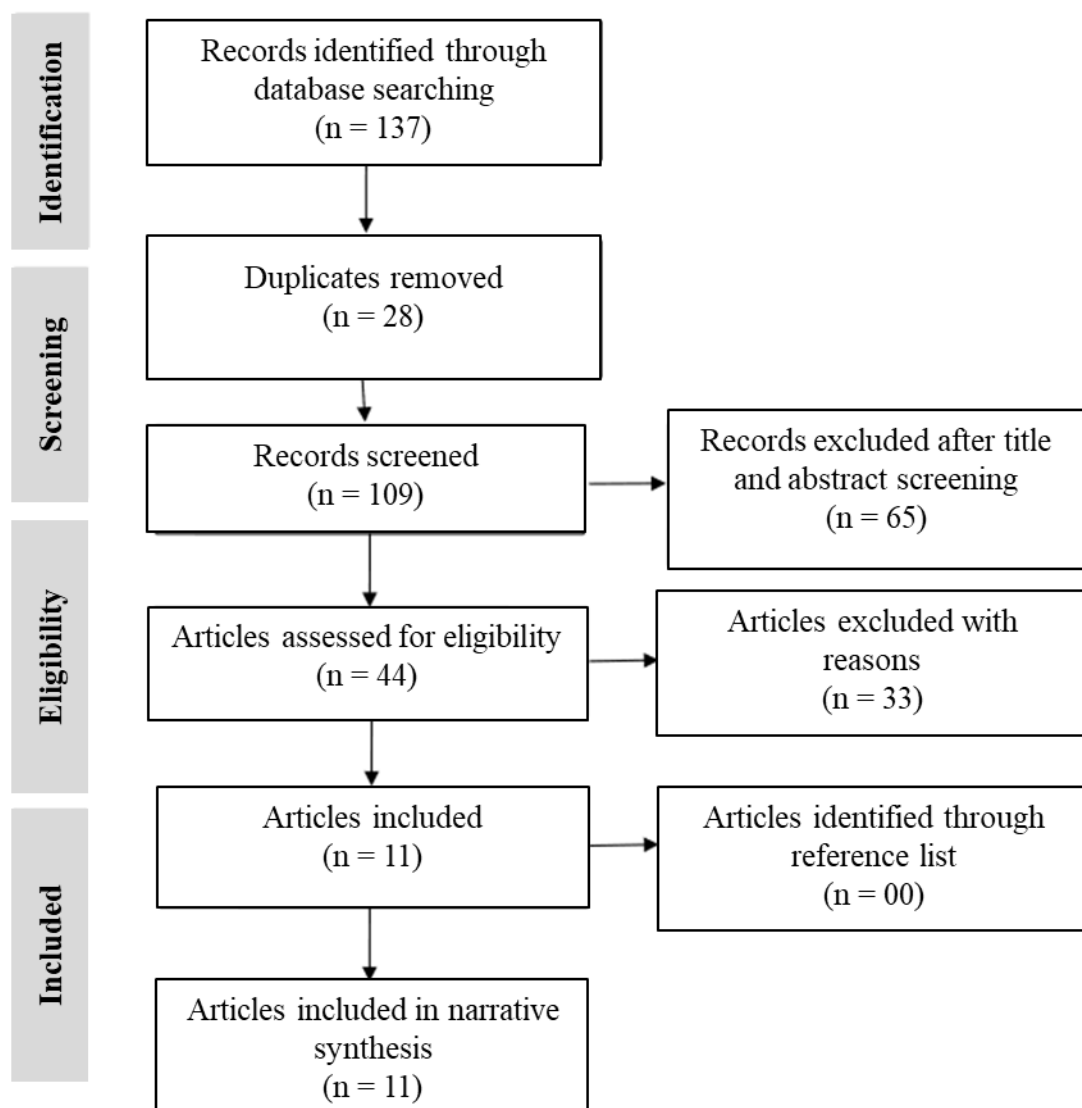

Figure 2 - PRISMA-ScR flow diagram of the article selection process. Teresina, PI, Brazil, 2021
Source: Prepared by the authors, 2021.

as authors, titles, objectives, nursing skills, and countries of origin.

Figure 4 shows the competencies found in the analyzed studies, grouped into conceptual categories, in the light of the ICN framework of competencies for general nurses[8].

