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The Impact of Nursing Practice Environments on Patient Safety Culture in Primary Health Care - A Scoping Review

Soraia Cristina de Abreu Pereira1*
Olga Maria Pimenta Lopes Ribeiro2
Cíntia Silva Fassarella3
Eduardo José Ferreira Santos4

1 PhD student of Nursing Science at Abel Salazar Biomedical Sciences Institute, University of Porto, Porto, Portugal and Specialist Nurse at North Region Health Administration, Porto, Portugal (https://orcid.org/0000-0002-8011-378X)
2 Adjunct Professor at Nursing School of Porto and CINTESIS@RISE, Porto University, Porto, Portugal (https://orcid.org/0000-0001-9982-9537)
3 Adjunct Coordinator and Permanent Professor of the Graduate Program in Nursing, and Adjunct Professor at the Faculty of Nursing of the State University of Rio de Janeiro (https://orcid.org/0000-0002-2946-7312)
4 Adjunct Professor at Polytechnic University of Viseu, School of Health, Health Sciences Research Unit: Nursing (UICISA: E) and Portugal Centre for Evidence Based Practice (PCEBP): a JBI Centre of Excellence (https://orcid.org/0000-0003-0557-2377)
* Correspondence: pereirasoraia87@gmail.com

Abstract

Background Patient safety has in recent decades become a global concern and a key area of healthcare organizations, with a direct impact on patient health and well-being. Work environments can strongly impact nurses' well-being and may ultimately produce different outcomes for both professionals and patients. The adverse events occurrence is an example of this, and there is evidence of this correlation in several studies conducted in recent years.

Aim This review aims to map the knowledge regarding the impact that nursing practice environments have on safety culture in primary health care settings, as primary health care concentrates a significant portion of the population's care.

Design & setting This review was conducted following the methodology proposed by the Joanna Briggs Institute for scoping reviews.

Method Study selection, data extraction and synthesis were performed by two independent reviewers. Based on Participants, Concept and Context framework, we considered studies that addressed nurses' practice environment and patient safety culture in primary health care. All studies published or unpublished, from 2002 to the present were considered.

Results Seven studies were included in this review, however, the existing evidence on the relation between nurses' practice environments and patient safety is still limited in primary health care settings. Although we did not find clear evidence, we did find several characteristics of nursing practice environments that may impact healthcare safety.

Conclusion More research directed at primary health care nursing practice settings is needed and could be valuable in defining and implementing strategies that promote the safety of care.

Keywords: Nursing, work environment, patient safety, primary health care.
Open Science Framework registration: https://doi.org/10.17605/OSF.IO/JG3HE.

How this fits in

Work environments strongly influence the physical, psychological, and emotional well-being of professionals, and are responsible for several outcomes for both professionals and patients. Patient safety and the occurrence of adverse events is an example of this, and there is evidence of this relationship in several studies conducted in recent years. However, a very significant part of the studies has been developed essentially in hospital settings, with an apparent undervaluation of primary health care. It is essential to understand the impact that nursing practice environments have on patient safety culture in the specific context of primary health care. This knowledge is fundamental not only for a more effective and adequate understanding of this phenomenon but also to enable the definition of strategies promoting safe care.

Introduction

Patient safety has become a global concern in the last few years and is a key area of health organizations, with direct impacts on patient health and well-being [1]. Patient safety is defined by the World Health Organization (WHO) as "the reduction of risk of unnecessary harm associated with healthcare to an acceptable minimum" [2] (p.15) and safety culture is considered the "product of individual and group values, attitudes, perceptions competencies, and patterns of behavior that determine the commitment to, and the style and proficiency of, an organization's health and safety management" [2] (p.142). Unsafe care is one of the leading causes of disability and death, worldwide, according to data from the World Health Organization, raising the need for tailored interventions to promote safe care [3]. Higher rates of unsafe care and the occurrence of adverse events and errors have been linked to unfavorable work environments and poor working conditions [4]. The International Council of Nurses (ICN) believes that a safe work environment, appropriate compensation, professional recognition and appreciation, adequate material resources that are tailored to meet needs, and human resource policies that are focused on the recruitment and retention of professionals are all essential components of a favorable work environment [5].

