

Patient Safety Training Programs for Health Care Professionals: A Scoping Review

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Objective: This study aimed to map the evidence available on patient safety training programs for health professionals.

Methods: A scoping review was carried out. Several studies published between January 2010 and March 2020 in the following databases were investigated: CINAHL; MEDLINE; Nursing & Allied Health Collection: Comprehensive; Cochrane Central Register of Controlled Trials; Cochrane Database of Systematic Reviews; Cochrane; *MedicLatina*, via EBSCOhost; World Health Organization; Google Scholar; BVS—*Biblioteca Virtual da Saúde*; PubMed; B-On; and RCAAP—*Repositórios Científicos de Acesso Aberto de Portugal*.

Results: A total of 2841 articles were found, 7 were included. Most studies report that the development of patient safety programs for health care professionals provides them with tools and techniques to recognize adverse incidents induced by the professional system/practice; recognize human factors related to patient safety, such as nontechnical skills or tiredness; understand high-risk clinical processes; develop strategies that influence and enhance patient safety culture; promote communication, teamwork, and organizational culture concerning patient safety; analyze other characteristic and emerging topics in patient safety; and develop project proposals to improve patient safety, allowing health care professionals to consolidate their knowledge, leading initiatives to improve patient safety.

Conclusions: There are still few studies that test patient safety training programs, which is a concern given the importance of implementing safe practices. The existing evidence proves the efficacy of the training programs in improving patient safety, although there are some gaps.

Key Words: patient safety, training, health professionals

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Safety culture and patient safety are the foundations of a care provision of excellence, in which all health care is inspired.¹ It can even be said that safety is an essential factor for citizens to believe in the health system, in general, and in the National Health System, in particular.^{2,3}

Heidmann et al⁴ refer to how important safety is, given the visibility of the problem, for patients and health professionals, and for managers and policy makers, but also society in general, because of the clinical, economic, and social impact, and for the potential gains that can arise from it.

Awareness of patient safety, as mentioned previously, has become one of the emerging topics in the past 2 decades. However, the curricula of health professionals do not provide them with an

effective knowledge of the challenges they have to face concerning the appropriate time and methods to ensure patient safety. These assumptions are corroborated by Haldal et al,⁵ according to whom the training of health professionals focuses more on clinical and curative skills and not so much on preventive skills. Therefore, knowledge about patient safety is a necessity for all health professionals. To fill these gaps, the World Health Organization (WHO) has developed a curriculum guide for patient safety⁶ to help health care institutions to integrate patient safety principles into their curricula.

To improve patient safety, health care professionals must have specific knowledge and skills. However, roughly speaking, in-service training on patient safety is scarce, rarely sought, and, when undertaken, is usually voluntary.

It has been demonstrated that the establishment of a patient safety culture supported by training programs for health professionals is essential to improve the quality of care provided and promote/guarantee patient safety. The organizational culture that encourages the implementation of training programs and enhances communication improves patient safety, culture, which is in line with the literature.^{7,8} Other studies show that patient safety culture can be influenced by the characteristics of the work area, professional class, participation in a patient safety program, communication, management, and patient safety resources.^{9,10}

There can only be a safety culture if health professionals are trained for it. This fact led the WHO to issue, in 2008, the document “Global Priorities for Research in Patient Safety,” which warns of the importance of research in this area and the impact it has on increasing knowledge. This document refers to the importance of establishing priorities in patient safety research, considering “inadequate competence training and skills” as a priority.¹¹

The importance of patient safety has been gaining prominence around the world, and every day, health professionals face several challenges in offering safe care to patients. Patient safety training is one of the main tools to ensure a safety culture.

In this context, since 2002, the WHO has been taking action regarding patient safety issues and the quality of health care. In 2004, the first edition of the World Alliance for Patient Safety was created to focus on the creation and development of policies and practices in favor of patient safety in all member countries of the WHO.¹¹ In this regard, actions have been taken to raise awareness and assess patient safety situations. However, it has been acknowledged that understanding patient safety training programs better and obtaining evidence and knowledge on the training programs that have been created/implemented for health professionals is paramount because these elements will serve as a basis for the dissemination and support of the development of the theme in health services.¹¹ The magnitude of this problem highlights the relevance of developing proactive attitudes concerning patient safety, which implies more and better training for health professionals. The purpose of this study is to map the typology and main contents of patient safety training programs for health professionals to identify state-of-the-art information, taking into account their structure and respective contents.

