Disclosing and Reporting Practice Errors by Nurses in Residential Long-Term Care Settings: A Systematic Review

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Abstract: Patient safety is crucial for the sustainability of the healthcare system. However, this may be jeopardized by the high prevalence of practice errors, particularly in residential long-term care. Development of improvement initiatives depends on full reporting and disclosure of practice errors. This systematic review aimed to understand factors that influence disclosing and reporting practice errors by nurses in residential long-term care settings. A systematic review using an integrative design was conducted. Electronic databases including PubMed (including Medline), Scopus, CINAHL, Embase, and Nordic and Spanish databases were searched using keywords relating to reporting and disclosing practice errors by nurses in residential long-term care facilities to retrieve articles published between 2010 and 2019. The search identified five articles, including a survey, a prospective cohort, one mixed-methods and two qualitative studies. The review findings were presented under the categories of the theoretical domains of Vincent's framework for analyzing risk and safety in clinical practice: 'patient', 'healthcare provider', 'task', 'work environment', and 'organisation & management'. The review findings highlighted the roles of older people and their families, nurses' individual responsibilities, knowledge and collaboration, workplace atmosphere, and support by nurse leaders for reporting and disclosing practice errors, which had implications for improving the quality of healthcare services in residential long-term care settings.

Keywords: disclosure; long-term care; nurse; older people; patient safety; reporting; practice error

1. Introduction

The number of people aged ≥65 years has increased to 8% worldwide, and it is predicted to rise to 16% by 2050 [1]. This is likely to engender a rise in the prevalence of multiple morbidity, including long-term mental and cognitive impairments [2]. Combined with social isolation and loneliness, this will increase the economic burden of healthcare, with a possible negative impact on society and families [3,4]. Accordingly, to make services sustainable, healthcare professionals are endeavoring to optimize the quality of care for those with complex clinical needs [5]. The increased demand for both ambulatory and long-term care, triggered by demographic change, requires planning and collaboration between health system stakeholders, including policymakers, healthcare staff, insurers, and patients [6,7]: Healthcare systems do not have the capacity to accommodate errors.

Patient safety is defined as the prevention of harm during the provision of healthcare services [8] and is the cornerstone of high-quality healthcare with a direct effect on people's mortality and

morbidity [9]: Adverse events during care delivery are one of the 10 leading causes of death and disability across the globe [10]. Therefore, patient safety has been considered a prerequisite for strengthening healthcare systems [8] and achieving effective universal health coverage (UHC) under Sustainable Development Goal 3—healthy lives and improved well-being for people of all ages [11].

The focus of efforts to improve patient safety has been hospital and acute care [12]. However, people in long-term care, including nursing homes and rehabilitation settings, may be more vulnerable to patient safety lapses, including falls, pressure ulcers, healthcare-associated infection, and medication errors [13], due to frailty combined with multiple long-term physical and psychological disorders. In Canada, 10.1% of home care residents experience adverse events annually, of which 56% are preventable [12]. Furthermore, 22% of residents in such settings in the USA experience medication errors, infections, falls, and pressure ulcers, many of which could be prevented [14]. A systematic review showed that 16%–27% of residents in nursing homes were affected by medication errors, and 75% were prescribed at least one potentially inappropriate medication, but many incidents remained underreported [15]. In general, multimorbidity and polypharmacy amongst older people increase their risks of inappropriate medication use and related adverse side effects [16].

In residential long-term care, an emphasis has been placed on quality improvement initiatives, but patient safety has not been integrated into routine quality of care initiatives [17]. Conditions that could be prevented and safely managed in such settings can lead to hospitalization and increased healthcare costs [18]. In general, residential long-term care settings have been recognized as fertile environments to expand patient safety initiatives, due to the high rate of adverse events [19,20] and institutional barriers to reporting practice errors [21,22].

Background

Reporting practice errors or near misses are fundamental to quality improvement and patient safety [23]. Notifications of practice errors are important for: recording and communication of issues to management; assessment of risks and harm; rectification; and interventions and practical strategies to improve patient safety [20,23–25].

All healthcare staff working in short-term and long-term care settings have legal and ethical obligations to report practice errors. Under voluntary reporting schemata, they are encouraged to report near misses and errors, to provide important information for the reduction of errors in the future. Mandatory reporting may be restricted to adverse events causing immediate patient harm, injury or death [23]. However, voluntary reporting is characterized by suboptimal response rates, entrapment by prior expectation, and selection bias [26], attributed to blaming and punitive cultures that hinder frank disclosure of practice errors that would allow learning and improvement [27]. The situation might be ameliorated by involving patients and their families in patient safety initiatives through disclosure of practice errors they experience [28]. Reporting and disclosing errors is considered by the World Health Organization (WHO) to be a useful learning strategy and the basis for the development of strategies to prevent future errors [29].