In the nursing field, there have been several reports and initiatives worldwide that have drawn attention to the importance of nurses' working environments as a catalyst for healthcare quality [3, 6], like the 2004 report "Keeping Patients Safe: Transforming the Work Environment of Nurses" [7] from the Institute of Medicine (IOM), or the World Patient Safety Day of 2020, which established the theme "Safe health workers, safe patients" as a strategy to evidence the connection between patient safety and professional practice environments [3, 8].

Recent research on the relationship between work environments and job satisfaction, burnout, omitted care, and the intention to leave the profession has led us to a better understanding of this relationship [9-10]. Work environments have a significant impact on professionals' well-being and contribute to a variety of outcomes for professionals as well as patients [8]. Heavy workloads, shortage of human and material resources, lack of communication and teamwork [4], or even low involvement of professionals in the definition of organizational policies and decision-making increase the risk of adverse events [8] and reduce patient safety-related scores [1].

Because of its comprehensive nature, primary health care focuses a significant portion of the population's care [9 - 13]. Primary health care is understood by the WHO as “a whole-of-society approach to health that
aims at ensuring the highest possible level of health and well-being and their equitable distribution by focusing on people’s needs and as early as possible along the continuum from health promotion and disease prevention to treatment, rehabilitation and palliative care, and as close as feasible to people’s everyday environment" (p.2). Primary health care includes services for health promotion, disease prevention, community promotion and development, and curative, rehabilitative, and palliative care and constitutes first-level, appropriate, and evidence-based care.

A large number of studies have been conducted mainly in hospitals, with an apparent undervaluation of primary health care, although some research has recently begun to emerge in this context. According to Kuriakose, Aggarwal, Sohi et al., about 20 - 25% of the population experience errors or adverse events in primary health care, with diagnostic errors, communication gaps, unsafe medication practices and fragmentation of care appearing as contributing factors to unsafe care. Interactions between patients and professionals are generally limited, may occur at intervals of weeks to months, and in some cases these interactions happen in the patient’s home. The occurrence of safety incidents usually takes place outside office hours or outside the healthcare setting, in contrast to the hospital environment where the patient is under supervision 24 hours a day, which may contribute to the under-reporting of errors or incidents and to an idea of low risk of incidents. Lack of access to patient history, insufficient medical knowledge, high workloads, an ageing population, and the increase in chronic and complex diseases are among the common causes of these incidents.

In the particular context of primary health care, it is essential to understand the influence that nursing practice environments have on patient safety culture, with a very substantial proportion of healthcare provided in this setting, and research suggests that patients are also at risk of errors and adverse events.

To understand whether there were studies on the topic, we conducted a preliminary search in JBI Evidence Synthesis, Cochrane Database of Systematic Reviews, PROSPERO, Open Science Framework, and MEDLINE. Following this search two scoping reviews were identified and targeted for our analysis. One of the reviews aimed to map the evidence related to nursing practice settings in primary health care, however, it did not refer to patient safety. The other review aimed to identify the challenges to patient safety in primary health care but did not address the issue of nursing practice settings. No other current or in-progress systematic reviews on the topic were found.

Thus, and given that the primary evidence identified is still poorly described, we conducted this review, according to a methodology proposed by JBI, to map the knowledge about the impact that professional nursing practice environments have on the culture of safety in primary health care settings. Considering the above, the review question is: "What impact do nursing professional practice environments have on patient safety culture in primary health care settings?"

2. Materials and Methods
This review was performed according to the methodology proposed by JBI for scoping reviews and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Scoping Reviews (PRISMA-ScR) were followed when writing this review. This scoping review is registered on Open Science Framework, with DOI registration: https://doi.org/10.17605/OSF.IO/JG3HE. A protocol for this review was developed and has been published previously and provides details of all the steps performed.
2.1. Eligibility Criteria

The Populations, Concept and Context (PCC) framework was followed to define the eligibility criteria.[29] In Table 1 are the criteria and definitions followed for the definition of Populations, Concept and Context followed in this review.