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METHODS

Given the scarcity of literature on patient safety training programs for health professionals, the *scoping review* was considered the most appropriate method to carry out this study. Because some of these programs may be described in directives, theses, or manuals, this review typology was chosen as a strategy to identify and summarize the main concepts underlying the topic to answer the specific question and identify gaps. Following the structure proposed by Arksey and O'Malley¹²: (i) the research question was identified as explained hereinafter; (ii) relevant studies were researched; (iii) several studies were selected; (iv) the data were mapped; and (v) the results were gathered and summarized.

With correspondingly less restrictive inclusion criteria, the following starting question was formulated, based on the PCC elements (*Population, Concept, and Context*):

- What are the existing patient safety training programs for health professionals, taking into account their structure and respective contents?

Considering the research question, studies whose population was any health professionals who have participated in patient safety programs were included. Any type of patient safety program was also included. The “concept” of this scoping review (patient safety training programs) was broad and can cover any type of result, as long as it is a patient safety program for health professionals. In the previous question, the “context” is left “open” so that the evidence can come from any context (e.g., geographic, hospital organization, service, and professional category, among others).

Given their broad nature, scoping reviews are particularly useful for gathering evidence from disparate or heterogeneous sources. As such, this scoping review included the types of evidence (quantitative and/or qualitative) that allowed us to determine what was available about the existing patient safety training programs for health professionals, considering their structure and respective contents. Opinion articles, articles whose participants or focus of the study was students in the health field, and articles with citations concerning systematic reviews, opinions, congresses, and abstracts were excluded. Studies that were duplicated in the various databases consulted were also excluded. Studies that had only abstracts available and studies written in a language other than Portuguese, English, or Spanish were also excluded.

The following 12 databases were searched to review studies published between January 2010 and March 2020 related to patient safety training programs for health professionals, taking into account their structure and respective contents: CINAHL Complete; MEDLINE Complete; Nursing & Allied Health Collection: Comprehensive; Cochrane Central Register of Controlled Trials; Cochrane Database of Systematic Reviews; Cochrane Methodology Register; Library, Information Science & Technology Abstracts; *MedicLatina*, via EBSCOhost—Research Databases; WHO; Google Scholar; BVS—*Biblioteca Virtual da Saúde*; PubMed; B-On; and RCAAP—*Repositórios Científicos de Acesso Aberto de Portugal*.

The initial search strategy used keywords from the Medical Subject Headings (MeSH). However, we adopt the same strategy as that used by Walpole et al,¹³ because of the limitations of this strategy, mainly because there is no MeSH term for training programs, and because the term “patient safety” was adopted by MeSH in 2012, combined research was used together with the strategy of terms and words contained in the abstracts of various texts. Therefore, the research strategy consisted of the following terms: “patient safety” AND “training” AND “Health professionals.” The search was limited to primary research articles published in English between January 2010 and March 2020.

The full text of each article was revised to determine whether it met the study's inclusion criteria. This task was carried out by reviewers who analyzed the texts independently, and then a subsequent analysis of consensus and divergences discussions between both was carried out for consensus on the articles to be excluded.

After this process, the articles identified by the databases were 3210 with the following distribution: 1091 in EBSCO (CINAHL Complete; MEDLINE Complete; Nursing & Allied Health Collection: Comprehensive; Cochrane Central Register of Controlled Trials; Cochrane Database of Systematic Reviews; Cochrane Methodology Register; Library, Information Science & Technology Abstracts; *MedicLatina*), 410 in PubMed, 151 in B-On, 1197 in Google Scholar, 91 in BVS—*Biblioteca Virtual da Saúde*, and 270 in RCAAP—*Repositórios Científicos de Acesso Aberto de Portugal* (Table 1).

Three hundred sixty-nine duplicated studies, 14 articles of which only the abstract was available and 21 articles that could be found in any of the languages selected for the study, were removed. Eight

