

Integrative Review

Advanced practices and patient safety: an integrative literature review

Práticas avançadas e segurança do paciente: revisão integrativa da literatura

Prácticas avanzadas y seguridad del paciente: revisión integrativa de la literatura

Liliana Rodrigues do Amaral¹

Claudia Affonso Silva Araújo¹

Keywords

Advanced nursing practice; Patient safety; Integrative review

Descritores

Prática avançada de enfermagem; Segurança do paciente; Revisão integrativa

Descriptor

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Abstract

Objective: To identify, in the national and international literature, advanced practices in nursing that contribute to safe care.

Methodology: An integrative review study was conducted in the indexed databases of PubMed, EBSCO, Proquest and Web of Science from June to August 2018 to answer the guiding questions: (1) What studies in the national and international literature relate advanced practices and patient safety?; and (2) How can advanced practices in nursing contribute to patient safety? The inclusion criteria were: academic articles published in journals (abstract and full text) in Portuguese, English or Spanish, adopting an empirical method of investigation of the study subject. The study had no restriction regarding the publication year.

Results: The search in databases resulted in 91 references obtained at first; after analysis, the final sample consisted of 12 studies.

Conclusion: The results of this integrative review showed that advanced practices in nursing have a positive relation to patient safety.

Resumo

Objetivo: Identificar, nas literaturas nacional e internacional, a prática avançada em enfermagem como contribuição ao cuidado seguro.

Métodos: Estudo de revisão integrativa, conduzido nas bases de dados indexadas Pubmed, EBSCO, Proquest e Web of Science no período de junho a agosto de 2018 para responder as perguntas norteadoras: (1) "Quais os estudos que existem na literatura nacional e internacional que relacionam práticas avançadas e segurança do paciente?" e (2) "Como as práticas avançadas em enfermagem podem contribuir para a segurança do paciente?" Os critérios de inclusão foram: artigos acadêmicos, publicados em periódicos com resumo e texto completo, disponíveis nos idiomas português, inglês ou espanhol, e que tivessem adotado método empírico de investigação do tema em análise. Não foi realizada restrição quanto o ano de publicação.

Resultados: A busca nas bases de dados resultou em 91 referências obtidas inicialmente, e após análise a amostra final constituiu-se de 12 artigos.

Conclusão: Os resultados desta revisão integrativa evidenciaram que as práticas avançadas em enfermagem exercem uma relação positiva sobre a segurança do paciente.

Resumen

Objetivo: Identificar, en la literatura nacional e internacional, la práctica avanzada de enfermería como una contribución a la atención segura.

Método: Estudio de revisión integrativa, realizado en las bases indexadas Pubmed, EBSCO, Proquest y Web of Science, de junio a agosto de 2018 para responder a las preguntas orientadoras: (1) "¿Qué estudios existen en la literatura nacional e internacional relacionando las prácticas avanzadas con la seguridad del paciente?" y (2) "¿Cómo pueden contribuir las prácticas avanzadas de enfermería a la seguridad del paciente?" Los criterios de inclusión fueron: artículos académicos publicados en revistas con resúmenes y textos completos, disponibles en portugués, inglés o español, y que hubieran adoptado método empírico para la investigación del tema analizado. No hubo restricciones respecto del año de publicación.

Resultados: La búsqueda en las bases de datos dio como resultado 91 referencias obtenidas inicialmente. Después del análisis, la muestra final incluyó 12 artículos.

Conclusión: Los resultados de esta revisión integrativa mostraron que las prácticas avanzadas de enfermería ejercen una relación positiva en la seguridad del paciente.

Corresponding author

Liliana Rodrigues do Amaral

<http://orcid.org/0000-0002-0426-5984>

E-mail: liliana.rodrigues@coppead.ufrj.br

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¹Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil.

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Introduction

The concepts of advanced practice nurses (APN) and specialist nurses have existed for many years, with the role of these professionals increasingly disseminated and discussed to increase the quality and reduce the risks of health care, contributing to the excellence of the nursing profession.⁽¹⁾ According to the International Council of Nurses (ICN), the concept of APN assumes that nurses acquire in their training specialized knowledge, skills, and competencies for decision making in complex situations in various scenarios of professional practice.⁽²⁾ It means that nurses need to expand their knowledge related to their fields and develop skills and clinical competencies for decision making and advanced practice, with a master's degree recommended to achieve this level of training.⁽³⁾ In this sense, according to the Consensus Model for Advanced Practice Registered Nurse (APRN) Regulation, the APRN registration means that these professionals are prepared, that is, they have advanced nursing knowledge at graduate level to provide direct support to patients in four roles: certified nurse anesthetist, certified obstetric nurse, clinical nurse specialist, and certified practice nurse. These professionals must be approved in the national APRN certification exam to have their first registration and future recertifications and acquire advanced clinical knowledge and skills that prepare them to provide differentiated care.⁽⁴⁾

