



Scientific production in public health after the implementation of the National Patient Safety Program

Produção científica em saúde coletiva pós-implantação do Programa Nacional de Segurança do Paciente

Producción científica en salud colectiva post implantación del Programa Nacional de Seguridad del Paciente

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ABSTRACT

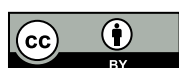
Objective: To characterize the dissertations and theses produced in graduate programs in the public health field related to patient safety after the implementation of the National Patient Safety Program in Brazil. **Methods:** This is a quantitative documentary study of data collected from dissertations and theses available in the Catalog of Theses and Dissertations of the Coordination for the Improvement of Higher Education Personnel retrieved electronically. Data were collected in March 2019 and analyzed using simple descriptive statistics. **Results:** Most of the studies were carried out in the professional (73.02%) and academic (23.81%) *stricto sensu* programs. With regard to the higher education institutions, most of them were public (85.72%) and in the Northeast region (50.17%). In all, 63.49% of the studies were not related to any of the basic patient safety protocols. **Conclusion:** Most studies were developed in master's programs and predominantly conducted in hospitals. They addressed mainly safety in the use of medicines, safety culture in health services and incidents and adverse events in health services.

Descriptors: Patient Safety; Research; Public Health.

RESUMO

Objetivo: Caracterizar as dissertações e teses produzidas nos programas de pós-graduação da área da saúde coletiva relacionadas à segurança do paciente pós-implantação do Programa Nacional de Segurança do Paciente no Brasil. **Métodos:** Trata-se de pesquisa documental, de abordagem quantitativa, desenvolvida a partir da coleta de dados de dissertações e teses disponíveis no Catálogo de Teses e Dissertações da Coordenação de Aperfeiçoamento de Pessoal de Nível Superior, acessado por meio eletrônico. Os dados foram obtidos em março de 2019 e analisados por estatística descritiva simples. **Resultados:** A maioria das pesquisas foi desenvolvida nos cursos *stricto sensu* de mestrado profissional (73,02%) e acadêmico (23,81%). Em relação às instituições de ensino superior, o maior percentual se caracterizou como pública (85,72%) e da região Nordeste (50,17%). Dos estudos, 63,49% não estavam relacionados com nenhum dos protocolos básicos de segurança do paciente. **Conclusão:** Identificou-se maior investigação em nível de mestrado, bem como o desenvolvimento de pesquisas predominantemente em hospitais, e que abordam, com maior intensidade, a segurança no uso de medicamentos, a cultura de segurança nos serviços de saúde e os incidentes e eventos adversos nos serviços de saúde.

Descritores: Segurança do Paciente; Pesquisa; Saúde Coletiva.



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RESUMEN

Objetivo: Caracterizar los trabajos de maestría y las tesis doctorales de los programas de posgrado del área de la salud colectiva relacionadas con la seguridad del paciente post implantación del Programa Nacional de Seguridad del Paciente en Brasil.

Métodos: Se trata de una investigación documental de abordaje cuantitativo desarrollada a partir de la recogida de datos de trabajos de maestría y tesis doctorales disponibles en el Catálogo de Trabajos de Maestría y Tesis Doctorales de la Coordinación de Perfeccionamiento de Personal de Nivel Superior con acceso a través del correo electrónico. Se ha obtenido los datos en marzo de 2019 y se les ha analizado por la estadística descriptiva simple. **Resultados:** La mayoría de las investigaciones ha sido desarrollada en los cursos *stricto sensu* de maestría profesional (73,02%) y académico (23,81%). Respecto las instituciones de educación superior, el mayor porcentual se ha caracterizado como pública (85,72%) y de la región Noreste (50,17%). Entre los estudios, el 63,49% no se ha relacionado con ningún de los protocolos básicos para la seguridad del paciente. **Conclusión:** Se ha identificado más investigaciones de maestría así como el desarrollo de investigaciones predominantemente en los hospitales y que abordan con más intensidad la seguridad para el uso de medicamentos, la cultura de seguridad para los servicios de salud y los incidentes y eventos adversos de los servicios de salud.