Verbal and paper-based incident-reporting systems are commonly used [24,30–32], but electronic reporting systems are becoming more popular, despite their complexities, security requirements, and legislation limiting access to personal information [32]. Reporting and disclosure of practice errors implies admitting and acknowledging that a mistake has been made. It also involves communication by the healthcare provider to the patients and their families regarding the error, possible consequences, and formal apologies [23]. Error reporting has a positive effect on patient safety and is a stimulus for change in the process of care. It contributes to the improvement of culture, knowledge, and attitudes towards voluntary anonymous incident reporting [30]. However, comparison of data collected using different reporting systems is difficult, due to the voluntary nature of incident reporting and variations in the definitions of near misses and adverse events.

Nurses have a crucial role as vigilant intermediaries for the safety of care delivered to patients in long-term care settings [33]. They are best placed to identify adverse events in the process of care, due to

their central role in the provision of care, along with their holistic knowledge of the patient [34,35]. They are more likely to report errors via error-reporting systems than other healthcare staff [36], attributed to their feeling of a moral obligation to provide safe care to patients [12,37,38].

Differences in the definitions and processes of patient safety between various healthcare settings [13] indicate diverse influences on the culture of patient safety, reporting, and disclosure of practice errors in long-term care. Despite the importance of errors for the safety and well-being of older people in long-term care, and nurses' involvement in patient safety, there is uncertainty as to the enabling and inhibiting frameworks and factors affecting reporting of practice errors [39]. Therefore, this systematic review of the international literature aims to answer the question: What factors influence disclosing and reporting practice errors by nurses in residential long-term care settings?

2. Materials and Methods

2.1. Design

An integrated systematic review was conducted considering studies with quantitative and/or qualitative methods describing [40–42] practice error disclosure and reporting in residential long-term care settings including nursing homes, rehabilitation settings, and municipal care settings.

2.2. Search Strategy and Sata Collection

Systematic literature searches by all authors were conducted using online international databases: PubMed (including Medline), Scopus, CINAHL, and Embase. In addition, the Spanish databases of Medes and Cuiden and Nordic databases of Norart and SveMed+ were searched to improve the search coverage. A reference librarian was consulted for the search process. The search terms were developed based on the authors' expertise and pilot tests on general and specialized databases. The search was structured using Boolean operators (AND, OR) and consisted of MeSH terms and free terms concerning nursing, patient safety, disclosure, and reporting of practice errors in residential long-term care settings. The search terms were translated to Norwegian and Spanish to conduct a similar systematic search in Nordic and Spanish scientific databases. In addition, grey literature on policy and cross-references from bibliographies were checked to maximize coverage. Inclusion criteria were: focus on disclosure and reporting of errors by nurses in residential long-term care for older adults; and publication in English, Norwegian or Spanish between 2010 and 2019 in peer-reviewed scientific journals.

2.3. Articles' Selection and Quality Appraisal

The selection of studies by all authors was based on inclusion and exclusion criteria. Studies on error disclosure and reporting by other healthcare providers, in places other than long-term care facilities, such as in acute care settings and hospitals, and for other age groups were excluded. The authors selected articles independently, using the predetermined keywords, and shared results. Each retrieved study was screened by title, abstract, and full text by applying the inclusion criteria. Disagreements about the inclusion of selected studies were resolved through discussions to reach consensus.

Full texts were appraised against the Enhancing the Quality and Transparency of Health Research (EQUATOR) tools [43], appropriate to the studies' methods, including the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) (for cross-sectional, observational, and cohort studies, maximum score 34), the Consolidated Criteria for Reporting Qualitative Research (COREQ) (for qualitative research, maximum score 32), and the Good Reporting of a Mixed-Methods Study (GRAMMS) (for mixed-methods studies, maximum score 12). These assisted evaluation of selected studies, in terms of research structure, underlying theoretical and conceptual frameworks, and presentation of findings relevant to our review's aim. The studies were appraised by the researchers independently, and results were combined. Decisions on the importance and methodological quality of each article for inclusion in data synthesis were made through discussions to reach consensus.

The review process was presented using the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) Statement (2015) [44] as recommended by EQUATOR [40].