TABLE 1. Studies That Were Identified Using the Keywords

	Scientific Research Database	Keywords	Time Frame	Exclusion Criteria	Results
S1	EBSCO (CINAHL Complete; MEDLINE Complete; Nursing & Allied Health Collection: Comprehensive; Cochrane Central Register of Controlled Trials; Cochrane Database of Systematic Reviews; Cochrane Methodology Register; Library, Information Science & Technology Abstracts; <i>MedicLatina</i>)	(patient safety) AND (training) AND (Health professionals)	January 1, 2010– March 10, 2020	Participants of both sexes, aged ≥20 y-old; studies in humans	1091
S3	Google Scholar	(patient safety) AND (training) AND (Health professionals)	January 1, 2010– March 10, 2020	Participants of both sexes, aged ≥20 y; studies in humans	1197
S4	BVS— <i>Biblioteca Virtual da Saúde</i>	(patient safety) AND (training) AND (Health professionals)	January 1, 2010– March 10, 2020	Participants of both sexes, aged ≥20 y; studies in humans	91
S5	PubMed	(patient safety) AND (training) AND (Health professionals)	January 1, 2010– March 10, 2020	Participants of both sexes, aged ≥20 y; studies in humans	410
S6	B-On	(patient safety) AND (training) AND (Health professionals)	January 1, 2010– March 10, 2020	Participants of both sexes, aged ≥20 y; studies in humans	151
S7	RCAAP— <i>Repositórios Científicos de Acesso Aberto de Portugal</i>	(patient safety) AND (training) AND (Health professionals)	January 1, 2010– March 10, 2020	Participants of both sexes, aged ≥20 y; studies in humans	270

hundred fourteen articles were excluded upon verifying that these were editorials, commentaries, or opinion articles. Eight hundred eighty-five articles were also excluded because the authors were health sciences students, particularly nursing students. Finally, 1100 articles were eliminated because they studied the perceptions of health professionals about patient safety but without any reference to training programs. Seven research articles fulfilled the criteria and were included in the study.

After this process, references are made to the selected studies by describing the decision process in the decision flowchart for identification and inclusion of the studies (Fig. 1).

RESULTS

The next step consisted of a narrative summary describing the objectives or purposes of the articles included in the corpus of analysis, the concepts adopted, and the results related to the starting question of the review. The results were classified into the following main conceptual categories: “type of study,” “participants” (and sample size, if applicable), “objectives,” “adopted methodology,” and “established evidences.” For each category, a clear explanation is provided. This section includes a general description of the sources included in the study, with reference to a detailed table of the characteristics of each study that appears in the data extraction tool. Thus, the results are presented in a summary table containing the selected studies. We followed the suggestions of the JBI,¹⁴ according to which the presentation of results can map the reviewed material in a logical, diagrammatic, or tabular way and/or in a descriptive format, as long as it is in line

with the purpose of the review. Table 2 shows the distribution of the studies by title, author(s), year of publication, and country of origin (Table 2).

The content analysis of the results aims to contribute to disseminating the evidence available on the existing patient safety training programs for health professionals, considering their structure and contents (Table 3).

Although the VA National Center for Patient Safety (2020)¹⁵ article does not report results, we found it useful to include it, because it addresses useful intervention measures for developing patient safety training programs.

Table 4 summarizes the intervention measures of the included studies as indicators of patient-centered care aimed at patient safety.

As schematized in Figure 2, patient safety programs improve the knowledge, confidence, and skills of health care professionals; change their values and behaviors; and consequently improve their clinical practices. An effective communication, infection control, prevention of falls, more positive practices, and health care professionals’ satisfaction are other positive indicators that can improve with patient safety programs. All these factors increase patient safety, which is the major objective of the training. One of the studies⁵ categorized the benefits of the programs: reconstruction of trust, reconstruction of work, reconstruction of values, and reconstruction of professional status. The authors add that the patient safety program involved a change in decisions related to patient safety.⁵

On the other hand, gaps were identified in the implementation of these programs, whereby we highlight the fact that there is no



FIGURE 1. Flowchart for identification and inclusion of the studies.

TABLE 2. Summary Table of Articles Characterization

Code	Title	Author(s)	Publication Year	Country
A01	Implementation of a patient safety program at a tertiary health system: a longitudinal analysis of interventions and serious safety events	Cropper DP, Harb NH, Said PA, Lemke JH, and Shammas NW	2018	United States
A02	Building capacity and capability for patient safety education: a train-the-trainers programme for senior doctors	Ahmed M, Arora S, Baker P, Hayden J, Vincent C, and Sevdalis N	2013	England
A03	Advancing the status of nursing: reconstructing professional nursing identity through patient safety work	Heldal F, Kongsvik T, and Håland E	2019	Norway
A04	VA Patient Safety Fellowships	VA National Center for Patient Safety	2020	United States
A05	Implementation of patient safety centers and the healthcare-associated infections	Cavalcante EFO de, Pereira IRBO de, Leite MJVF de, Santos AMD, and Cavalcante CAA	2019	Natal, Brazil
A06	The effect of nurse empowerment educational program on patient safety culture: a randomized controlled trial	Amiri M, Khademian Z, and Nikandish, R	2018	Iran
A07	Patient safety and quality of care are everybody's business: evaluating the impact of a continuing professional development program beyond satisfaction	Luconi F, Boillat M, Mak S, Chartrand D, Korah N, Daly M, Teferra M, and Gutberg J	2019	Toronto, Canada

significant improvement in relation to nonpunitive response to errors and reported adverse events.¹⁶