2.2. Search Strategy

We used a research strategy consisting of three phases. Initially, we conducted a limited search in MEDLINE (PubMed) and CINAHL (EBSCO) to identify articles on the topic under analysis. The text words contained in the titles and abstracts of the articles considered relevant were consulted and the index terms were used to develop a full search strategy, available in Table 2. Subsequently, and using all the keywords and index terms initially identified, a second search was conducted in the following databases: MEDLINE (PubMed), CINAHL (EBSCO), Embase (Elsevier), RCAAP - Open Access Scientific Repository of Portugal, WHO - World Health Organization database, Agency for Health Research and Quality database, WorldCat and ProQuest Dissertations and Theses. Published and unpublished literature in any language from 2002 to the present was considered, since in 2002 the WHO Executive Board extensively discussed the topic of patient safety, and since then many initiatives have taken place at a global level, it has become an important milestone. In the third phase of the search, the reference lists of the studies included in this review were scanned, but no additional relevant studies were found.

2.3. Study Selection

All studies identified in the search were collected and integrated into EndNote X9.3.3 (Clarivate Analytics, PA, USA), duplicates were removed, and citations were imported into Rayyan (Qatar Computing Research Institute, Doha, Qatar). Two independent reviewers (SP and OR) scanned the titles and abstracts to assess the previously defined inclusion criteria. A pilot review process of initial titles and abstracts was conducted independently by both reviewers and with over 75% agreement between the reviewers, it was decided to make no changes to the eligibility criteria. After the assessment of all titles and abstracts, the studies which fulfilled the inclusion criteria were read in integral form. Disagreements between the reviewers were resolved by constructive discussion and a consensus was reached without the need for a third reviewer (ES). The full results of the search and the reasons for the exclusion of studies after reading the full text were recorded and are presented in a PRISMA flow chart[30] (Figure 1).

2.4. Data Extraction

Data were extracted from selected studies by two independent reviewers (SP and OR) using a data extraction tool developed by the reviewer’s team. The data extracted includes specific details about the concept, context, study methods, and specific objectives. The authors of the included articles were not contacted for further information or data clarification because there was no need.

2.5. Data Analysis and Presentation
The extracted data were presented in tabular form and a narrative synthesis accompanies the results, describing how the results relate to the purpose and to the question formulated for this review. Additionally, the narrative synthesis was based on a hermeneutic analysis of the phenomenon, which followed the principles proposed by Bardin [31].

3. Results

A total of 809 studies were retrieved from the databases and, from those, 795 remained after removing duplicates. After the analysis phases of the review process, seven studies met the inclusion criteria and were included in this review, having their characteristics, objectives, and main results detailed in Table 3.

Evidence on the relationship between nurses’ practice environments and patient safety is still limited in primary health care settings. There has been a large investment in patient safety, however, most researchers and investigations were conducted only in hospital settings [32]. Regarding the assessment of safety culture, the cross-sectional studies that were included in this review show that the overall assessment of patient safety culture is negative [33-34]. There are also reports of a lack of knowledge about patient safety [23], and resigned attitudes towards adverse events and errors [32], with a general perception that the primary healthcare environment is very susceptible to the occurrence of adverse events and errors [32-35]. Several of the protective factors and factors considered barriers to promoting patient safety found in this review (Table 4) are elements that characterize nursing practice environments, so we can interpret that there is a clear relationship between these two concepts [32, 35-38].

We performed a content analysis of the articles included in this review, and seven categories emerged: collaborative work, leadership, workload and nurse's health, recognition and valorization of nurses, organizational policies, professional development opportunities, and strategies to promote patient safety and positive nursing practice environments.

3.1. Collaborative work

Relationships among nurses and between nurses with other professionals in the multidisciplinary team, clinical support, collaborative decision-making, and communication are all relevant aspects of teamwork that characterize nursing practice environments [36, 39].

The relationships between nurses and the multidisciplinary team play a very important role in promoting constructive and safer practice environments. In the literature review conducted by Poghosyan [40], we found that favorable relationships between nurses and physicians, including effective communication, knowledge sharing, and teamwork, facilitated the development of a positive practice environment. The relationships between nurses and administrative staff are also highlighted, with administrative support and the promotion and respect for the role and activities developed by nurses and administrative staff, respectively, being particularly important [40].

Ineffective communication between nurses and the rest of the team includes a lack of respect and collegiality or insufficient support and resources for nursing practice [32]. Ineffective communication or lack of communication is considered a barrier to safe care and is associated with errors, accidents, unsafe work behaviors, and other adverse outcomes [18, 32-34, 40, 41]. Communication it is even pointed out as an essential skill and strategy that should be used by primary health care providers to improve patient safety [32].
3.2. Leadership

Nurse managers should be encouraged and have leadership skills and commitment to patient safety and nurse well-being. In the two cross-sectional studies included in this review, management was perceived as positive. Staff wellness and supportive nursing practice environments are associated with better quality care delivery and lower occurrence of adverse events. Nurse managers must be properly empowered to provide nurses with a work environment that enhances their well-being and the well-being of the team. Access to human and material resources, counseling the team, clinical support and backup, emotional stress management skills, and the ability to identify situations of compassion fatigue and burnout are areas that the nurse manager must know how to manage to care for the team and promote quality of care.