Descriptores: Seguridad del Paciente; Investigación; Salud Pública.

INTRODUCTION

In 2004, the World Health Organization (WHO) launched the World Alliance for Patient Safety. This initiative brought together leaders of health policy agencies and resulted in recommendations for different nations to commit to adopting strategies to make health care safer and reduce mortality from adverse events during care⁽¹⁾.

In this context, countries like Portugal and Spain have presented specific legislation and reference guides related to patient safety (PS). Portugal outlined a National Plan for Patient Safety that was put into effect from 2015 to 2020⁽²⁾. Spain, on the other hand, issued a document titled *Estrategia de Seguridad del Paciente del Sistema Nacional de Salud* hoping that it would serve as a reference for the improvement of PS in the entire National Health System based on the best available evidence⁽³⁾.

In Brazil, the National Patient Safety Program (*Programa Nacional de Segurança do Paciente – PNSP*) was established by Ordinance No. 529, of April 1, 2013. It aims to contribute to improving the quality of care in all health care settings nationwide in addition to promoting and supporting the implementation of initiatives aimed at PS⁽⁴⁾.

The previous initiatives are justified due to the high number of incidents and adverse events that affect patients in health services and that increase the need for scientific research and the implementation of strategies to minimize their occurrence^(5,6). In that regard, the Brazilian PNSP highlighted the following specific objectives: to produce, systematize and disseminate knowledge and promote the inclusion of the PS theme in technical and undergraduate and graduate education in the health field⁽⁴⁾. Thus, it is evident how public health graduate education contribute to these discussions and the production and dissemination of knowledge related to the theme.

Furthermore, it is known that, in Brazil, a large part of knowledge is generated and disseminated by graduate programs offered by higher education institutions (HEIs), which are accredited by the Ministry of Education and comply with Law No. 9.394, of December 20, 1996, which establishes the guidelines and frameworks of national education. According to this law, graduate courses consist of master's and doctoral programs, specialization and improvement courses, among others⁽⁷⁾.

When it comes specifically to master's and doctoral programs, it should be noted that they are recommended and evaluated in specific fields by the Coordination for the Improvement of Higher Education Personnel (*Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – CAPES*). One of these fields is Public Health, which, according to a specific document in the field, is a scientific field for the production of knowledge about health through the operation of several subjects, including epidemiology, social sciences in health, and planning and management. In addition, it provides for the institution of practices to strengthen actions in different organizations in the health sector^(8,9).

Constituted as an evaluation field, public health has an interdisciplinary nature of knowledge, in which different subjects are articulated to share a common object of study, which may be related to the planning and management of health services⁽⁹⁾. Thus, it is necessary to acknowledge the importance of producing and systematizing knowledge about events related to PS in graduate programs, as well as providing strategies to face the issues that result in incidents, deaths and disabilities due to failures in the processes during care within the Brazilian health system.

There are still methodological challenges in studies of PS, such as measuring adverse events and preventing them, and the use of retrospective reviews of medical records only. Thus, studies related to these issues need to be developed to better track and adapt processes and improve care within health services⁽¹⁰⁾. Therefore, it is essential to identify and characterize the research already developed and evaluate the thematic production focused on PS in graduate programs in the field since they contribute to the construction of knowledge and the implementation of strategies that impact on the organization of the health system and services in Brazil.

Thus, we aimed to characterize the dissertations and theses produced in graduate programs in the field of public health related to patient safety after the implementation of the National Patient Safety Program in Brazil.

METHODS

We conducted documentary research in which materials can be investigated to describe the characteristics related to the study object. It allows a synthesis of the contribution of several authors on a given subject and is based on the use of documents that have not yet been analyzed⁽¹¹⁾. We opted for a quantitative approach as it allows a numerical synthesis of the research findings through the use of resources and statistical techniques, thereby facilitating the visualization of the results and allowing a better presentation of their synthesis⁽¹²⁾.