2.4. Data Extraction and Analysis According to the Theoretical Framework

Data from the selected studies were imported to a prepiloted data extraction table and tabulated according to core details comprising: author's name, publication year, country, design and intervention, sample size and setting, and findings on issues surrounding disclosure and reporting practice errors by nurses in long-term care. Next, the theoretical framework for analyzing risk and safety in healthcare practice devised by Vincent et al. (1998) [45] based on the Reason's model of organizational accidents [46] was used to connect the review findings to the international literature and develop a systematic approach towards the study phenomenon. Since the improvement of patient safety depends on a systematic assessment and combination of interventions that target various elements in healthcare systems' hierarchies, this theoretical framework was used to classify factors at the levels of (i) patient, (ii) healthcare provider, (iii) task, (iv) work environment, and (v) organization and management [45,47]. Disagreements were resolved and categories were finalized through shared discussions.

3. Results

3.1. Search and Study Selections

The application of the search strategy identified 1903 articles (Table 1). Duplicates were deleted and irrelevant titles were excluded. Then, 83 abstracts were read and checked against the inclusion criteria, and possibly relevant articles were selected and proceeded to full-text reading (n = 5). Their full texts were obtained from Norwegian and U.K. libraries and were carefully read to ensure that those studies with a precise focus on the review topic were selected. They were then appraised using the appropriate EQUATOR tools. No studies were excluded at this stage, as their scores in terms of methodological and scientific structure were acceptable; all five were included. Grey literature and cross-referencing from bibliographies identified no more studies.

Table 1. The search strategy and results of different phases of the review.

Database/Articles from 2010–2019	Total in Each Database	Selected Based on Title Reading	Selected Based on Abstract Reading	Selected Based on Full-Text Appraisal
PubMed (including Medline)	77	39	0	0
Scopus	826	23	4	4
Cinahl	347	6	2	1
Embase	157	7	0	0
Medes (Spanish)	2	1	1	0
Cuiden (Spanish)	474	5	5	0
Norart (Nordic)	6	0	0	0
SveMed+ (Nordic)	14	2	2	0
Manual search/backtracking references	0	0	0	0
Total	1903	83	14	5

The PRISMA flowchart was shown in Figure 1. Variations in the studies' aims and methods did not lend themselves to meta-analysis; therefore, findings were presented narratively.
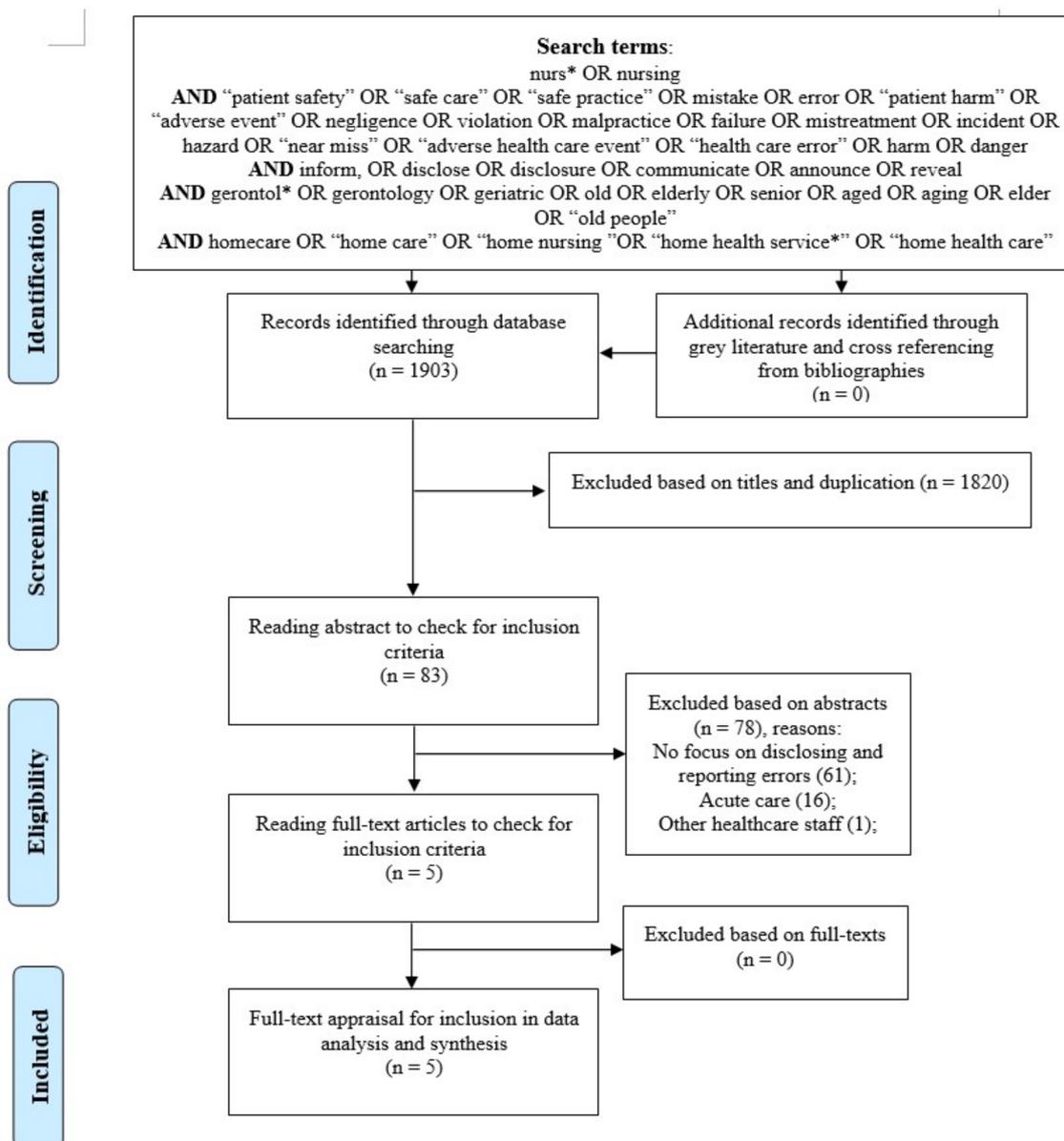
Figure 1. The process of the review according to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA).