DISCUSSION

Nurses have a key role in providing health care for the population. Their main function is to promote and prevent diseases, work with a diverse population, and ensure the quality of teamwork. With the Covid-19 pandemic, the importance of the actions carried out by nurses became evident, highlighting the skills in the fight against the new Coronavirus.

The virus has strongly impacted people's physical and mental health globally. The most severe patients need intensive care, whose mortality is high[21]. In this way, urgent measures were necessary for the prevention, treatment, and control of the transmission of the disease. Nurses actively participates in all of these activities, one of the roles being to manage and create measures to prevent Covid-19.

Given the studies found, most of the USA studies portrays competencies and contributions of nursing leaders in the intensive care unit and the operating room during emergencies, disasters, and outbreaks, such as the new coronavirus pandemic. Care management stands out, as in other countries found in the study, due to the flexibility of nurses to manage situations and changes in a short time in almost all scenarios of activity[11-15].

The profile of nurses identified in the studies included generalist nurses, perianesthesiologists and perisurgical nurses, anesthesiologists, clinical nurses, and intensive care nurses. It is emphasized that upon completing their degrees, most nurses can work in several areas. Soon after, they seek specialties to which they are more attracted. The perianesthesiologist nurses who graduated in the United States and the United Kingdom stood out in the face of the pandemic for working in sectors where anesthetic control was needed due to the need to intubate patients with Covid-19. Anesthetist nurses are involved in patient care, administration of anesthesia, and analysis of the potential risk of surgery[11,13,17,20]. Furthermore, they usually gain management roles in hospitals due to their varied knowledge and experience, broader than in other specialties. It is noteworthy that in Brazil, there are no anesthetist nurses.

Concerning the professional, ethical, and legal practice, competencies of importance for nurses were identified concerning communication skills (listening, evaluating, reflecting, and providing feedback), responsibility to support nurses and team members, and the creation of guarantees during healthcare through the identification of unsafe practices and appropriate actions, carried out under policies and guidelines. This category of competencies was the least described in the selected studies because detection requires more specific instruments and strategies. However, it is essential to demonstrate the maintenance of competencies within this category, as these activities guarantee professional excellence. Nurses' scientific and technical professionalism, combined with commitment and ethical responsibility, lead to excellence[22].

Concerning the provision of care, nurses assist patients 24 hours a day, regardless of the scenario, acting effectively, with comprehensive and qualified assistance through specific care and the systematic nursing care, making it possible to recover and rehabilitate the patients. Thus, to qualify Covid-19 patient care, some nursing managers conducted training and workshops, reinforcing the importance of using PPE and infection control measures to ensure safe and qualified care[10,17].

Thus, some precautions were identified, such as updating protocols related to the use of PPE, performing patient data collection, detecting suspected cases and confirming cases through rapid testing and evaluation of clinical criteria, creating guidelines on themes such as correct hand hygiene, correct use of alcohol gel, recommended frequency of hygiene, the correct way of using masks and how to handle them, identification of symptoms that a patient infected by SARS-CoV-2 may present, and solving patients' doubts, among others[18,19].

Nurses are present in the most diverse scenarios, working in highly complex units that use technological support to maintain life, and in the community, clinics, and long-stay institutions, among other sectors. With such diverse activities, it is often common to define nurses' actions with a concept quickly associated with nursing and care. However, it is necessary to understand what this concept consists of[21].

Regarding care management, nurses were highlighted in several aspects, such as autonomy, individuality, relationships, and professional at-