The development of resilience in nurses is also considered an essential point not only for promoting well-being but also for ensuring quality care. The nurse manager must be able to recognize nurses’ difficulties and promote guidance and training in emotional resilience and emotional intelligence, supporting the team with compassion so that they can function effectively. Also here, nursing practice environments must be positive and constructive, allowing nurses to address the problems they face in an open and fair approach.

3.3. Workload and nurse’s health

The primary health care nursing practice environment is a unique scenario with a wide variety of sources of stress. The increasing amount of work and the gap between the workload and the ability of professionals to cope with their needs has led to many professionals feeling exhausted and experiencing stress-related illnesses. Professionals increasingly feel that they are unable to complete work at scheduled times, they need to take work home, and they need to work during their lunch break.

The consequence of this lack of break moments during the workday is also documented in several studies, concluding that the increasing workloads associated with the shortage of professionals are identified as one of the main barriers to continuing to work as a nurse. Working more than 40 hours per week without breaks causes staff functioning to decline, which can result in safety issues for patients and the staff themselves, as well as a significantly increased likelihood of error and an increased risk of adverse events.

There is concrete evidence that working under extreme circumstances is the main factor causing workplace stress, higher levels of staff turnover, and intentions to leave the profession, which produces consequences on nurses’ well-being, making them more likely to suffer from burnout and compassion fatigue.

Fatigue has a very negative impact on nurses’ quality of life, and is widely associated with long working hours, consecutive shifts, insufficient hours of sleep, long travel or walking, and lack of rest breaks. Staff fatigue can affect the quality of care provided which may translate into institutional outcomes and associated costs. Several negative aspects related to fatigue are described such as fatigue due to sleep deficiency that reduces performance on psychomotor vigilance tasks, increased frequency, and duration of attention lapses, slower response times, errors of omission, or impaired problem-solving ability.
association of errors in healthcare and sleep fatigue is also well described as a significant predictor of errors, with the incidence of errors increasing when nurses' hours of regular sleep decreased \[42, 44, 48\]. Error rates and the number of hours nurses work in a row are also mentioned. Nurses who work 12.5 hours or more in a row are three times more likely to make mistakes than nurses who work shorter shifts \[42, 44, 48\].

3.4. Recognition and valorization of nurses

Recognizing and promoting the visibility of the nurse's role within the healthcare organization is very important and is related to favorable nursing practice environments \[40, 41\]. Nurses often experience low visibility regarding their role and feel they receive less support than medical professionals \[40, 41\], which contributes to their job dissatisfaction and is related to a higher risk of errors \[42, 44\].

It is understood that job satisfaction, the increasing complexity of community nursing work, and high stress levels are associated with job retention problems, which have become a problem globally \[40\]. Stress management should be a priority to produce feelings of appreciation among nurses \[40\]. Recognizing nurses' professional autonomy and promoting feelings of belonging and commitment are also essential to ensure nurses' well-being, and for them to feel supported and motivated \[40\].

Although COVID-19 brought some recognition for nurses working in hospital settings, it is reported that for nurses working in primary health care, there was little support and recognition, despite the increased workload and the need to maintain levels of care delivery \[40, 43, 52\]. Although nurses are key players in healthcare systems, they often feel invisible and unappreciated \[40, 43\], which can translate into a risk to patient safety and a higher risk of adverse events \[33\].

3.5. Organizational policies

Policies, regulations, and the influence of organizations have a significant role in nurses' performance and quality of care \[40, 41\]. Institutional barriers to promoting positive nursing practice environments such as lack of staff rest areas, denying nurses breaks, high workload assignments, insufficient hiring of human resources, and inadequate management of human and material resources are examples of institutional policies that undermine the quality of care \[42, 44\].