In Latin America, the Pan American Health Organization (PAHO) provides specific recommendations for the expansion of advanced practices of nurses, who should assume more tasks with autonomy particularly in public health, improving the access to services, contributing to health promotion, disease prevention and reduction of deaths.⁽⁵⁾

For this practice to be implemented and expanded in Brazil, "strategies should be adopted to address five axes: investment in professional training, national strategies for lifelong education, addition of evidence-based practice to guide professional actions of nurses in basic care, revision and expansion of legislation that guides the practice and the health system for extended practice."⁽⁶⁾

In order to adopt specific strategies and regulate advanced practice in Brazil, the Federal Nursing Council – COFEN created Resolution 581/2018, which defines the procedures for the registration of *lato* and *stricto sensu* graduate degree granted to nurses, and a list of specialties in this field. According to art. 6 of this resolution⁽⁷⁾, the areas of operation that cover nurse specialties are distributed in three broader areas: Area I: Collective Health, Child and Adolescent Health, Adult Health (Men's Health and Women's Health), Health of the Elderly and Urgency and Emergency; Area II: Management; and Area III: Training and Research. Its appendix describes the specialties by area, totaling around 60 specialties, besides the subspecialties. It is a breakthrough for nurses, nurse training and regulations.

Considering the specialization, required skills and competencies of APNs, one can say advanced practice nurses are prepared to influence the patient care environment and promote patient safety.⁽⁸⁾

Studies suggest that the roles of advanced practice in nursing improve the attractiveness of this career, developing environments of favorable policies, and removing barriers as the demand for high-quality patient-centered care increases.⁽⁹⁾ In this sense, to ensure patient safety and keep a reliable/actionable health organization, joint actions involving health professionals, managers, and policy makers are required to find ways to reduce and/or eliminate the occurrence of adverse events, mitigate risks with specific strategies, methods, tools and comprehensive solutions.⁽¹⁰⁾

Safe care requires supportive environments, trained committed professionals, and their understanding that effective technical work is transformative and needs specific ways to adjust the actual task to the competent organization, which requires accurate training.⁽¹¹⁾

In this context, it is important to understand how advanced practices in nursing contribute to patient safety, considering the possibility of risk minimization through differentiated skills and knowledge.

Aiming to provide nurses with a broad structured view of the relationship between advanced practices and patient safety, this study presents

two guiding questions: (1) What studies in the national and international literature relate advanced practices and patient safety?; and (2) How can advanced practices in nursing contribute to patient safety?

This study aimed to investigate, in national and international literature, advanced practice in nursing as a contribution to safe care.

Methods

This is an integrative literature review, a technique that gathers and synthesizes relevant publications about a specific topic or issue, in a systemic and orderly manner, contributing to knowledge expansion and allowing conclusions about a specific study field.⁽¹²⁾ This review had two stages: identification of the theme and definition of the guiding questions; literature search and selection strategy; categorization, evaluation and analysis of studies; and review presentation.

The literature search was conducted in June 2018 and the studies collected were analyzed from June to August 2018. The following indexed databases were used for literature search: Pubmed, EBSCO, Proquest and Web of Science, combining the following descriptors: 'Advanced Practice Nursing' OR 'Advanced Practice Nurse' OR 'Advanced Practice Nurses' AND 'Patient safety,' all terms in English. The inclusion criteria were: academic articles published in journals (abstract and full text) in Portuguese, English or Spanish language, adopting an empirical method of investigation of the study subject. The study had no restriction regarding the publication year, resulting in studies published between 2010 and 2017.

The studies were categorized according to the three major areas of COFEN Resolution 581/2018 - Area I: Collective Health, Child and Adolescent Health, Adult Health (Men's Health and Women's Health), Elderly Health and Urgency and Emergency; Area II: Management; and Area III: Training and Research - to identify the fields of advanced practice most often discussed, according to the nursing practice in Brazil.⁽⁷⁾

Results

The search in databases found 91 references obtained at first, with 34 studies from the Pubmed, 20 from EBSCO, 12 from Proquest, and 25 from the Web of Science. Of these 91 studies, 29 were duplicates and were removed; therefore, 62 studies were evaluated. The abstracts of these 62 publications were read, 39 studies were excluded, seven were non-academic, four were theoretical articles, one was in French, and 7 were not related to the guiding question. The full text of all remaining 23 studies was read independently by the two authors and 11 were removed from the analysis due to inadequacy to the study scope. Then, the final sample of this review consisted of 12 studies. Figure 1 shows the stages of this integrative review and the strategy of study selection.

