ANALYSIS OF THESES AND DISSERTATIONS ON RISK MANAGEMENT IN THE HEALTH AREA IN BRAZIL

ANÁLISE DE TESES E DISSERTAÇÕES SOBRE GESTÃO DE RISCOS NA ÁREA DA SAÚDE NO BRASIL

ANÁLISIS DE TESIS Y DISERTACIONES SOBRE LA GESTIÓN DE RIESGOS EN EL ÁREA DE SALUD EN BRASIL

Márcia Danieli Schmitt[1]
Diovane Ghignatti da Costa[1]
Aline Massaroli[2]
Elisiane Lorenzini[1]
Gabriela Marcellino de Melo Lanzoni[1]
José Luís Guedes dos Santos[1]

[1] Universidade Federal de Santa Catarina - UFSC, Centro de Ciências da Saúde. Florianópolis, SC - Brazil.
[2] Universidade Federal da Fronteira Sul - UFFS, Departamento de Enfermagem. Chapecó, SC - Brazil.

Corresponding Author: Márcia Danieli Schmitt
E-mail: marciaschmitt@hotmail.com

ABSTRACT

Objective: to analyze the trend of investigating theses and dissertations on risk management produced in graduate programs in the health area in Brazil. **Method:** descriptive and documentary study carried out in April 2020 in the Catalog of Theses and Dissertations of the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior, with the terms "Risk Administration" OR "Risk Management" without temporal clipping. The 21 selected works were analyzed with the Microsoft Excel® program and IRAMUTEQ® software. **Results:** there was a predominance of dissertations (95.2%) and (57.1%) of qualitative methodological approach. Three semantic classes were identified, with emphasis on class 1 (36.2%), which addresses risk management as essential for the quality of care and patient safety. Class 2 (29.3%) presented professionals as risk management agents and class 3 (34.4%) indicates the notification of incidents as a tool for risk management. **Conclusion:** the trend of investigations is the notification of incidents, patient safety, the quality of care provided by health services, and the perception of professionals on the topic.
Keywords: Risk Management; Health Services; Quality of Health Care; Patient Safety; Bibliometrics.

RESUMO

Objetivo: analisar a tendência de investigação de teses e dissertações sobre gestão de riscos produzidas em programas de pós-graduação da área da saúde no Brasil. Método: estudo descritivo e documental realizado em abril de 2020 no Catálogo de Teses e Dissertações da Coordenação de Aperfeiçoamento de Pessoal de Nível Superior, com os termos "Gerência de risco" OR "Gestão de Riscos" OR "Gerenciamento de Riscos", sem recorte temporal. Os 21 trabalhos selecionados foram analisados com o auxílio do programa Microsoft Excel® e software IRAMUTEQ®. Resultados: houve predominância de dissertações (95,2%) e (57,1%) de abordagem metodológica qualitativa. Foram identificadas três classes semânticas, com destaque para a classe 1 (36,2%), que aborda a gestão de riscos como essencial para a qualidade da assistência e segurança do paciente. A classe 2 (29,3%) apresentou os profissionais como agentes da gestão de riscos e a classe 3 (34,4%) indica a notificação de incidentes como ferramenta para a gestão de riscos. Conclusão: a tendência de investigações está na notificação de incidentes, na segurança do paciente, na qualidade do atendimento dos serviços de saúde e na percepção dos profissionais sobre a temática.
Palavras-chave: Gestão de Riscos; Serviço de Saúde; Qualidade da Assistência à Saúde; Segurança do Paciente; Bibliometria.

RESUMEN

Objetivo: analizar la tendencia de investigación de tesis y disertaciones sobre gestión de riesgos producidas en programas de posgrado en el área de salud en Brasil. Método: estudio descriptivo y documental llevado a cabo en abril de 2020 en el Catálogo de Tesis y Disertaciones de la Coordinación para el Perfeccionamiento del Personal de Educación Superior, con los términos "Gerencia de Riesgos" ó "Gestión de Riesgos" ó "Gerenciamiento de Riesgos", sin recorte temporal. Los 21 trabajos seleccionados fueron analizados con la ayuda del programa Microsoft Excel® y el software IRAMUTEQ®. Resultados: hubo un predominio de disertaciones (95,2%) y (57,1%) con enfoque metodológico cualitativo. Se identificaron tres clases semánticas, con énfasis en la clase 1 (36,2%), que enfoca la gestión de riesgos como fundamental para la calidad de la atención y la seguridad del paciente. La clase 2 (29,3%) presentó a los profesionales como agentes de gestión de riesgos y la clase 3 (34,4%) indica la notificación de incidentes como herramienta para la gestión de riesgos. Conclusión: la tendencia de las investigaciones es la notificación de incidentes, la seguridad del paciente, la calidad de la atención brindada por los servicios de salud y la percepción de los profesionales sobre el tema.