Administrative and organizational structures in constant change are often routine in nurses' practice; however, these situations contribute to negative outcomes such as dissatisfaction, burnout, and high levels of human resource turnover, which not only influence nurses' performance but also seriously affect the quality of care and patient outcomes, with special emphasis on patient safety \[33, 34, 40, 41\].

3.6. Professional development opportunities

The promotion of professional development is an essential feature of a positive nursing practice environment \[40, 41\]. The qualification of professionals and the empowerment of the team to promote the safety and quality of care is essential \[39, 42\]. The negative perception of the "Continuing Education" domain found in Souza's study \[33, 34\] may have consequences for patient safety, since the meeting between training and clinical practice, the updating and recycling of knowledge, and the development of critical thinking about practices are essential for the promotion of patient safety \[33, 34\].
3.7. Strategies to promote patient safety and positive nursing practice environments

Healthcare organizations have a key role in promoting positive and safer nursing practice environments for patients. Institutions should be proactive in promoting the health and well-being of health professionals, with clear consequences such as higher levels of team performance, better patient care, higher levels of staff retention, and decreased absences due to illness [39, 42]. Some strategies to improve work environments and patient safety were mentioned in the studies included in this review as the development of patient safety protocols specific to the primary health care setting, continuing education and training of professionals, improvement of working conditions and infrastructure, improvement of communication, prevention of errors [13, 34] and implementation of an incident reporting systems, development of scientific evidence-based practice as a basis for decision making, involvement of patients and family in care, and sensibilization of professionals and managers for the practice of safe care [32, 35].

Clinical supervision sessions, as a process of monitoring nurses' practice, also emerge as a strategy that promotes self-reflection and open communication, with clear results in improving professional satisfaction and well-being of professionals, which can be reflected in higher quality and safer care [40, 43]. Implementing planned break areas designed to provide staff with a place where they can retreat from the clinical environment to reflect or gain comfort provides a positive atmosphere with opportunities for communication between professionals, and where they can find advice and reinforcement from their peers [40, 43]. The existence of personal space, privacy, and quiet spaces in the work environment can also have a beneficial effect on nurses' health, with consequences for their performance and desire to remain in the nursing profession [42, 44]. The mental health and well-being of healthcare professionals should be carefully supervised and evaluated. Promoting mental health and well-being by implementing supportive measures for professionals produces many benefits, such as reducing stress and improving the quality of care [40, 43].

Discussion

- Summary

The initial purpose of this study was to understand the impact that nursing practice environments have on patient safety culture in the specific context of primary health care. Although we did not find detailed evidence, it was clear how various characteristics of nursing practice environments can impact the safety of care, which in addition to proving the originality of this study, translates the need to maintain this line of research. Despite the differences between countries, we found in our study that there is a well-defined body of knowledge that associates favorable nursing practice environments with better quality and safer care [37, 39, 40, 42, 44]. The association between nursing practice environments, and their components, and patient safety-related outcomes has been explored over the years, although with more emphasis on the hospital setting [4, 5, 37, 43, 44, 54-58]. However, several characteristics of nursing practice environments that influence patient outcomes, such as quality of care and patient safety, which can be extrapolated to other settings, such as primary health care. Additionally, the multifactorial dimension of nursing practice environments was found, illustrating that positive nursing practice environments are linked not only to the availability of a sufficient number of human resources but also to organizational culture and leadership, both of which are heavily influenced by organizational policies [4, 39, 42].
**Strengths and limitations**

This scoping review used a rigorous and transparent method, guided by a protocol reviewed by an experienced research team that included an expert in producing scientific evidence according to the JBI method. The extensive literature search conducted, which included five gray literature databases, the pilot study to assess eligibility criteria, and the review by two independent reviewers are strengths of our review. Regarding the limitations of this review, many of the included studies examined the perspective of different primary health care professionals, which may have skewed the findings because the identified issues may not necessarily apply to nurses, despite our assumption that they may interfere with nurses’ practice. This review is also limited by the fact that most of the research done in recent years has been done in hospitals. As a result, we believe that primary health care research should be encouraged because it may bring valuable contributions and serve as a foundation for the definition and implementation of strategies to improve nursing practice environments and care safety.