Authors/ Year	Articles' titles	Objectives	Nursing competencies	Countries of origin
Huang LH, Chen CM, Chen SF, Wang HH. 2020[10]	Roles of nurses and National Nurses Associations in combating COVID-19: Taiwan experience	To describe the rapid response of the Taiwan government and Taiwan nurses, the Taiwan Nurses Association as the National Nurses Association to the Covid-19 outbreak as a reference to other countries responding to COVID-19.	Responsibility; care management (safe environment); care delivery (planning, execution, and health promotion); professional development (continuing education).	China
Stucky CH, De Jong MJ, Lowe AW, Mathews B. 2020[11]	COVID-19: Initial Perioperative and Perianesthesia Nursing Response in a Military Medical Center	To describe the changes in roles and contributions of registered nurses in the perioperative and perianesthesia phases during the Covid-19 pandemic and to share recent experiences of a military medical center.	Responsibility; care management (safe environment); Care delivery (study; planning, execution, therapeutic communication, and interpersonal relationships and health promotion); ethical practice (sharing information to patients and family members); professional development (continuing education).	USA
Ouersighni A, Ghazali DA. 2020[12]	Contribution of certified registered nurse anaesthetists to the management of the COVID-19 pandemic health crisis	To describe the role of certified nurse anesthetists to the management of the Covid-19 pandemic health crisis.	Responsibility; care management (safe environment); care delivery (planning and execution).	France
Shuman, CJ, Costa DK. 2020[13]	Stepping in, stepping up and stepping out: Competencies for intensive care unit nursing leaders during disasters, emergencies, and outbreaks	To discuss the competencies of intensive care unit nursing leaders during emergencies, disasters, and outbreaks, such as the novel coronavirus (Covid-19) pandemic.	Responsibility; care management (safe environment and interprofessional health care); care delivery (study; planning, execution, therapeutic communication, and interpersonal relationships); professional development (continuing education).	USA
Balluck J, Asturi E, Brockman. 2020[14]	Use of the ADKAR® and CLARC ® Change Models to Navigate Staffing Model Changes During the COVID-19 Pandemic	To describe the experience of using the ADKAR and CLARC models to guide changes in the primary nursing staff model to team nursing.	Care management (Delegation and supervision), care delivery (planning and execution), and professional enhancement (continuing education).	USA
Bruwer L, Yates E. 2020[15]	Versatility of the Clinical Nurse Specialist: It Takes a Pandemic	To describe the versatility of clinical specialist nurses in supporting the quaternary health system in the face of uncertainty during the Covid-19 pandemic.	Responsibility; care management (interprofessional health care); provision of care (execution); professional development (continuing education).	USA

Authors/ Year	Articles' titles	Objectives	Nursing competencies	Countries of origin
Misquita MS, Silva PG da, Braz GA, Sousa ABAG, Melo DFC, Melo FNP. 2020[16]	Care of pregnant women in primary health care by nurses during the SARS-COV-2 pandemic	To describe the role of nurses in carrying out prenatal consultations during the pandemic within the scope of Primary Health Care.	Responsibility; care management (safe environment); provision of care (execution and health promotion).	Brazil
Treccossi SPC, Ferreira JC, Oliveira RM, Santos RP, Carvalho ARS. 2020[17]	Nursing protagonism in the organization of a unit to care patients with Coronavirus	To report the protagonism experienced by nursing leaders in a hospital inpatient unit intended exclusively for patients with suspected and confirmed coronavirus.	Responsibility; care delivery (planning); provision of care (execution); professional development (continuing education).	Brazil
Ventura-Silva JMA, Ribeiro OMPL, Santos MR, Faria Ada CA, Monteiro MAJ, Vandresen L. 2020[18]	Organizational planning in pandemic context by COVID-19: implications for nursing management	To reflect on organizational planning in the context of the Covid-19 pandemic and as a consequence for nursing management.	Care delivery (planning and interpersonal relationships).	Portugal
Gemma ME, Zabalegui A, Sevilla Guerra S. 2020[19]	Management and leadership of nursing services in the emergency plan for the pandemic COVID-19: the experience of the Clinic Hospital of Barcelona	To describe the experience of Hospital Clínico de Barcelona with the management and leadership of the nursing service during the Covid-19 pandemic.	Care management (Delegation and supervision, safe environment); ethical practice (sharing information); care delivery (planning, execution, and interpersonal relationships); professional development (continuing education).	Spain
Chaves LDP, Fabro GCR, Galiano C, Trovó MC, Tomaz WB, Gleriano JS. 2020[20]	Reflections about the exercise of nursing supervision in Covid-19 confrontation	To reflect theoretically on the contributions of nursing supervision in the face of Covid-19.	Responsibility; care management (safe environment); care delivery (planning and execution).	Brazil

Figure 3 - Records included in the scoping review, authors, years of publication, titles, objectives, nursing competencies, and countries of origin. Teresina, PI, Brazil, 2021

Source: Prepared by the authors, 2021.