Palabras clave: Gestión de Riesgos; Servicios de Salud; Calidad de la Atención de Salud; Seguridad del Paciente; Bibliometría.

INTRODUCTION

The concept of risk management emerged in the 1950s in the United States due to the increasing complexity of the risks exposed by the companies.[1] Since then, this topic has been evident in the national and international health area through accreditations and campaigns worldwide by the World Health Organization (WHO).[2]

Managing risks in the health area involve a complex set of administrative and clinical structures, procedures, processes, and systems.[3] It has been inserted in organizations to assist in decision making and as a mechanism for analysis, investigation, standardization, and prevention. The objective is to improve the safety of the services provided, both for the patient and for the health professional.[4] This topic has been discussed and the risk management services implemented in Brazil, especially since the requirement to create the Center Safety in Health Institutions.[5,6]

Risk management involves key processes aimed at the identification, assessment, analysis, treatment, and communication of risks,[6-8] and is considered essential to improve the quality of care.[9] During the provision of health services, there are several possibilities of errors, damages, or even personal, moral, material resources loss, and the quantitative-qualitative impacts for the institutions.[10] Recent research in the Brazilian scenario shows that preventable security incidents persist in health services.[11,12]

Therefore, risk management focuses on the gap between the available knowledge of security incidents that can be prevented and the action to mitigate them. It also provides a theoretical reference aimed to identify, analyze, evaluate, and communicate risks and adverse events[6] in health services. Thus, the importance of this research is to explore how the risk management topic has been addressed in the theses and dissertations in the country, deepening the knowledge on the topic, indicating gaps for future investigations and support strategies for implementation in health services. The guiding question of this study was: how are studies on risk management in the health area characterized in the theses and dissertations produced by graduate programs in Brazil?

Thus, this study aimed to analyze the trend of investigating theses and dissertations on risk management produced in graduate programs in the health area in Brazil.

METHOD

This is a descriptive and documentary study, through a bibliometric survey to characterize the scientific production of graduate programs in Brazil on risk management. Bibliometric analysis is based on reading, selecting, filling out, and archiving relevant information for a study, identifying the scientific contributions made on a given topic. Thus, it seeks to show how a certain area of knowledge has developed and conducted its scientific production.[13]

We adopted the Laws of Lotka and Zipf for the methodological basis of this study. Lotka's Law assumes that a small fraction of authors is responsible for elaborating a large amount of scientific literature, intending to determine their productivity. Zipf's Law establishes that the most used words in a study show the main subject of the work because the regularity of the words in scientific writing shows their value.[13]

We used a research protocol to guide data collection, interpretation, and presentation of results. The data were collected in April 2020, on the website of the Catalog of Theses and Dissertations of the *Coordenação de Aperfeiçoamento de Pessoal de Nível Superior* (CAPES), available from http://catalogodeteses.capes.gov.br/catalogo-tese/#!/, linked to the Ministry of Education. There was no time limit for the selection of theses and dissertations. The search strategies were carried out based on the terms "Risk administration" OR "Risk management".

We included were theses and dissertations available in full at the CAPES Thesis Bank with the risk management in the health area as the study subject and/or study focus and studies in which the data collection was performed in the risk management of the health services. We excluded theses and dissertations that did not contemplate the scope of this study.

This strategy resulted in 1,471 jobs. After refinement by the large area of knowledge - health sciences -, we had 123 works. Of these, we excluded 102 after reading the title and abstract. There were 21 studies left for a complete reading included for data

extraction and analysis. We performed adouble-check of the thesis and dissertations in the study.

We organized the selected works in a spreadsheet in the Microsoft Excel® program containing the following topics: year of defense; state; higher education institution; graduate program; Methodological Approach; type of study; and study context. For the analysis anchored in the Zipf Law, we used the interface software *R pourles Analyzes Multidimensionnelles de Textes et de Questionnaires* (IRAMUTEQ®) as a support tool.

The analyzed textual material was processed using IRAMUTEQ®. We prepared the corpus corresponding to the grouping of all texts, that is, units of analysis included in the study.[14] In this research, the texts used were the results and conclusions of the selected works. We revised the corpus to avoid possible spelling and typing errors and organized it in the Open Office® program. Also, the terms composed of too much of a word were rewritten and separated with subscribed lines to identify as a single occurrence, such as risk management, risk administration, patient safety, adverse events, technical complaints, and *Rede Sentinela*.