**Comparison with existing literature**

The existence of unfavorable nursing practice environments affects nursing practice, making nurses unable to effectively use their skills and knowledge to provide quality care and ensure patient safety [37, 40]. On the other hand, positive nursing practice environments allow nurses to use their advanced training for higher quality and safer care [40] and it is associated that nurses with greater training have greater perceived autonomy, can establish more effective collaborations with professionals from other disciplines, which is associated with a reduction in adverse events such as urinary tract infections, pneumonia, cardiac arrest, and reduced length of stay [38, 58].

Relationships among nurses and between nurses and other members of the multidisciplinary team are equally important factors that influence the attributes of nursing practice environments [32, 41, 57, 58]. Problems related to collegial relationships between professionals and communication difficulties are associated with increased reporting of medication errors [18, 56, 57]. It is understood that collaborative care with other professionals and communication skills are factors that promote more supportive professional practice environments with better safety culture scores [18, 37, 44, 57].

Stress has emerged in the literature as a recurring element in research, and there is great concern about stress in healthcare professionals in general [37, 39, 40, 42, 43]. Stressful work environments are known to be more propitious to the existence of errors, and to the promotion of unsafe and lower quality care [35, 37, 42, 44]. The entire team must participate in this change to make it more effective, and the adoption of patient safety protocols that involve patients and their families as well as professional continuing education is seen as essential for the development of institutional safety culture [17, 35]. Mesquita discovered that managers were committed to patient safety despite the negative evaluation of the patient safety culture, confirming the existence of several factors that influence patient safety [35]. The same was found in other studies, which showed that while managerial support is very important, other things like heavy workloads, or a lack of communication have a big negative effect on nurses and may make patient care less safe [4].
Nurse managers and healthcare institutions’ administrations have a leading role, either in the design of measures to design and support nursing practice environments conducive to the promotion of safer care, or by involving professionals in institutional policies, promoting their job satisfaction, and reducing professional turnover [41, 40, 44, 37, 57, 59]. The role of nurse leaders in empowering staff through easier access to support, resources, and information is essential to promote work engagement, professional autonomy, and nurses’ physical, psychological, and emotional well-being, which in turn may increase nurses’ positive attitudes and skills needed to provide safer care [4, 37, 57]. Improved job satisfaction, organizational commitment [3], and patient-related outcomes can be achieved through supportive work environments, active leadership in nursing, and leader empowerment behaviors, which will improve the safety culture [59].

- Implications for research and practice

Nursing staffs constitute the majority of health care professionals and are the main contributors to patient outcomes [7, 18]. The American Nurse Association (ANA) even refers to patient outcomes as sensitive to nursing care, since most of them can be directly affected by the care provided by nurses [60]. This denotes how important nursing is to health systems and how important it is to find out what influences this workforce. The issue of the shortage of nurses that the WHO [61] has cautioned about, the high levels of stress and burnout, or the turnover of nurses and the consequences of fatigue show the huge urgency to implement interventions that improve the working conditions of nurses [42, 44].

We can make significant contributions to adverse event prevention by understanding professional attitudes [32], which is essential information for nurse managers, for improving knowledge about primary health care nurses, and the subsequent and necessary definition of strategies that promote positive nursing practice environments. Primary health care error and adverse event reduction is a global priority that has a significant impact on population health care.

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**Ethical approval:** This scoping review does not require ethics approval.

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**Conflicts and Competing Interest:** The authors declare no conflict or competing interest.


**References:**


Table 1. Eligibility criteria and definitions

<table>
<thead>
<tr>
<th>Category</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>Studies that included nurses in any field of action.</td>
</tr>
<tr>
<td></td>
<td>Studies that mapped evidence related to patient safety culture and nurses' professional practice environments.</td>
</tr>
<tr>
<td></td>
<td>Studies that guide or describe nurses' professional practice environments, and that also consider suggestions related to patient safety or patient safety culture.</td>
</tr>
<tr>
<td></td>
<td>Studies that include and relate these two concepts, with the following definitions:</td>
</tr>
<tr>
<td></td>
<td>Patient safety - &quot;the reduction of risk of unnecessary harm associated with healthcare to an acceptable minimum&quot; [3] (p.15)</td>
</tr>
<tr>
<td></td>
<td>Safety culture - &quot;product of individual and group values, attitudes, perceptions competencies, and patterns of behavior that determine the commitment to, and the style and proficiency of, an organization's health and safety management&quot; [3] (p.142).</td>
</tr>
<tr>
<td></td>
<td>Nursing work environment - &quot;the set of characteristics of the work context that facilitate or constrain the professional nursing practice&quot; [56] (p.178).</td>
</tr>
<tr>
<td>Context</td>
<td>Studies conducted in primary care settings, primary healthcare organizations or centers and community services or centers, regardless of country of origin or socio-cultural environment.</td>
</tr>
<tr>
<td></td>
<td>Studies that include the context of primary health care, with the following definition:</td>
</tr>
<tr>
<td></td>
<td>Primary health care - &quot;is a whole-of-society approach to health that aims at ensuring the highest possible level of health and well-being and their equitable distribution by focusing on people’s needs and as early as possible along the continuum from health promotion and disease prevention to treatment, rehabilitation and palliative care, and as close as feasible to people’s everyday environment&quot; [13] (p.2).</td>
</tr>
</tbody>
</table>
Table 2. Database search strategy and results.