3.2. General Sescription of the Selected Studies

Two of the five selected studies used quantitative designs [48,49], two used qualitative designs [50,51], and one was a mixed-methods study [52]. In total, the review's sample and setting consisted of 1299 nurses and 137 residential long-term care settings (Table 2).

The focus of two studies was on the process of disclosing and reporting practice errors [48,52], and three studies focused on perceptions and experiences of disclosing and reporting practice errors [49–51]. One of the studies was conducted in Canada [49], one was conducted in the Czech Republic [48], two were conducted in Norway [50,51], and one was conducted in the USA [52].

3.3. Categorization of the Review Findings to the Vincent's Framework

The findings of the selected studies were classified according to Vincent's framework for analyzing risk and safety in healthcare practice [45] to provide a comprehensive picture of factors facilitating and hindering disclosure and reporting of practice errors in residential long-term care settings (Table 3).

Table 2. Studies selected for data analysis and synthesis.

Author, Year, Country	Aim	Method	Setting and Sample	Reported Outcome/Findings	Structure Used for Error Disclosure and Reporting	Quality Appraisal Instrument and Score
Wagner et al., 2012, Canada [49]	To describe nurses' perceptions of error disclosure in nursing homes.	Cross-sectional email survey	1180 nurses working in nursing homes; no data on the number of nursing homes with a response rate of 50%	Relationships between tendency to disclosing errors and previous experience of error disclosure were reported.	Resident, nurse, error severity/outcome, and institutional culture	STROBE, 22
Hěib et al., 2013, Czech Republic [48]	To describe the processes used for reporting adverse events in long-term care settings.	Prospective cohort study	111 long-term facilities and 11 in-person visits to facilities with a response rate of 100%	37% of visited facilities had no policy for error reporting.	Definition of adverse events, responsibilities, reporting, and analyzing	STROBE, 24,
Winsvold Prang and Jelsness-Jørgense, 2014, Norway [50]	To explore barriers to reporting errors and incidents in nursing homes.	Qualitative design using thematic analysis	13 nurses working in 17 nursing homes	Culture of error reporting and disclosure was not established.	Organizational and individual barriers	COREQ, 24
Berland and Bentsen, 2017 Norway [51]	To explore nurses' experiences of patient safety, medication errors, and disclosing errors in care homes.	Qualitative design using content analysis	20 nurses from 2 municipalities	Necessity of openness and routines regarding reporting errors was not always understood.	Inductive approach	COREQ, 21
Wagner et al., 2018, USA [52]	To educate nurses on how to disclose patient safety events to residents and family members using a structured communication tool.	Mixed-methods	77 nurses from 6 nursing homes; 9 interviews in 1 nursing home	Process and structure of communicating errors to residents and families were lacking.	Anticipate, listen, empathize, explain, and follow up	GRAMMS, 9

STROBE: Strengthening the Reporting of Observational Studies in Epidemiology; COREQ: the Consolidated Criteria for Reporting Qualitative Research; GRAMMS: Good Reporting of a Mixed-Methods Study.

Table 3. Summary of review findings based on Vincent's framework.