This study was conducted using data collected from dissertations and theses produced in graduate programs in public health in Brazil after the implementation of the PNSP, which provides for patient safety. These data are available in the CAPES Theses and Dissertations Catalog and can be accessed electronically.

The elaboration process was guided by a research protocol in which the theme, objectives, research question and strategies were listed and described: 1 – search; 2 – selection of studies; 3 – data collection; 4 – critical evaluation of the studies; and 5 – data synthesis. The study excluded dissertations and theses with incomplete abstracts and those which did not fully respond to the collection indicators and which were presented before the regulation and implementation of the PNSP.

The search took place in March 2019 using the controlled descriptor in health sciences (DECS) “patient safety” and without the use of filters initially. After that, the following filters were applied: Large Field, Knowledge and Evaluation Fields: Public Health; Years: 2013 to 2018. This time frame was chosen because it presents the annual consolidation of the presentations of dissertations and theses, as consolidation of 2019 data was still in progress. Figure 1 shows the search process, the selection of studies and the final sample.

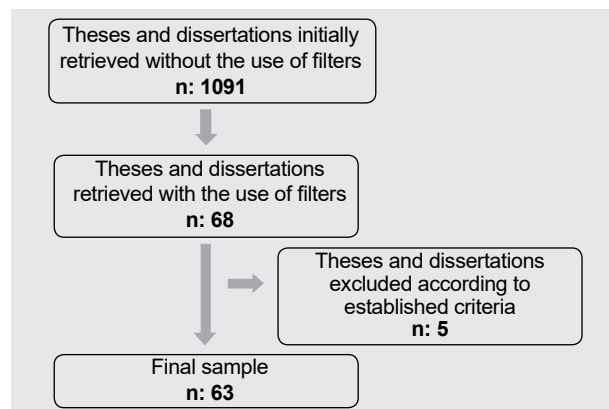


Figure 1 - Search process, selection of studies and final sample.

After the exclusion of documents that did not meet the listed criteria, the theses and dissertations that made up the final sample were fully analyzed and the following indicators were extracted: academic level (academic master's, professional master's or doctorate); HEI; type of HEI (public, philanthropic or private); year of presentation; region and federated unit in which the graduate programs are located; study location (hospital, outpatient clinic, primary health care center, maternity hospital, mobile pre-hospital care service or not applicable); study objects; type of study; PS protocol of the MoH that the study presents (patient identification; safe surgery; prevention of pressure ulcers; hand hygiene in health services; safety in the prescription, use and administration of medications; prevention of falls).

A spreadsheet was created using 2016 Microsoft Excel® for data tabulation. After that, statistical analysis was performed using simple descriptive statistics with calculation of absolute and relative frequencies for the presentation of results in textual form, in tables and figures.

RESULTS

The data analysis identified that most of the studies had been carried out in professional (n=46; 73.02%) and academic (n=15; 23.81%) *stricto sensu* programs. In the doctoral programs, only two studies had been carried out, which represents 3.17% of the sample. Figure 2 shows the number of theses and dissertations by year of presentation in the period from 2013 to 2018.

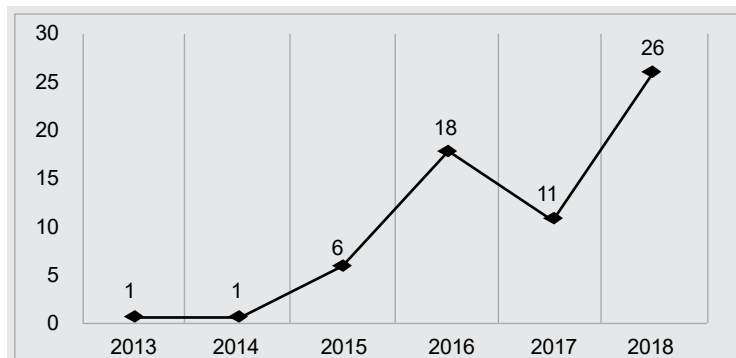


Figure 2 - Number of theses and dissertations by year of presentation.