<table>
<thead>
<tr>
<th>Database: Medline (PubMed)</th>
<th>Filters: 2002-present</th>
<th>Results: 234</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search strategy (January 25, 2023)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Database: CINAHL Complete (EBSCO) | Filters: 2002-01-01 – 2023-12-31 | Results: 53 |
| Search strategy (February 13, 2023) | | |
| (AB (nurs* OR nursing practice) OR (MH "nursing care") OR (MH "staff nurses") OR (MM "nurses")) AND (AB (work environment OR working conditions OR work setting OR practice environment OR positive work environment) OR (MH "work environment") OR (MH "professional practice") AND (AB (patient safet* OR patient harm OR safety management OR patient risk OR safety culture OR safety climate OR patient safety culture OR adverse event OR patient outcomes) OR ("MH patient safety") OR (MH "safety") OR (MH "cultural safety") OR (MM "health care errors") OR (MH “adverse health care event”)) AND (AB (primary care OR primary health care OR primary healthcare OR community health servicing* OR community health center) OR (MH "primary health care") OR (MH "community health centers") OR (MM "Community Health Nursing")) |

| Database: Embase (Elsevier) | Results: 419 |
| Search strategy (February 10, 2023) | | |

| Database: RCAAP – Repositório Científico de Acesso Aberto de Portugal | Filters: 2002-01-01 – 2023-12-31 | Results: 5 |
| Search strategy (February 02, 2023) | | |
| (Patient safety [description]) AND (Nurs* [description]) AND (Work environment [description]) AND (Primary health care [description]) |

| Database: WHO – World Health Organization database | Filters: 2002-01-01 – 2023-12-31 | Results: 72 |
| Search strategy (February 06, 2023) | | |
Database: Agency for Health Research and Quality database
Filters: Setting of care: ambulatory care; Clinical area: nursing; Data range: 01-01-2002 – 12-31-2023
Results: 6
Search strategy (February 02, 2023)
“patient safety” AND “environment” AND “nursing”

Database: WorldCat
Filters: 2002-2023
Results: 9
Search strategy (February 02, 2023)
kw:”nurs***” AND kw: ”work environment” AND kw:”patient safety” AND kw:”primary health care”

Database: ProQuest Dissertations and Theses
Filters: Data Range: 2002-2023; Source type: Dissertations and Theses
Results: 11
Search strategy (February 02, 2023)
AB("patient safety") AND AB(primary care) AND AB("work environment")
* = Truncation.
Table 3. Summary of the included studies.