We used the Descending Hierarchical Classification (DHC) among the types of analysis enabled by the software, in which 100% of the text segments (TSs) were used for analysis. The TSs are the fragments of texts of approximately three lines, which are delimited by semantic similarity by the software.[14] For the analysis of the classes, we included adjectives, nouns, verbs, and unrecognized forms, that is, acronyms and specific terms of the study area not recognized by the IRAMUTEQ® dictionary. All occurrences considered in the analysis by DHC showed statistically significant values ($p<0.05$). Subsequently, we carried out data analysis and interpretation, synthesis, and discussion of results.

RESULTS

Twenty (95.2%) of the 21 selected works were dissertations and one (4.8%) was a thesis. Regarding the advisors, one researcher had two papers (9.5%), the others were responsible for one advisor.

The year 2016 concentrated the largest number of defenses (N = 6; 28.6%), followed by 2012 and 2017, with three defenses each year (N = 3; 14.3%); 2013 and 2015 had two defenses each year (N = 2; 9.5%); 2008, 2009, 2011, 2014 and 2018 had one defense each year (N = 1; 4.8%).

Rio de Janeiro and *São Paulo* were the states with the highest number of higher education institutions that developed research on the topic, shown in Table 1.

As for the course level, 11 (52.4%) were academic masters, nine (42.9%) were professional masters and one (4.8%) was a doctorate. The Nursing area developed the largest number of works (N = 11; 52.4%), followed by graduate programs in management, research, and development in the pharmaceutical industry, (N = 4; 19%). The graduate program in public health developed three studies (N = 3; 14.3%). Graduate programs in quality management in health services; clinical care in Nursing and health; policy management, science, technology, and health innovation developed one work each (N = 1; 4.8%).

Most studies used the qualitative methodological approach and the descriptive study was the most used research method, as shown in Table 2.

The hospital environment (N = 15; 71.4%,) involving different hospitals stood out as the context for carrying out the studies. One (4.8%) study was carried out at an Institute of Immunobiologicals; another at the *Instituto de Tecnologias em Fármacos* (4.8%); another (4.8%) developed a prototype design; another was developed

Table 1 - State and higher education institution responsible for the production of Brazilian theses and dissertations in the health area with risk management as a topic (N=21)

State	N	%	Higher Education Institution	N	%
Rio de Janeiro	7	33.3%	Fundação Oswaldo Cruz Universidade Federal Fluminense	5 2	23.8% 9.5%
São Paulo	4	19%	Universidade de São Paulo Universidade Estadual Paulista Júlio de Mesquita Filho Centro Universitário São Camilo	2 1 1	9.5% 4.8% 4.8%
Minas Gerais	2	9.5%	Universidade Federal de Juiz de Fora	2	9.5%
Goiás	2	9.5%	Universidade Estadual de Goiás Universidade Federal de Goiás	1 1	4.8% 4.8%
Ceará	1	4.8%	Universidade Estadual do Ceará	1	4.8%
Espírito Santo	1	4.8%	Universidade Federal do Espírito Santo	1	4.8%
Paraná	1	4.8%	Universidade Federal do Paraná	1	4.8%
Recife	1	4.8%	Fundação Oswaldo Cruz	1	4.8%
Rio Grande do Norte	1	4.8%	Universidade Federal do Rio Grande do Norte	1	4.8%
Santa Catarina	1	4.8%	Universidade Federal de Santa Catarina	1	4.8%

Source: research data, 2020.

Table 2 - Methodological approach and type of study used in Brazilian theses and dissertations in the health field with the theme of risk management (N=21)

Methodological Approach	N	%
Qualitative	12	57.1%
Qualitative-quantitative or mixed	5	23.8%
Quantitative	3	14.3%
Applied research and technological production	1	4.8%
Type of Study*	N	%
Descriptive study	9	42.8%
Case study	5	23.6%
Action Research	1	4.8%
Exploratory study	1	4.8%
Prototype design	1	4.8%
Evaluation research	1	4.8%
Participating research	1	4.8%
Literature review study	1	4.8%
Retrospective analysis	1	4.8%

*The terminologies used by the authors of the research were maintained
Source: research data, 2020.

aimed at a company in the pharmaceutical productive sector (4.8%); and, finally, two others were carried out in laboratories - in the *Laboratório do Instituto Nacional de Infectologia* (4.8%) and in the *Laboratório de Febre Amarela* (LAFAM) of the *Departamento de Vacinas Virais* (DEVIR) (4.8%).