DISCUSSION

In recent decades, greater attention has been paid to patient safety in health care. However, not all of this attention occurs in the form of programs that aim to change the behavior of health professionals. In this review, most of the studies that met the inclusion criteria are from 2018 to 2020. One study refers that health professionals feel the need for training through patient safety programs, which challenge their professional identity. It is consensual in the studies analyzed that health professionals and health leaders should be provided with information, tools, and techniques to create a strong culture of patient safety in their organizations.¹⁷

Most studies report that the development of patient safety programs for health care professionals provides them with tools and techniques to recognize adverse incidents induced by the professional system/practice; recognize human factors related to patient safety, such as nontechnical skills or tiredness; understand high-risk clinical processes; develop strategies that influence and enhance patient safety culture; promote communication, teamwork, and organizational culture concerning patient safety; analyze other characteristic and emerging topics in patient safety; and develop project proposals to improve patient safety, allowing health care professionals to consolidate their knowledge, leading initiatives to improve patient safety.^{15–18}

One of the studies showed that the effectiveness of face-to-face training programs in workshop format was demonstrated, during which health professionals can acquire more patient safety literacy and become patient safety agents. This type of program allows health care professionals to have a dedicated time and space for an intensive learning experience focused on patient safety, with the opportunity to interact and learn simultaneously with their peers.¹⁷

In Norway, as evidenced by one study, the implementation of a patient safety program resulted in the strengthening of professional nursing status/identity and the reconstruction of trust, work, and values in the area of patient safety.⁵

In the United States, yearlong scholarships are being implemented to develop a generation of patient safety leaders, providing intensive training in clinical aspects of patient safety, research meth-

odology in health services, and leadership, which is also a means to promote training on patient safety for health professionals.¹⁵

Another format of a patient safety training program for health professionals is reported by Ahmed et al¹⁸ in the United Kingdom. It concerned a patient safety training course for senior doctors, who were invited to enroll in the patient safety program for interns from across the region.¹⁸ The program was called “Lessons Learnt,” and its evaluation included a prospective longitudinal study carried out from 2010 to 2012. Patient safety, knowledge, attitudes, and skills were assessed before and after the training course, and the final assessment occurred 8 months after the course. The results reveal that the participants indicated high levels of satisfaction with the training, with a significant improvement in scores of knowledge about patient safety after training. Measures concerning safety attitudes and skills also improved significantly after training. It was shown that the training provided to senior doctors in patient safety is feasible and effective as a means of training capacity in this very emerging area. In view of the results obtained, the authors suggest the replication of this training program in other professional areas, in hospital context, as a way of ensuring quality health care.¹⁸

Another study conducted a 2-day training workshop on patient safety and safety culture based on the Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS) program, developed by the Agency for Healthcare Research and Quality (AHRQ) to ensure improved patient safety outcomes. TeamSTEPPS addresses patient safety communication and culture. Posters were also posted, and a weekly pamphlet delivered with information on communication, mutual support, situation monitoring, leadership, and patient safety culture and communication.¹⁶ Health care professionals' training in patient safety is related to the identification of care priorities, the best clinical practices, and the scientific knowledge. Therefore, this training can interfere in the professional identity. The professional identity can be considered as an awareness of the role and functions that are performed or expected to perform in each context as a member of a professional class.¹⁹ Although assessing the quality of care provided is considered challenging, there are prevalence assessment schemes for problems such as pressure ulcers and risk of falls, areas that involve patient safety work and that should be an integral part of training programs for health professionals.²⁰ As such, it is essential to implement training programs for health professionals as ways to