<table>
<thead>
<tr>
<th>Author(s), Year, Country</th>
<th>Aims</th>
<th>Type of study</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burke, 2013, U.K. [42]</td>
<td>Highlight the issue of work-related stress in the work environment of community nurses</td>
<td>Literature review</td>
<td>Inability to finish work within working hours is the primary source of stress for community nurses. The main obstacle that has been identified is the workload and the shortage of human resources. Nurses' performance is affected when they don't get enough time to rest, which can compromise patient and professional safety.</td>
</tr>
<tr>
<td>Poghosyan et al., 2016, U.S.A. [40]</td>
<td>To propose a comprehensive model for maximizing nurse practitioner contributions to primary care which includes the factors affecting nurses care and patient outcomes and explains their interrelated impact.</td>
<td>Literature review</td>
<td>Medical errors, accidents, and unsafe work have all been linked to unfavorable practice environments marked by poor professional relationships, ineffective communication, issues with leadership, and a lack of support and resources. Nurses may be predisposed to job dissatisfaction, burnout, and a negative impact on the safety and quality of care due to the complexity of patients, heavy workloads, and constantly shifting organizational structures.</td>
</tr>
<tr>
<td>Gabrani et al., 2016, Albania [32]</td>
<td>To determine the safety attitudes of specialist physicians, general physicians, and nurses in primary care in Albania.</td>
<td>Cross-sectional study</td>
<td>Nurses' positive responses to the safety climate and teamwork were lower. The results show a positive response regarding teamwork, job satisfaction, perceived leadership, communication, stress recognition, and safety climate by the nurses.</td>
</tr>
<tr>
<td>Nejati et al., 2016, U.S.A. [44]</td>
<td>To understand the main causes of nurses' fatigue, the barriers that prevent nurses from taking restorative breaks and consequences of nurse fatigue for staff, patient, and facility outcomes.</td>
<td>Systematic literature review</td>
<td>The quality of life of nurses is negatively impacted by fatigue, which can also hinder their performance and raise the likelihood of medical errors. Nurses' well-being can suffer because of physical and mental health issues brought on by long shifts, insufficient sleep, and a lack of rest breaks.</td>
</tr>
<tr>
<td>Souza, 2017, Brazil [33]</td>
<td>To evaluate the patient's safety culture in the Primary Health Care of a city in the central-western region of the State of Rio Grande do Sul, Brazil</td>
<td>Cross-sectional study (Master's dissertation)</td>
<td>Participants in the study evaluate safety culture negatively. Nearly all domains studied show negative values for safety culture. Nurses show poorer results in the domain of &quot;job satisfaction&quot; than other health professionals. The domains &quot;working conditions&quot; and &quot;error&quot; were the worst scored.</td>
</tr>
<tr>
<td>Mesquita, 2017, Brazil [35]</td>
<td>To investigate the safety patient culture in the nursing professionals’ perspective of the primary health care</td>
<td>Exploratory Descriptive Qualitative Study (Master's dissertation)</td>
<td>The findings point to a negative patient safety culture because of the weaknesses that were found in several dimensions. Knowledge, continuing education, risk prevention, team commitment to patient safety, punitive error culture, teamwork, job satisfaction, patient and family involvement, and the use of protocols and the</td>
</tr>
<tr>
<td>Rogers, 2021, U.K. [43]</td>
<td>To explore possible strategies to promote the health and well-being of community nurses and the barriers they meet</td>
<td>Literature review</td>
<td>High levels of employee turnover and intentions to leave are a result of working in stressful environments, affecting patient outcomes and safety. Stress that is not properly controlled can result in compassion fatigue, which is linked to an increase in nursing errors.</td>
</tr>
</tbody>
</table>
Table 4. Protective factors and barriers to promoting patient safety

<table>
<thead>
<tr>
<th>Protective Factors</th>
<th>Barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge about patient safety and ongoing training;</td>
<td>Professionals’ difficulty in discussing errors;</td>
</tr>
<tr>
<td>Existence of risk and incident prevention systems;</td>
<td>Lack of or compromised communication within the multidisciplinary team;</td>
</tr>
<tr>
<td>Commitment to patient safety;</td>
<td>Lack of or compromised communication with the patient and family;</td>
</tr>
<tr>
<td>Teamwork;</td>
<td>Punitive culture towards errors.</td>
</tr>
<tr>
<td>Job satisfaction;</td>
<td></td>
</tr>
<tr>
<td>Evidence-based clinical practice;</td>
<td></td>
</tr>
<tr>
<td>Patient and family involvement in care.</td>
<td></td>
</tr>
</tbody>
</table>
Figure 1. Prisma-ScR flowchart

Identification of studies via databases

Identification
- Records identified from: (n = 809)
  - Medline (n = 234);
  - CINAHL Complete (n = 53);
  - EMBASE (n = 419);
  - RCAAP (n = 5);
  - ProQuest (n = 11);
  - Worldcat (n = 9);
  - WHO database (n = 72);
  - AHRQ database (n = 6).

Screening
- Records screened at title and abstract (n = 792)
- Reports assessed for eligibility (n = 33)

Included
- Studies included in review (n = 7)

Records removed before screening:
Duplicate records removed (n = 17)

Records excluded (n = 759)

Reports excluded (n = 26):
Population (n = 2); Context (n = 5); Concept (n = 19)