With regard to the HEIs that host the graduate programs, it was noticed that the majority is public (54; 85.72%). The rest are philanthropic (7; 11.11%) and private (2; 3.17%). The Federal University of Rio Grande do Norte and the Federal University of Goiás, followed by the Sírio Libanês Teaching and Research Institute, presented the largest number of studies developed in the *stricto sensu* graduate programs evaluated in the field of public health, as presented in Table I.

As for the geographic region where the master's and doctorate programs are located, we identified that the Northeast region represents the majority, with 32 (50.79%) studies, followed by the Southeast (14; 22.22%), Midwest (11; 17.46%) and South (06; 9.53%) regions. No documents originating from studies carried out in programs in the North were found. Figure 3 shows the number of studies in graduate programs by federated unit.

Table I - Number of studied developed by HEI.

HEI	n	%
Federal University of Rio Grande do Norte	24	38.10
Federal University of Goiás	11	17.46
Sírio Libanês Teaching and Research Institute	6	9.52
Oswaldo Cruz Foundation	4	6.35
University of São Paulo	3	4.75
Ceará state University	3	4.75
State University of Londrina	2	3.17
Professor Fernando Figueira Institute of Integral Medicine	1	1.59
University of Brasilia	1	1.59
University of Fortaleza	1	1.59
University of the Extreme South of Santa Catarina	1	1.59
State University of Feira de Santana	1	1.59
Federal University of Santa Catarina	1	1.59
Federal University of Paraná	1	1.59
Federal University of Rio de Janeiro	1	1.59
Federal University of Rio Grande do Sul	1	1.59
Federal Fluminense University	1	1.59
Total	63	100.0