TABLE 3. Synthesis of the Evidence Extracted From the Studies

Studies	Type of Study	Objective of the Study	Participants	Methodology Adopted	Evidences Established
Code A01	Descriptive, prospective longitudinal	To verify that the implementation of a patient safety program based on highly reliable organization principles reduces serious events in terms of patient safety	Health professionals	Implementation of a patient safety program focused on 7 essential elements: (a) rounding of patient safety, (b) patient safety supervision teams, (c) patient safety groups, (d) patient safety instructors, (e) good patient safety practices, (f) education on patient safety, and (g) red rule. An educational curriculum was also implemented with a focus on changing high-risk behaviors and implementing critical patient safety policies. All unusual occurrences were collected using the Midas system. The occurrences were then investigated by patient risk specialists, the person responsible for patient safety and a chief physician. A multi-departmental committee evaluated these events and performed a cause analysis. The events were tabulated and any serious security event was recorded and followed-up over time. Successful patient safety cases were also assessed over time (9 y).	There was a significant increase in the success of the elements that made up the program for 9 y. An increase in patient safety was also evident, reflecting the involvement of the e team in the program. The change in behavior and the implementation of various safety interventions suggest that the program was successful and that the objectives were achieved. The success of the patient safety training program reveals that health care professionals have acquired the right skills and knowledge, values, and behaviors to ensure patient safety, which supports the recommendation to implement training programs for health care professionals.
Code A02	Descriptive, prospective longitudinal	To develop, implement and evaluate a training program for senior doctors, in order for them to become leaders among patient safety instructors	216 senior doctors, recruited from 20 hospitals in North Western Deanery, England, the United Kingdom	The intervention consisted of a patient safety training program/course called “Lessons Learnt.” The participants were invited to register on a patient safety program for interns from all over the region. The evaluation included a prospective longitudinal study carried out from 2010 to 2012. Patient safety, knowledge, attitudes, and skills were assessed before and after the training program/course was implemented and the final assessment occurred 8 mo after the program/course was finished.	Of the 216 senior doctors who volunteer, 122 were appointed to act as instructors in the in-hospital patient safety training program. The participants reported high levels of satisfaction with the training. The scores regarding knowledge about patient safety improved significantly after training (pretraining, 70%; posttraining, 80%; $P < 0.001$) and were maintained for 8 mo (after 8 mo of training, 90%). Similarly, self-reported measures on safety attitudes and skills also improved significantly after training. After completing the training, 88 of 122 (72%) participants promoted 213 sessions of the “Lessons Learnt” training program, from January 2011 to July 2012 (average, 2; range, 1–8 sessions). The satisfaction of the interns with the instructors, regarding the implementation of the training program, was significantly high. The evidence reveals that patient safety training has resulted in more positive practices, both for instructors (doctors) and for interns.

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TABLE 3. (Continued)

Studies	Type of Study	Objective of the Study	Participants	Methodology Adopted	Evidences Established
Code A03	Qualitative, longitudinal, observational, exploratory-descriptive	To verify how the implementation of a patient safety program can be interpreted as a challenge for the professional identity of nurses working in a hospital context	10 nurses and 3 hospital managers	Qualitative investigation of the implementation of a patient safety program in Norway, paying special attention to changes in nurses' practices and values. Based on an intentional sampling, 2 group interviews, 4 individual interviews, and 5 h of observational studies in a hospital service were carried out. The interviews were carried out in the hospital's offices, and the observations were carried out in situ. The data were analyzed according to ad hoc meanings produced during the processes.	The following analytical categories emerged: reconstruction of trust, reconstruction of work, reconstruction of values, and reconstruction of professional status. The patient safety program involved a shift in decisions related to patient safety, moving from relying on professional judgment to be more based on the system. Some patient safety activities that were previously invisible and tacit became more visible. The patient safety program involved activities that were more in line with the "cure" discourse than with the traditional nursing "care" work. All of this implied an increase in the perceived professional status among nurses. The safety program was—unlike the "normal" resistance against audit systems—well received because of the perceived increase in professional status among nurses.
Code A04	Documentary	Information on scholarships for patient safety training, proposed by the VA National Center for Patient Safety, in cooperation with the VA Office of Academic Affiliations	Doctors after internship, and postdoctoral or postmaster health professionals, such as nurses, psychologists, pharmacists, social workers, administrative staff	Documentary investigation	The yearlong scholarship was designed to develop a generation of leaders in patient safety. The scholarship holders receive intensive training in clinical aspects of patient safety, research methodology in health services, and leadership. This scholarship is being implemented in Ann Arbor, Michigan; Indianapolis, Indiana; Lexington, Kentucky; Milwaukee, Wisconsin; Philadelphia, Pennsylvania; Pittsburgh, Pennsylvania; Tampa, Florida; White River Junction, Vermont.
Code A05	Quantitative and cross-sectional study	To verify the implementation of the Patient Safety Center, resulting from a patient safety program, and its relationship with the control of infections associated with health care in the hospitals of Natal	28 infection control professionals from 12 hospitals	The study emerged from the research "The interface between prevention and control of infections in health services and the safety of patients and employees." Data were collected from February to August 2017 using a questionnaire addressed at professionals working in Hospital Infection Control Commissions of each hospital that was part of the study. Variables related to the "National Patient Safety Program" were analyzed, namely, the implementation of the patient safety center; the presence of patient safety protocols; the presence of mechanisms to identify, evaluate and correct problems in	Implementation of a Patient Safety Center in 9 hospitals. Among the implemented protocols, the identification of the patient (66.70%), hand hygiene (50%), and the prevention of falls (50%) stood out. Hospitals with a Patient Safety Center said they developed training activities on patient safety with professionals; 44.5% performed effective communication. Although the actions implemented do not fully comply with the recommendations of the Brazilian National Health Surveillance Agency, most of these actions are directly related to the control of infections in the services.