Data from all 12 studies included in this review were inserted in a Microsoft Excel spreadsheet using the EndNote software, and grouped into the categories: author, year of publication, country, title, journal, methodology, conclusion, and focus of the study.

In the classification per study design, 10 were quantitative studies, which may indicate researchers of this field are more interested in this type of methodology. In terms of journal type, 11 studies were published in nursing journals and one in a medical journal.

Regarding the categorization, 9 (75%) studies were related to Area I and three (25%) to Area III. No study was related to Area II. Regarding the contribution of advanced practices in nursing to safe care, three studies demonstrated actions to reduce the risk of fall, one showed reduced risks in the placement of peripherally inserted central catheters (PICC), one study addressed infection control practices, one study presented improvements in care transition, one showed the implementation of standard assurance in anesthetic practice, one explained improvements in information systems to ensure better records with consequent improvements in care coordination, and three studies showed improvements in APN skills for safer care. Chart 1 shows information about the categories of studies and contributions of advanced practices to patient safety.

In this review, most studies were conducted in the United States (n=9) versus two studies in

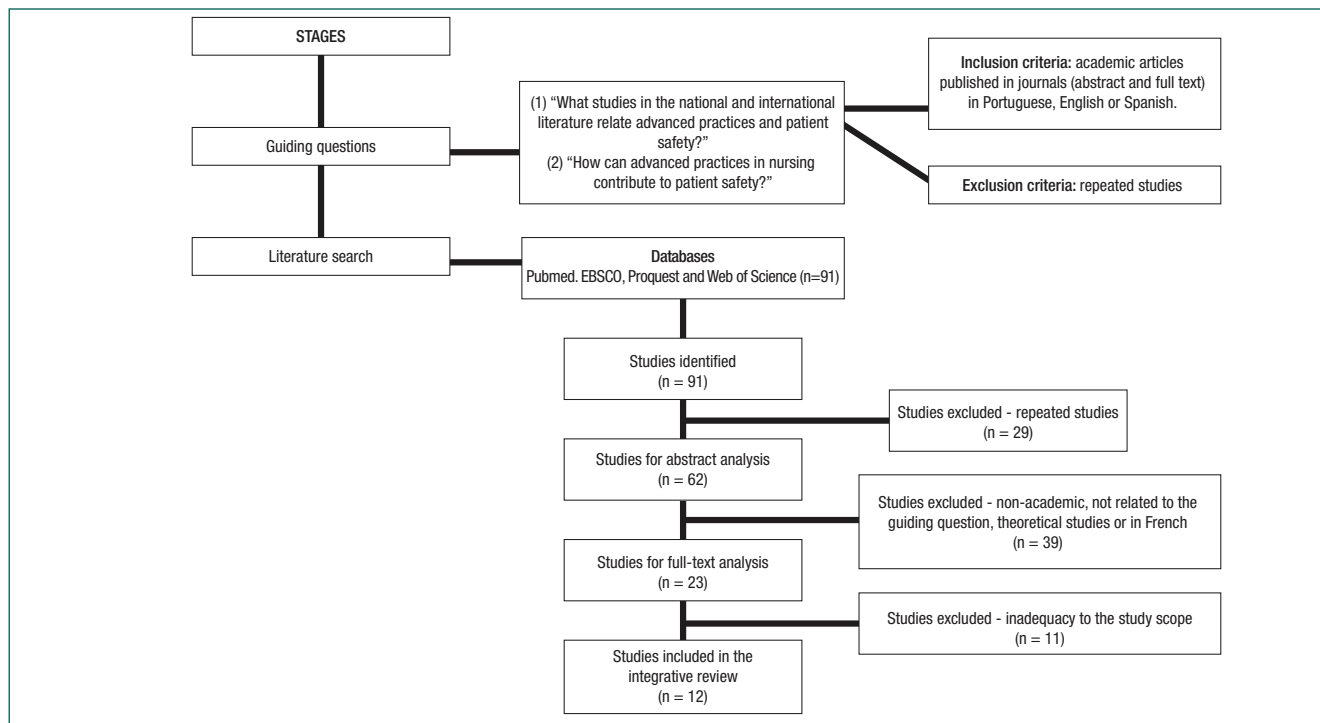


Figure 1. Stages of this integrative review

Australia and one in Hong Kong, showing this subject presents regionalized discussions. No study of this review was conducted in Brazil.