Professional, ethical, and legal practice
Responsibility, communication (listening, validating, reflecting, and providing feedback) supporting nurses and team members, and creation of a guarantee of care[22].
Care provision
Consultancy and collaboration in updating protocols related to the use of PPE, performing patient data collection, detection of suspected cases and confirmation through the rapid test and evaluation of clinical criteria, implementing guidelines such as correct hand hygiene, correct use of alcohol gel, frequency of hygiene, washing food correctly, teaching the correct way to use fabric masks and how to handle it, identifying symptoms that a patient infected with SARS- CoV-2 may present, and solving patients' doubts[10,17-19].
Care management
Border control and screening, charter flight and evacuation services, tracking people in self-quarantine and early detection of referral needs, proper use of PPE, versatility in direct patient care, partnership in care management, support work, modeling positive behaviors in high anxiety environments, leadership, participation in hospital restructuring and reorganization of work dynamics, preparation of hospital contingency plans, team coordination and care, prevention of SARS-CoV-2 transmission, management of available human resources optimizing efficiency, effectiveness and productivity, promotion of evidence-based practices, management and organization of care, promoting the safety of patients and professionals working in the services, management of the risks associated with health care in relation to psychological aspects and exhaustion (not only because of the fear of becoming ill), mobilization of knowledge and information to forecast resources and actions, nursing supervision to support team practices, detection of weaknesses and knowledge sharing, and identification of protocols, routines and specificities of the service to promote adaptations, favoring the opportunity to create links among the team members mediated by educational activities[14,18-20].
Enhancement of the profession
Conducting training and intensive care with nursing staff based on their skill level and clinical competence and carrying out training/qualification programs for the team[10,19].

Figure 4 - Main competencies of nurses in the performance of the Covid-19 pandemic, according to the analyzed articles. Teresina, PI, Brazil, 2021

Source: Prepared by the authors, 2021.

titudes. Understanding a care system refers to several dimensions with practices and attitudes that, in totality, support care dynamics[19,20]. The multiple dimensions found are related to each other, each presenting a specificity. This can be known for reflection, research, and intervention. Comprehensive care is managed in six dimensions: individual, family, professional, organizational, systemic, and societal.

In this way, the management of care concerning competencies during the Covid-19 pandemic brought adequate control and use of PPE, preparation of contingency plans for hospitals, and prevention of SARS-CoV-2 transmission between patients and staff, team coordination and supervising, subsidizing the practices to identify weaknesses, share knowledge, and have firmness and empathy in actions, aiming to mobilize resources to face the pandemic[10-14,18].

In turn, nurses' professional competence has been constituted over the years. Nursing professionals represent the largest contingent of human resources in these institutions, especially in hospitals. Therefore, they can directly interfere with the effectiveness, quality, and cost of care. Therefore, the mobilization of the competencies of these professionals can have a direct impact on the pandemic; therefore, the importance of enhancing the skills of these professionals through training, intensive care, skills/clinical competence improvement, management, and nursing care, is reinforced[17].

Thus, it is emphasized that communication and leadership in nursing are considered the main competencies in the health sector due to the relationships and communication developed within the team, which involves commitment, responsibility, and the ability to make decisions and manage situations. On the other hand, the professional, ethical, and legal competencies were minimally mentioned in the analyzed works, probably because the pandemic prioritizes assistance and managerial competencies.

The limitations of this scoping review are re-

lated to the small number of publications on the subject and the predominance of reflective articles, experience reports, and opinion papers, which increases the risk of information bias. It is expected that the gaps demonstrated here will motivate the development of new research with other designs, aiming at producing more robust scientific evidence on the competencies of nurses in the face of the Covid-19 pandemic, considering their importance in managing the health team.

CONCLUSION

This review mapped the available information on nurses' competencies in the fight against Covid-19. Mainly, the skills of care provision and management were identified, which involve activities such as creating and updating protocols, providing direct assistance to the population, and conducting health education activities.

Thus, the competencies were synthesized and defined based on the ICN framework of competencies for general nurses: Professional, ethical, and legal practice, Care provision and management, and Enhancement of the profession. Although competencies belonging to the three categories defined by the ICN have been detected, in the face of a crisis such as the current pandemic, it is necessary to deepen studies on its maintenance over time, as well as the measurement of the levels of coverage. The identified results can help construct guidelines to improve nursing care during pandemics.

CONFLICT OF INTEREST

The authors have declared that there is no conflict of interest.

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