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TABLE 3. (Continued)

Studies	Type of Study	Objective of the Study	Participants	Methodology Adopted	Evidences Established
Code A06	Randomized controlled study	To determine the effect of training nurses and supervisors through a training program on the culture of patient safety in intensive care units	48 nurses and 13 nursing supervisors from 6 intensive care units at the Namazi Hospital, Shiraz, Iran, randomly assigned to the experimental and the control groups. Both groups were homogeneous in terms of age, sex, marital status, and education.	<p>procedures; the presence of mechanisms to identify, assess and correct problems in the use of equipment, medicines and supplies; the development of training activities on patient safety and quality of health care; collaboration of the nursing team in surveillance and risk management; risk management actions according to the health services provided in each institution, established in the program plan; communication of damages/adverse events to ANVISA.</p> <p>The intervention consisted of a 2-d workshop (8 h). Data were collected using a hospital survey on patient safety culture. Pretest and posttest evaluations took place from April to September 2015. The workshop included training on patient safety and safety culture, the presentation of case studies with situations that threaten patient safety, the presentation of the team’s strategies and tools to improve performance and patient safety proposed by the Team STEPPS, developed by the AHRQ aiming to guarantee the improvement of results on patient safety. The workshop consisted of lectures, group discussion, and presentation of possible risk scenarios. In addition, posters with text and graphics (related to the Team STEPPS skills, communication, and patient safety culture) were affixed to the walls of the experimental group’s intensive care units for a period of 6 wk. For the following 6 wk, a weekly pamphlet was delivered to the nurses in the experimental group with information about communication, mutual support, monitoring the situation, leadership, and patient safety culture and communication. Data collection was performed using the Persian version of the Hospital Survey on Patient Safety Culture, developed by the AHRQ.</p>	<p>In the experimental group, the mean total posttest score of the patient safety culture (3.46 ± 0.26) was significantly higher than that of the control group (2.84 ± 0.37, $P < 0.001$), and higher than the mean total pretest score (2.91 ± 0.4, $P < 0.001$). However, dimensions such as nonpunitive response to errors and reported adverse events did not improve significantly. Empowering nurses and supervisors can improve patient safety culture. However, additional actions are needed to improve areas such as reporting adverse events and nonpunitive response to errors.</p>

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TABLE 3. (Continued)

Studies	Type of Study	Objective of the Study	Participants	Methodology Adopted	Evidences Established
Code A07	Descriptive, longitudinal study	To study the implementation and impact assessment of the implementation of a Continuous Professional Development program focused on the training and practice of health professionals with regard to patient safety, levels of satisfaction, usefulness, knowledge, confidence, intention to change behaviors, and changes in professional practice	77 health professionals	Live workshops for health professionals from 2014 to 2016, during which the patient safety training program took place. Longitudinal application of 4 questionnaires for data triangulation	There was high satisfaction and a significant increase in the levels of knowledge and confidence immediately after the workshops. The intention to change professional practices and behavior proved to be significantly high after the Workshops. The moral norm and beliefs about the consequences of incorrect practices with regard to patient safety were consistently rated as the most influential factors in the participants' intention to change their behaviors, whereas social influence was consistently ranked as the least influential factor. In the workshops, the participants hoped to improve communication, increasing their knowledge about patient safety by applying the content acquired and practicing teamwork. The commonly anticipated barriers to the full practical implementation of the training received included lack of resources, environmental stressors, and organizational climate/culture. These barriers were confirmed after 6 mo, and participants reported partially implementing 78% (18 of 23) of the program's goals. This study showed the feasibility of developing and implementing an effective patient safety intervention to support health professionals' knowledge on the care provided, their confidence, and the change they reported on patient safety teaching and practice.