HEI: higher education institution; n= relative frequency; %= percentage

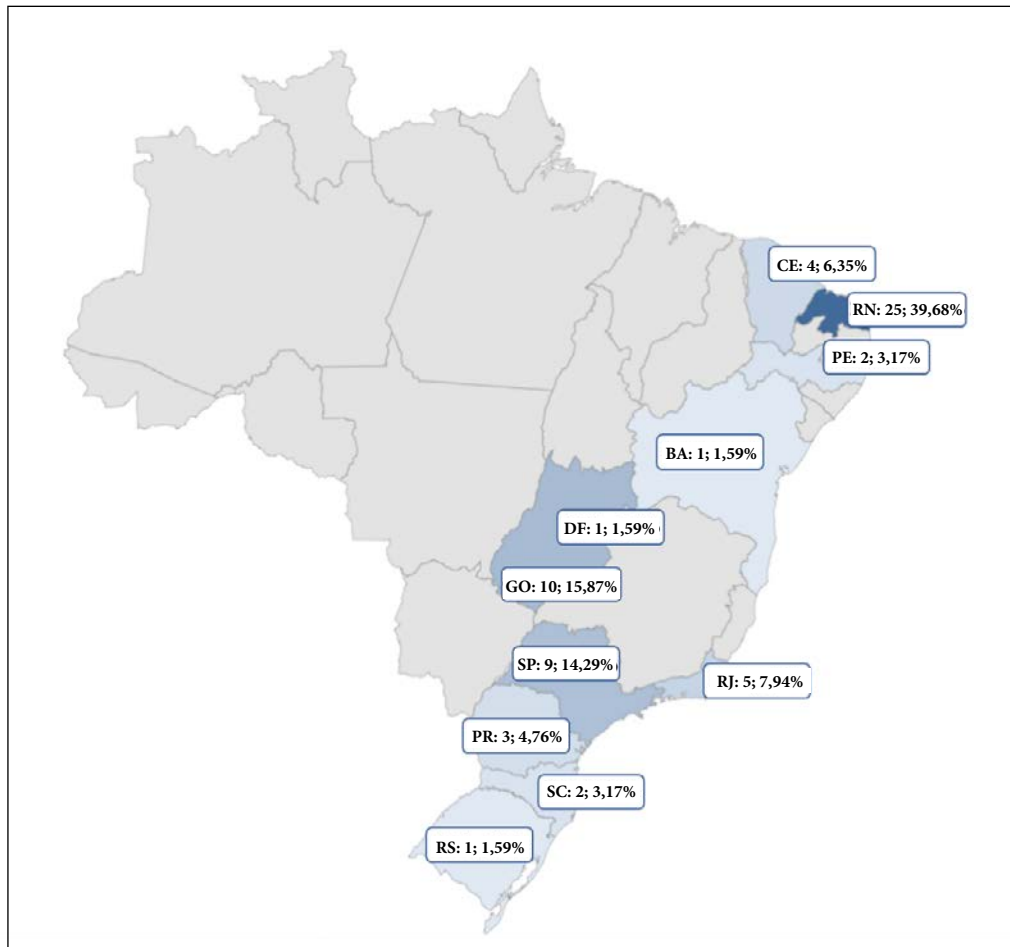


Figure 3 - Number of studies in the graduate programs by federated unit.

With regard to the setting where the studies were carried out, the hospital ($n=50$; 79.37%) was the main setting for research on PS. Studies were also carried out in Primary Health Care centers ($n=5$; 7.93%), outpatient units ($n=2$; 3.17%), maternity hospitals ($n=1$; 1.59%) and mobile prehospital care services ($n=1$; 1.59%). The research setting is not applicable in four (6.35%) studies as these are literature reviews.

As for the types of study, the following were identified: quasi-experimental ($n=14$; 22.22%); descriptive ($n=9$; 14.29%); descriptive and cross-sectional ($n=5$; 7.94%); methodological ($n=5$; 7.94%); cohort ($n=4$; 6.35%); literature review ($n=4$; 6.35%); cross-sectional ($n=4$; 6.35%); intervention project ($n=3$; 4.76%); improvement cycle ($n=2$; 3.17%); descriptive and exploratory ($n=2$; 3.17%); documentary ($n=2$; 3.17%); case study ($n=2$; 3.17%); retrospective ($n=2$; 3.17%); observational ($n=1$; 1.59%); observational, analytical and cross-sectional ($n=1$; 1.59%); evaluation research ($n=1$; 1.59%); convergent care research ($n=1$; 1.59%); field research ($n=1$; 1.59%). The quantitative approach was used more often ($n=41$; 65.08%), followed, respectively, by mixed-methods approach ($n=12$; 19.05%) and qualitative approach ($n=10$; 15.87%).

In order to identify the main themes of the objects of study, a thematic categorization was performed, which is shown in Table II.

As for the relationship between the topics covered in the studies and the basic patient safety protocols proposed by the Ministry of Health (MoH) and which are part of the PNSP, 40 (63.49%) studies were not related to any of them. The others presented themes related to safety protocols in the prescription, use and administration of medications ($n=20$; 31.75%); patient identification ($n=2$; 3.17%); hand hygiene in health services ($n=1$; 1.59%). None of the studies addressed safe surgery and prevention of falls and pressure ulcers, themes that also correspond to basic protocols of the PNSP.

Table II - Thematic categorization of the study objects of the theses and dissertations.

Study objects	N	%
Safety in the use of medicines	17	26.98
Safety culture in health services	10	15.87
Incidents and adverse events in health services	5	7.94
Perceptions about patient safety	4	6.35
Health care-related infections	4	6.35
Improvements in the work process	4	6.35
Records in medical records	3	4.76
Ethical aspects in the work process of health professionals	3	4.76
Notification of Incidents and Adverse Events	3	4.76
Patient identification	2	3.17
Accreditation	2	3.17
Safe childbirth	1	1.59
National Patient Safety Program	1	1.59
Hand sanitization	1	1.59
Pharmaceutical supply	1	1.59
Laboratory errors	1	1.59
Quality Indicators	1	1.59
Total	63	100.00

HEI: higher education institution; n= relative frequency; %= percentage

DISCUSSION

According to the results, most of the studies originated in professional master's programs. Thus, it appears that, although there is a greater number of academic-level programs, according to data provided by CAPES, the PS theme is more consolidated in the productions of professional master's programs⁽⁸⁾.