The objective of three studies⁽¹³⁻¹⁵⁾ was to characterize the errors and adverse events to better understand how to minimize these problems. Another study aimed to analyze the satisfaction with the role played by nurse sedationists,⁽¹⁶⁾ three studies aimed to study APN training, including the evaluation of realistic simulation.^(17,22) Another

study aimed to report the results of central venous catheters inserted by advanced nurses,⁽¹⁸⁾ and the purpose of three other studies was to analyze the reduction of fall in care settings.^(19,20,24) One study aimed to reduce levels of infection⁽²¹⁾ and, finally, another article aimed to analyze the role of advanced practice nurses in reducing length of stay and readmission rates.⁽²³⁾

Chart 1 shows the classification and categorization of studies selected in this review.

Chart 1. Studies included in this integrative review – classification and categorization

Author/Year/Country	Title	Journal	Study objective	Methodology	Conclusion	Categorization	Contribution to safe care
Lee, Cho & Bakken ⁽¹³⁾ (2010) - USA	Identification of Hypertension Management-related Errors in a Personal Digital Assistant-based Clinical Log for Nurses in Advanced Practice Nurse Training	Asian Nurs Res (Korean Soc Nurs Sci)	Develop a taxonomy for detection of errors related to hypertension management and to apply the taxonomy to retrospectively analyze the documentation of nurses in Advanced Practice Nurse (APN) training	Quantitative and observational approach	The results provide an initial understanding of the nature of the errors associated with the diagnosis of hypertension and the management of nurses in APN training.	Area III	Support to develop educational interventions that promote the general skills of APN for patient safety.
Jones et al. ⁽¹⁶⁾ (2011) - Australia	The role of the nurse sedationist	Collegian	Identify the benefits and the level of satisfaction for the role of nurse sedationists.	Qualitative and quantitative approach – interviews with and a questionnaire answered by patients and nurses	The results indicate the introduction of the role of nurse sedationist was positive, as it increases patient safety, generating a more collaborative approach to patient care, improving the work environment and strengthening multidisciplinary relationships. Patients also indicated a very high level of satisfaction with the service.	Area I	Increased ability to ensure standards of anesthetic practice, improving team relationships, patient satisfaction, and safety.