monitor, evaluate, and ensure patient safety.²¹ These assumptions are corroborated by some studies analyzed.^{5,17,22} An effective patient safety culture is related to reducing the rate of patient complications and minimizing adverse events. Considering some gaps of other implemented programs, such as TeamSTEPPS, the implementation of the key modules of the Multi-professional Patient Safety Curriculum Guide of the WHO is considered important, taking into account that it promotes positive attitudes toward patient safety.⁶ The WHO continues to recommend the application of this program, and it is referred to in Global Patient Safety Action Plan 2021–2030.²³ Patient safety education/training should increasingly become an integral part of the curricula of health care institutions. Several countries recognize the importance of training health professionals on the principles and concepts of patient safety. The WHO is leading the global initiative to develop awareness, values, and strategies for patient safety, having developed

the Multi-professional Patient Safety Curriculum Guide. This guide contains concepts of patient safety, human factors, and the why of patient safety, to understand systems and the impact of complexity on patient care as well as integration into an effective team, to help to understand and learn from errors, to manage clinical risk, to enhance quality improvement, to put knowledge into practice, to minimize infection through better infection control and patient safety regarding invasive procedures, and to improve medication errors as well as evidence-based root cause analysis and communication. Thus, studies that implement a patient safety program based on the Multiprofessional Patient Safety Curriculum Guide are needed. This type of program may overcome the gaps of other programs, promoting greater knowledge of health professionals about patient safety, but it needs to be tested in practice. Other gaps of this study are the noninclusion of studies with patient opinion on patient safety,

TABLE 4. Intervention Measures of the Patient Safety

	Intervention measures	Studies
Patient safety indicators for intervention programs	Patient safety rounding	A01
	Training of patient safety supervisory teams	A03
	Creation of patient safety groups	A05
	Availability of patient safety trainers	
	Establishment of a Red Rule	
	Implementation of educational curriculum focused on changing high-risk behaviors	
	Implementation of critical patient safety policies	
	Presence of patient safety protocols	
	Patient safety course/training—"Lessons Learned"—promoting shared learning among peer groups on patient safety	A01 A02
	Recording of incidents reported by trainees by the trainers involved according to their own clinical areas	A03
	Monthly sessions delivered by a senior doctor (60 min each) in a forum	A05
	Peer-group analysis and discussion of a workplace safety incident or error based on a validated incident analysis protocol	
	Evaluation of the course comprised a prospective longitudinal study conducted for 2 y, with tests	
	Follow-up of a nursing team for approximately 4 mo	A01
	Application of qualitative interviews	A03
	Onsite observation	A05
	Moments of joint reflection to explore nurses' experiences about the implementation of the patient safety program from a holistic point of view: different types of changes occurred in nurses' practices and status in relation to patient safety, rebuilding trust, practices, and values; to verify the most prevalent adverse incidents; to verify adverse event notifications; to ascertain which determinants influence the reporting of adverse events; the benefits that arise from the reporting for the patient, taking into account that adverse event reporting is one of the central aspects for the quality of patient-centered care and ensuring patient safety	
	Presence of patient safety protocols	
	A 1-y interprofessional fellowship to develop a generation of patient safety leaders: intensive training/coaching in clinical aspects of patient safety, health services research methodology, and leadership; develop patient safety plans with guidance from an expert mentor; develop and apply new knowledge for continuous quality improvement; patient-centered care; and sustained organizational culture change	A04
	Implementation of the Patient Safety Unit	A01
	Presence of patient safety protocols: patient identification, hand hygiene, surgical safety, safety in the prescription, use and administration of medicines, prevention of patient falls, and prevention of pressure ulcers.	A03 A05
	Existence of mechanisms to identify, assess, and correct problems in the procedures performed.	
	Existence of mechanisms to identify, evaluate, and correct problems in the use of equipment, medication and inputs	
	Performance of training activities on patient safety and quality in health services among professionals.	
	Collaboration with the nursing team in risk surveillance and management	
	Risk management actions according to the health services provided in each institution, established in the Patient Safety Plan	
	Notification of errors/adverse events to ANVISA	
	Training activities for professionals in patient safety and quality in health services: mechanisms for identifying, assessing, and correcting problems in the procedures performed	
	Active participation of nurses in risk surveillance and management	
	The educational capacity building program: 2-d workshop (8 h), followed by hanging posters and distributing educational pamphlets to nurses and supervisors at their workplaces	A06 A07
The workshop included patient safety education, patient safety culture, and talking openly about a patient safety threatening situation.		
Skills validation through TeamSTEPPS, developed by the Agency for AHRQ to improve patient outcomes, including: communication skills, leadership, mutual support, and situational monitoring.		
The workshop consisted of a lecture, group discussion, and scenario presentation. In addition, some posters (related to TeamSTEPPS skills regarding patient safety culture) were placed on the walls of the units where patients were admitted, for a period of 6 wk. During the following 6 wk, every week, a leaflet was given to the nurses. The contents of the leaflets included communication, mutual support, situation monitoring, leadership, and patient safety culture.		
Implementation of 6 domains of the Canadian Patient Safety Institute: (1) contributing to a culture of safety; (2) working in patient safety teams; (3) communicating effectively; (4) managing safety risks; (5) optimizing human and environmental factors; (6) recognizing, responding to, and reporting adverse events		