In this context, the professional *stricto sensu* graduate program is regulated by Ordinance No. 60, of March 20, 2019. The document states that some of the objectives of such programs is to train qualified professionals for advanced, innovative practices and transformation of work processes to meet the social, economic and organizational demands of the various business sectors and to transfer knowledge to society in order to meet social and economic demands with a view to national, regional and local development⁽¹³⁾.

Thus, in understanding that PS is a current demand, it is emphasized that while training masters with the ability to intervene in the realities of health services, the programs will be able to contribute to safe and innovative practices with a focus on the quality of care.

With regard to the year of publication, there was a progressive increase in the number of studies focused on this theme from the year 2013, with the exception of the year 2017. Therefore, it is noted the importance of the influence of the PNSP, created in 2013, on studies carried out in graduate programs in the field of public health⁽⁴⁾.

It was also evident that most of the studies were carried out in public HEIs. This result is in accordance with the data available on CAPES Sucupira platform, which shows that most of the graduate programs in public health belong to public institutions⁽⁸⁾. In this scenario, the Federal University of Rio Grande do Norte stood out. This is due to the offer of the professional master's course in Quality Management in Health Services, evaluated in the Public Health field. This course presents a line of research focused on PS, which is placed as one of the dimensions of quality in health⁽¹⁴⁾. Therefore, they are complementary and important themes for the health field.

As for the geographic region where the master's and doctorate courses are located, the Northeast region led the number of studies. This result is different in relation to the number of graduate courses, since the Southeast region is the one that presents the majority in absolute numbers, with 65 programs. In this ranking, the Northeast appears in second place, with 34 courses⁽⁸⁾. Also noteworthy is the lack of studies in programs in the North of the country. This indicates the need for greater investment in graduate programs in that region with a focus on studies on PS since the region also has health services at all levels of care.

As for the settings where the studies were carried out, the hospital predominated. This finding is reinforced in previous studies, which demonstrate that the focus of research has been on this type of service. However, it should be noted that most care is not related to hospital care, since they can originate in other places, as is the case of primary health care (PHC) centers^(15,16). In addition, there is a high rate of incidents and adverse events related to PS in PHC and it is known that most of them could be prevented⁽¹⁷⁾.

The results also showed that the predominant types of study were quasi-experimental and descriptive, with a quantitative approach. As it is a theme closely related to the care practice, it is inferred that the researchers sought to better understand professional practice. However, the need to carry out studies with an experimental character is highlighted, since it presents greater methodological rigor and makes it possible to assess whether certain interventions are effective⁽¹⁸⁾.

As for the approach, a small number of mixed-methods and qualitative studies were found. This demonstrates the need to develop more studies using the two approaches since both complement each other. Qualitative research is concerned with aspects related to the socio-cultural dimension of contexts expressed through beliefs, values, opinions, representations, forms of relationship, symbology, uses, customs, behaviors, and practices⁽¹⁹⁾. Therefore, this type of research is relevant as it makes it possible to better understand the dimensions that involve PS in the different health services.

As for the objects of study, safety in the use of medicines was highlighted. It should be noted that a significant number of incidents and adverse events are related to this fact. This can happen during all phases of the medication system, which include reconstitution, dilution, preparation of solutions, calculations made for drug fractioning, and administration⁽²⁰⁾.

In that regard, the Ministry of Health launched the Safety Protocol for the prescription, use and administration of medicines with the purpose of promoting safe practices in the use of medicines in health care facilities. Since its implementation, its application has become mandatory in all facilities that provide health care at all levels of complexity and in which medicines are used for prophylaxis, diagnostic tests, treatment and palliative measures⁽²¹⁾. Therefore, it is expected, with this initiative, that the medication administration process in Brazilian facilities becomes safer.

Another theme that stood out was the culture of safety in health services. According to WHO, it is defined as "the product of individual and group values, attitudes, perception skills, and behavioral models that determine the commitment to the management of an organization's health and safety and its style and proficiency"⁽²²⁾.