When analyzing the results and conclusions, three semantic classes were identifiedfrom the abstracts of the selected works, according to Descending Hierarchical Classification generated in the IRAMUTEQ® software, shown in Figure 1.

Class 1, called **Risk management for patient safety and quality of care** obtained the highest frequency of TSs, with 36.2%. The term quality was the most significant in this class, followed by service, health, patient safety, process, management, and risk management. The studies address risk management as essential to the quality of care provided by health services and to promote patient safety. Risk management is described as a dynamic and systematic process for assessing, controlling, communicating and reviewing risks, which needs to be integrated into all activities of the organization to strengthen management strategies, assist in decision making and reduce the probability of adverse events for the patient. Through the notification, institutions are aware of their weaknesses, and improve their processes, prevent the occurrence of incidents, and minimize risks in the assistance provided.

Class 2, Professionals as agents of risk management had the following main words: people, happen, stay, and find retaining 29.32% of TSs, and had a strong connection with class 1. In this class, TSs reiterate the perceptions of professionals on the notification of incidents, errors, and risks found in the assistance provided by health services and its relationship with the quality and safety of the patient. We observed in the reports that some professionals are unaware of how to proceed with the notification. The studies highlighted the importance of involving people in risk management and incident reporting, and the need to develop educational strategies for raising awareness and training. Professionals reported that underreporting occurs for different reasons, including lack of time, reduced number of human resources, work overload, not seeing notification as an opportunity to improve work processes, lack of organizational culture to notify, fear of denigrating the institutional and professional image, feeling of powerlessness in the face of error and fear of punishment. They also stressed the importance of receiving feedback on the measures and actions generated from the notification.

Class 3, Incident notification as a risk management tool was the second class with the highest number of TSs, corresponding to 34.4%. It had a strong connection with class 1 and class 2. In this class, the most prominent word was medicine, followed by a manuscript, computerized, system, table, and incident. The research object of study was the notification of incidents, carried out through a computerized or manual system, with emphasis on the area of pharmacovigilance, with a recurrent approach to risk management in prescription (electronic or manual), dispensation,

Figure 1 - Descending Hierarchical Classification based on the IRAMUTEQ® software on the topic of risk management in Brazilian health theses and dissertations.
Source: research data, 2020

errors in preparation and administration of medicines. Incident notification is a viable and necessary tool for risk management in health services, as it enables to identify and report incidents and errors to which patients are exposed and the technical complaints of medical and hospital articles that can cause health problems to the patient when receiving care in health services. Also, after the notification is sent to the institution's risk management, the information is forwarded to the *Agência Nacional de Vigilância Sanitária* (ANVISA), through the *Sistema de Notificação em Vigilância Sanitária* (NOTIVISA).

DISCUSSION

The largest number of surveys on the theme was in 2016 (28.6%), followed by 2014 and 2015, with 14.3% each year. This may reflect the translation of Iso 31000:2009 into Portuguese, disseminating the principles and guidelines of risk management in the country.[7] Also, the description of the term risk management in the *Programa Nacional de Segurança do Paciente* (PNSP)[5] and in the *Resolução da Diretoria Colegiada* (RDC) nº 36.[6] In 2002, risk management was structured in hospitals accredited by the *Rede Sentinela* by ANVISA,[15] which triggered several studies on the topic at the national level.[16-18]

The states of *Rio de Janeiro* and *São Paulo* had the highest percentage (33.3% and 19%, respectively) of higher education institutions that developed research on the topic. This result reinforces the prominence of the Southeast region in the production of scientific knowledge, which brings together the largest number of graduate programs in the country.[19]

We also observed that Nursing has highlighted in the development of research on the topic since graduate programs in this area had the largest number of investigations on risk management. Nursing has contributed to science, producing works in different areas of knowledge in the health area. We observed that in recent years, there has been a significant increase in new knowledge and technological innovations aimed at care, which may also be a result of the increase in the number of masters and doctorate degrees in the area.[20]

In this study, we observed a relationship between all semantic classes since one class is included in the other, maintaining close and interconnected relationships, interdependence, and subordination at the same time. Thus, risk management is inserted in different ways in the context of health care and can cover all health services with different procedures, knowledge, and actions.