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Author/Year/Country	Title	Journal	Study objective	Methodology	Conclusion	Categorization	Contribution to safe care
Schnall et al. ⁽¹⁴⁾ (2012) - USA	Patient safety issues in advanced practice nursing students' care settings	Journal of Nursing Care Quality	Identify and characterize patient safety issues across advanced practice nursing (APN) care settings including ambulatory care visits.	Quantitative approach – questionnaire answered by 162 nurses from an APN training course.	The adoption of information technology can help improve patient safety issues in the APN settings.	Area I	Implementation of improvements in the information system to enhance communication and coordination of care so that patient care is safely performed.
Walton-Moss et al. ⁽¹⁷⁾ (2012) - USA	Advanced practice nursing students: Pilot test of a simulation scenario	Collegian	Develop a simulation scenario for APN students from a graduate health assessment course - Use of realistic simulation in an APN training course.	Quantitative approach - simulation	Clinical simulations with high fidelity human patient simulators provide APN students with opportunities to demonstrate clinical skills and judgment in a safe supportive environment.	Area III	Improved clinical skills and judgment of AP students to ensure safe care.
Schnall et al. ⁽¹⁵⁾ (2013) - USA	Advanced practice nursing students' identification of patient safety issues in ambulatory care	J Nurs Care Qual	Identify and characterize patient safety and explore the predictive factors of patient safety in the perspective of nurses enrolled in an educational institution of APN.	Quantitative approach – questionnaire answered by 172 nurses from an APN training course.	EPA education nurses identified a large number of issues related to patient safety in the outpatient environment. Greater complexity of patients was a significant predictor of the identification of a diagnosis or treatment problem.	Area I	Introduction of improvements in the information system to increase the communication ability between the teams and proper entries in medical records to ensure a safe diagnosis.
Alexandrou et al. ⁽¹⁸⁾ (2014) - Australia	Central Venous Catheter Placement by Advanced Practice Nurses Demonstrates Low Procedural Complication and Infection Rates-A Report From 13 Years of Service	Critical Care Medicine	Report procedural characteristics and outcomes from a central venous catheter placement service operated by advanced practice nurses.	Quantitative - Observational approach	The results suggest that a service provided by APNs can be beneficial, potentially improving patient safety and promoting organizational efficiency.	Area I	Reduction of risks in the placement of peripherally inserted central catheters performed by APNs.
Powell-Cope et al. ⁽¹⁹⁾ (2014) - USA	A qualitative understanding of patient falls in inpatient mental health units	J Am Psychiatr Nurses Assoc	Determine market segment-specific recommendations for prevention of falls in acute inpatient psychiatry.	Qualitative – Focus groups and interviews with 22 APNs, two physicians and one physical therapist.	Selling fall injury prevention to staff in psychiatric settings is similar to selling fall injury prevention to staff in other health care settings. Appealing to the larger construct of patient safety will motivate staff in psychiatric settings to implement best practices and customize these to account for unique characteristics of population needs.	Area I	Implementation of fall reduction measures for psychiatric patients, improving their safety.
Kirk et al. ⁽²⁰⁾ (2015) - USA	Restraint Reduction, Restraint Elimination, and Best Practice: Role of the Clinical Nurse Specialist in Patient Safety	Clin Nurse Spec	Describe effective evidence-based data to reduce injuries and falls with the use of monitored mechanical restraint with frequent evaluations and reevaluations.	Quantitative approach - Experiment	APN management of the causes of agitation reduces the need for patient restraint, protecting patients from injury and increasing patient satisfaction.	Area I	Implementation of protective actions to reduce patient fall and restraint, contributing to patient safety.
Chan, Adamson & Chow ⁽²¹⁾ (2016) - Hong Kong	Identifying Core Competencies of Infection Control Nurse Specialists in Hong Kong	Clinical Nurse Specialist	Confirm a core competency scale for Hong Kong infection control nurses at the level of advanced practice nursing.	Quantitative approach – Questionnaire answered by 112 infection control nurses.	Essential core competency items of advanced practice for infection control nurses in Hong Kong were identified based on the measurement criteria of the Rasch model.	Area I	Identification of key APN competencies in infection control to reduce the risk of infection and ensure safe care.
Gore & Thomson ⁽²²⁾ (2016) - USA	Use of Simulation in Undergraduate and Graduate Education	AACN Advanced Critical Care	Provide an overview of the use of simulation in undergraduate and graduate nursing education.	Quantitative approach - Simulation	High-quality simulation can increase opportunities for immersion and student learning.	Area III	Differentiated learning of AP students to develop skills for safer care.
Hsueh & Dorcy ⁽²³⁾ (2016) - USA	Improving Transitions of Care With an Advanced Practice Nurse: A Pilot Study	Clinical Journal of Oncology Nursing	Analyze the role of the APNs to reduce the length of stay, readmission rates, delays and treatment gaps during transitions of oncologic patients from hospitalization to outpatient care.	Quantitative approach - Experiment	Coordination of APN care can minimize transition gaps, improve patient safety, and increase the quality of care delivery with effectiveness and efficiency. The pilot program reduced the length of stay and infection rates.	Area I	Reduced gaps in care transition, improving patient safety.
Gray-Miceli, Mazza & Crane ⁽²⁴⁾ (2017) - USA	Advanced Practice Nurse-Led Statewide Collaborative to Reduce Falls in Hospitals	Journal of Nursing Care Quality	Develop initiatives of advanced practices to reduce falls.	Quantitative approach - Experiment	A significant reduction was observed in patient fall rates.	Area I	Implementation of effective measures to reduce falls with a significant improvement in care safety.

Discussion

According to the results of the categorization of articles analyzed according to COFEN Resolution 581/2018,⁽⁷⁾ 75% of the studies discuss advanced practices in different areas of care, which is the purpose of Area I of this regulation. It may indicate the concern is still about patient care. This study presents below what each of these articles addressed and their contributions to patient safety.

The studies showed that advanced practices in nursing can contribute to patient safety in different ways, by reducing the risk of falls,⁽²⁴⁾ minimizing the risk of infection,⁽²¹⁾ improving communication in care transition,⁽²³⁾ reducing complications and infections in the placement of peripherally inserted central catheters (PICC),⁽¹⁸⁾ and promoting safe sedation,⁽¹⁶⁾ thus ensuring quality care and promoting continuous improvements. The results also suggest that care provided by specialized and specifically trained nurses generates low rates of complications in the hospital service, increasing organizational efficiency.⁽¹⁸⁾ In this sense, APNs can improve communication between teams in care transition, initiating preparation for hospital discharge at admission, checking the patient's needs during hospitalization for a safe transition,⁽²³⁾ and ensuring that all information is provided and understood, and that care planning meets the patient requirements.