According to Brazil's PNSP, the safety culture has five characteristics operationalized by the organization's safety management: a) culture, in which all workers, including professionals involved in care and managers, take responsibility for their own safety and that of their colleagues, patients and family members; b) it prioritizes safety over financial and operational goals; c) it encourages and rewards the identification, notification and solution of safety-related problems; d) it promotes organizational learning from the occurrence of incidents; and e) it provides resources, structure and accountability for the effective maintenance of safety⁽⁴⁾.

The objects of study related to the incidents were also highlighted and defined as an event or circumstance that could result, or resulted, in unnecessary damage to the patient; and adverse events in health services were understood as damages that were caused by the provision of health care⁽²²⁾. Therefore, it is relevant that these are measured since this makes it possible to plan and implement interventions for their reduction⁽⁴⁾.

With regard to perceptions about PS, also referred to as an object of study, the importance of their understanding is emphasized, as they present important aspects listed by the various health professionals about the context of safe care⁽²³⁾.

Another highlight was the theme of health care-related infections (HRI), which consist of adverse events that are still persistent. Such a problem raises the costs of patient care and increases the length of stay in services, morbidity, and mortality⁽²⁴⁾.

As for the topics covered in the studies, most studies were not related to any of the basic protocols of PS. This reinforces the need for further research on the subject. Among those who addressed topics related to the issue, most were related to safety in the prescription, use and administration of medications. Thus, international and national literature cites a high number of adverse events that involve the use of drugs in services, which demands the development and use of technologies to improve this process and contribute to the reduction of the problem^(25,26).

Another protocol mentioned was that of patient identification, which aims to reduce the occurrence of incidents and ensure that care is provided to the person for whom it is intended⁽²¹⁾. The correct identification of the patient allows to check with confidence that the individual who will receive treatment, procedures or other actions is effectively the one who needs it, which contributes to the prevention and reduction of errors and adverse events⁽²⁷⁾.

Finally, hand hygiene in health services was highlighted in only one study. It is known that this practice has, for a long time, continued as one of the main actions in safe care, which contributes to the reduction of HRI. In addition, it is characterized as a routine, low-cost intervention and indicated to be performed in standardized care moments, as evidenced in the protocols⁽²⁸⁾.

With regard to safe surgery and the prevention of falls and pressure ulcers (PU), these were not addressed in any of the studies. When dealing specifically with safe surgeries, studies mention professionals' difficulty adhering to the protocol, especially the verification checklist recommended by WHO, which requires further analysis⁽²⁹⁾.

With regard to prevention of falls, it is necessary to conduct research on the issue given the importance of this event, which is still prevalent in the care setting and can cause temporary and even permanent injuries in individuals⁽³⁰⁾.

As for PU, despite international and national consensus and protocols already recommending preventive measures that are effective, it is clear that they still correspond to an important problem that contributes to the increase in patients' morbidity and mortality⁽³¹⁾.

Finally, the main limitation of this study is the analysis of theses and dissertations only within the scope of public health since there are several other *stricto sensu* graduate programs within the health sciences field that are inserted in other fields of evaluation in which there may be research focused on this theme.

CONCLUSION

The study allowed to characterize national dissertations and theses in the analyzed period and to identify the appreciation of the theme by professional master's programs, with themes related to safety in the use of medicines, the safety culture in health services and incidents and adverse events in health services.

Thus, there is a need for further research at the doctoral level and the development of research related to patient safety in health services other than hospitals.

CONTRIBUTIONS

Alcides Viana de Lima Neto contributed to the study conception and design; the acquisition, analysis and interpretation of data; and the writing and/or revision of the manuscript. **João Pedro de Santana Silva** and **Isabela Dantas Torres de Araújo** contributed to the acquisition, analysis and interpretation of data; and the writing and/or revision of the manuscript. **Vilani Medeiros de Araújo Nunes** contributed to the study conception and design; and the writing and/or revision of the manuscript.

CONFLICTS OF INTEREST

The authors declare that there were no conflicts of interest in the development of this study.

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