Class 1 had the highest retention of TSs (36.2%) and showed that the focus of risk management is to promote patient safety and quality of care provided by health services. Considering that health institutions have caused risks and damage to the integrity and safety of patients,[21] it is important to emphasize that in Brazil government agencies have given high priority and have been concerned with the quality of practices, processes, and technologies used by health services. We observed that, in recent years, actions focusing on patient safety have been gradually and orderly implemented.[16] In this sense, risk management acts proactively from the institutionalization of programs, policies, and practices to reduce the severity and the frequency in which incidents occur in the organization. Therefore, risk management cannot be just a normative work.[22]

In class 2, there was a tendency of research that seeks empirical evidence, through the tacit knowledge of professionals, using qualitative methodological approaches (57.1% of the studies analyzed in this research). Qualitative research explores subjectivity, perspectives, and meanings attributed by study participants on a given topic, in the context in which they are inserted.[23]

Thus, class 2 also highlights the importance of involving professionals in risk management and incident reporting. Some of the strategies to encourage voluntary notification of incidents are the implementation of policies aimed at risk management at the organizational level, describing in detail the responsibilities, positions, and duties of those involved; educational actions on the topic and internal flows; and provide feedback to professionals on the reports generated from the reported incidents.[24] Such measures can contribute to avoiding underreporting incidents in health services.

Class 3 had a strong connection with class 1 and class 2 and presents incident reporting as a tool used to perform risk management. This relationship shows that risk management in health services are focused its actions on the notification of incidents carried out by professionals and that there is a trend in research with notification as to the object of study. Furthermore, in the national literature, many studies have been conducted analyzing notifications in three major areas: technovigilance, hemovigilance, and pharmacovigilance.[16-18]

The incentive to notify, analyze, and discuss the causes are extremely important measures and reflect on the positive transformation of services.[25] However, notification is a reactive method of knowing the incidents that occur in health services, in which is expected that professionals record what happened through notification. This can result in a lower actual incident number, as it depends on voluntary notification and the safety culture present or not in the institution.[16]

In class 3, the studies addressed the communication between the health institution and ANVISA by passing on the information contained in the notifications via NOTIVISA. We can highlight the actions by hospitals accredited to the *Rede Sentinela* as previously explained. Thus, we highlight the important role of ANVISA in the surveillance actions carried out with the products used in health care from its production, analysis, registration, places of use and sale and in post-marketing follow-up, achieved through the partnerships established with health professionals and services, to identify and

communicate to the *Sistema de Notificação e Investigação em Vigilância Sanitária*(VIGIPOS) non-conformities with the products.[15]

In this study, as in class 3, the research trends were detected in the area of pharmacovigilance with an emphasis on prescription, dispensing, errors in the preparation and administration of medications. Study shows that the adoption of barriers for the prevention of incidents involving drugs is incipient, and need to structure procedures to manage risks and encourage the culture of safety in hospitals.[16]

We observed in the national literature, in publications on the topic involving atovigilance, hemovigilance, and pharmacovigilance,[16-18] in professional practice and in the three classes generated by the CHD of IRAMUTEQ®, that risk management in health services is based on notifications of professionals, mainly of adverse events and technical complaints of the products used, with an emphasis on patient safety and quality of care. However, we need new approaches on the topic, with studies aimed at exploring the management of risks from the perspective of managers, professionals, patients, and families.

For example, research carried out in an international scenario explored the importance of the risk manager for risk management in health services. The study highlighted the importance of the risk manager in intra-organizational actions (optimizing risk management practices in the organization and with the team) and extra-organizational actions (establishing networks with other professionals, in search of problem solutions and knowledge exchange).[22]

This study also enabled to notice that the research analyzed did not present a proactive approach to risk management involving different steps aimed at identifying, analyzing, evaluating, treating, and critically monitoring risks, as shown by ISO 31000: 2009 from ABNT[7] and in the concept of risk management presented by Brazilian standards.[5,6]

Therefore, proactive risk management is a gap to be explored in health services and by Brazilian graduate programs, especially in the hospital environment, where there is more clinical, technological, and procedural complexity in the services provided. We consider that the results obtained are significant and present an overview of trends and approaches on the theme, originating from theses and dissertations produced by graduate programs in the health area in Brazil.

CONCLUSIONS

The main research trends in risk management in the health area arising from theses and dissertations are focused on the notification of incidents, patient safety, and quality of care. There is an emphasis on conducting studies with a qualitative methodological approach, which seeks to understand the perception of professionals on the topic.

Risk management involves different areas of knowledge and should strengthen the integration of the different areas of the institution. Its implication for the practice is to identify, analyze, evaluate, treat and critically monitor the risks arising from the different means of production, execution, and offer of services, which results in the safety and quality of health care.

As a limitation of the study, we highlight the inclusion of theses and dissertations in the health sciences area. Studies from other areas focusing on the health sector may not have been contemplated. Also, the use of Boolean operators may have restricted the results to the group of words selected for this research.

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