Three studies indicated that advanced practice nurses (APNs) are important for the identification and treatment of adverse events and their causes, issues related to patient safety, including problems in practice, diagnosis and treatment, or more common problems resulting from poor communication, professionals in a hurry, and frequent interruptions of the work process.⁽¹³⁻¹⁵⁾ One of them includes a taxonomy to detect errors in the management of hypertension and applies such taxonomy to retrospectively analyze the documentation of APNs in training.⁽¹³⁾ This procedure allows a standardization for the correct investigation of incidents, an accurate analysis of clinical practice, and an evaluation of patient records.

The levels of infection and complication, which are another important aspect of patient

safety, can be reduced when APNs are responsible for specific care. In a study conducted in Hong Kong,⁽²¹⁾ the competencies of the APNs for infection control were measured using the Rasch scale, and training models were suggested to increase the infection control skills of APNs. Reduced levels of infections in these cases show that nurses present greater adherence to the protocols and can ensure better infection control, acting as indicators for other professionals.

The results also indicate that injuries caused by falls led APNs to implement actions to reduce such risks. One study used results from 38 hospitals that participated in fall prevention training, followed by 3-month training and guidance to develop initiatives focused on assessing fall risks, post-fall monitoring and assessment to demonstrate the reduction of these risks.⁽²⁴⁾ Also regarding risks of fall, one study about the use of patient restraint showed that nurses can manage the causes of agitation, the need for restraint is reduced, protecting patients from injuries and increasing patient satisfaction.⁽²⁰⁾ Another study showed that the implementation of actions to prevent injuries due to falls in psychiatric settings is similar to the fall prevention actions in other health care settings, and that it should appeal to a broader construction of patient safety, encouraging professionals in psychiatric settings to implement best practices and personalize them to consider the unique characteristics of the needs of this patient population.⁽¹⁹⁾

One study conducted in Australia⁽¹⁶⁾ discussed the role of nurse sedationist, a specialty not yet in force in Brazil, and indicated that the introduction of this role was recognized as adding value through increased patient safety, in high-quality results for patients and improved multidisciplinary approach to health.

Regarding the categorization, 25% of the studies were related to Area III - Training and Research, addressing APN training and teaching methods, as the training of these nurses is also a concern presented in the studies analyzed in this review. The method used in the studies and considered as the most effective and robust uses realistic simulation to improve patient safety, communication and the

student's ability to think and act as a nurse or APN, according to the article.⁽²²⁾ This type of training allows clinical simulations with high fidelity human patient simulations in a safe supporting environment, providing advanced practice students with the opportunity to demonstrate clinical skills and judgment, favoring their learning and qualification for patient safety.⁽¹⁷⁾

However, in this integrative review, no article related to Area II – Management was found. This result may indicate possible low attention to training for nurses specialized in management, or poor discussion and publication of studies addressing this topic.

Conclusion

The results obtained in this integrative review showed advanced practices in nursing can have a positive influence on patient safety, contributing to reduced rates of patient fall and infection risk, improvements in care transition, assurance of standards in anesthetic practices and insertion of catheters, improvements in systems to ensure proper records and coordination of care, and enhancement of APN skills with realistic simulation techniques. However, few studies were found on this subject, which may be justified by the fact that both patient safety and advanced practice in nursing are recent topics. When evaluating the categorization of the articles, a gap was observed in the discussion about advanced practice in nursing in COFEN Resolution 581/2018 – Area II – Management, such as Health Management, Nursing Management, Hospital Administration, Health Quality Management, among other advanced practices mentioned in this regulation.⁽⁷⁾ The factors associated with this gap are outside the scope of this review, but it must be fulfilled, since nursing management is an important activity for the development of all other areas. In addition, no national study was found in this review, and the approach took place in differentiated contexts. Considering the gaps identified and the results from the analysis of the studies included

in this integrative review, studies on the subject should be encouraged, including in Brazil, and the growth of advanced practice in nursing is expected to contribute to care safety and help consolidate the excellence of the nursing profession. The authors expect that, based on the results of this review, broader discussions are held on this practice so that patients can receive increasingly safe care.

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