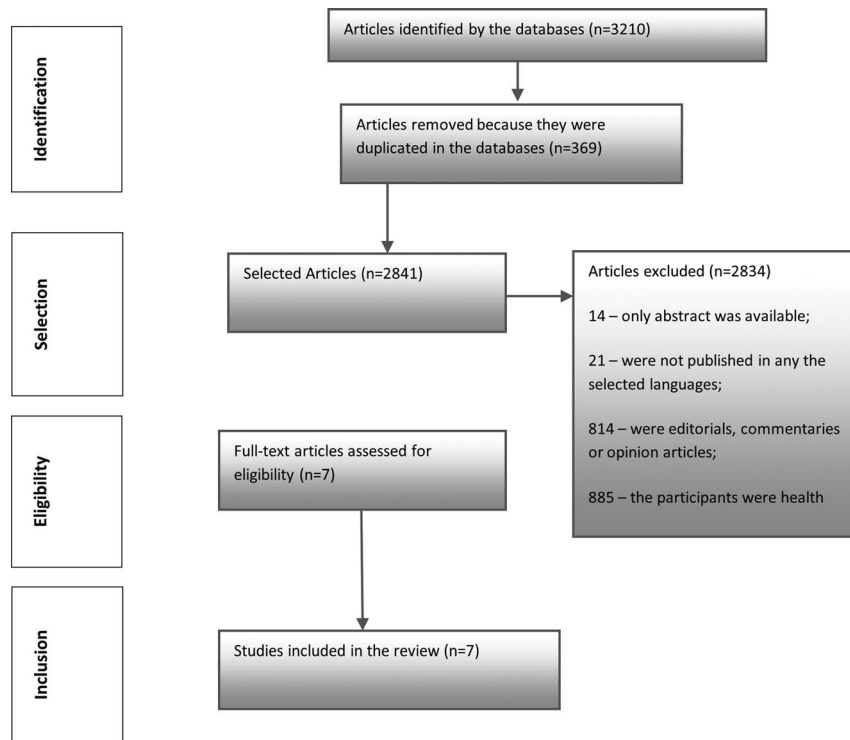


FIGURE 2. Evidence regarding the implementation of patient safety programs.

so it is suggested that, in future studies, patients be involved in the study design.

CONCLUSIONS

As far as is known, this scoping review is the first attempt to systematically identify existing patient safety training programs for health care professionals. As an independent study, this research was mainly useful to map the evidence and highlight the different training programs in the area of patient safety aimed at health professionals. We assume that this is a relevant means for a greater dissemination of the importance of training in patient safety as a guarantor of quality health care, especially because we detected a shortage of patient safety training programs for health professionals, and many of the existing programs focus on students and on health professionals' perceptions about patient safety.

According to this review, additional planning for the implementation of training programs for health professionals is needed to improve patient safety, so that errors, falls, health care-associated infections, and surgical complications can be reduced, and other safety features can be upgraded. The implementation of patient safety training programs would allow health institutions to be placed where patient safety is respected and provide quality care, an important health indicator.

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