Author, Year / Vincent's Framework	Wagner et al., 2012 [49]	Hěib et al., 2013 [48]	Winsvold Prang and Jelsness-Jørgensen, 2014 [50]	Berland and Bentsen, 2017 [51]	Wagner et al., 2018 [52]
Patient	Damaging residents' trust in nurses' competencies and getting sued; residents' and families' understandings of errors.	No data	No data	No data	Clear and understandable language and without jargon/medical terminology for communication of errors to residents and families; discussing preventive measures with residents and families; listening to residents/families and allowing time for their reflection and feedback; use of empathetic statements without becoming defensive during communication.
Healthcare provider	Personal attitude regarding the significance of errors; discussing errors and near misses with colleagues; necessity of knowing about errors; knowledge on how to disclose errors; interest in receiving education on error disclosure; more error disclosure by well-educated nurses; history of reporting errors of varying severity; more disclosure of serious errors.	No data	Prior experience with reporting errors; knowledge and confidence in the digital reporting system; personal belief in the sensitivity and seriousness of errors.	Being good at disclosing errors	Feeling responsible for errors; being in favor of fully disclosing error, providing details, and discussing prevention; being confident in communicating errors to residents and families.
Task	No data	No data	Heavy work obligations and lack of time to report errors.	No data	Continuity and closeness of monitoring resident after committing error.
Work environment	Failure in the care system as the cause of errors; receiving support to cope with the associated stress of errors.	No data	General negative attitudes in the system towards error reporting; focus on reporting errors in daily practice;	Openness to disclose and communicate errors to other colleagues, physicians, residents and relatives.	No data
Organization and management	Nurse leader as responsible for disclosing errors to family and residents; reporting system available; adequacy of mechanisms to inform nurses about errors.	Need for internal policies on error reporting and cause analysis; requesting staff to report errors; direct reporting or via superiors; standardized reporting systems as paper of electronic formats.	Unclear routines for handling error reports; no information and feedback about the consequences of reported errors, such as improvement of routines and surveillance; previous negative feedback to reported errors; being encouraged by leaders to report errors selectively; protection of anonymity of reporting; fear of conflict with others and reprimand; level of sensitivity and seriousness of error from the system's perspective.	Devising initiatives by nurse leaders to disclose medication errors.	Being concerned about getting reprimanded and damaging professional reputation.

3.3.1. Patient

Nurses reported that disclosing and reporting practice errors could damage patients' trust in nurses' competencies and might lead to litigation [49]. Moreover, lack of understanding by some older people and their families of nurses' descriptions of practice errors and the use of jargon and medical terminologies were barriers to disclosing errors [49,52]. However, personalized discussions with and education of older people and their families, and use of appropriate and empathetic language without a defensive and blaming tone, facilitated reporting and disclosing practice errors [52].

3.3.2. Healthcare Provider

Nurses' roles, their attitudes and knowledge of the significance and history of practice errors, and proclivity towards reporting were discussed. Nurses often had previous history of minor and major errors and near misses and believed in the need to report them [49–52]. Holding a Bachelor's degree plus previous history of disclosing and reporting serious practice errors were associated with error disclosure to both institutions' administrators and colleagues with the aim of improving patient safety [49,52].

Nurses felt responsible for practice errors [52]. They emphasized the importance of data collection on errors for future prevention initiatives [49,51,52]. The main barriers to reporting and disclosing errors were: lack of knowledge of the process; lack of confidence in the current digital systems for reporting; workload and lack of time; lack of a unified and standard definition regarding the seriousness of errors and their eligibility for reporting and disclosing; and a need for appropriate communication skills when reporting and disclosing errors to administrators, older people, and their families [49,50,52].

3.3.3. Task

One study stated that reporting and disclosing practice errors was time-consuming and interfered with routine nursing tasks [50]. In another study, the follow-up tasks assigned to nurses after reporting meant that time was spent in closer monitoring of patients, but tasks were not specified [52].

3.3.4. Work Environment

The overall atmosphere of the workplace and the presence of positive and negative attitudes towards reporting and disclosing practice errors varied among administrators, colleagues, and older people and their families [50,51]. Nurses felt that the healthcare system, rather than the individual, was responsible for errors in care [49].

3.3.5. Organization and Management

The role of nurse leaders and reporting processes varied with severity of errors. Accordingly, with the increased severity of errors, nurse leaders would be considered directly responsible for reporting and disclosing practice errors, and nurses should report errors under the direct supervision of nurse managers [48,49]. Paper or electronic systems for internal reporting, and cause analyses, were available in some residential long-term care settings [48,49]. However, variation in reporting routines, assignment of reporting tasks only to nurses and not to all healthcare providers, and the use of a less than systematic approach for reporting diminished the effectiveness of reporting for development of future initiatives aiming at the improvement of patient safety [48,50].

Additionally, there was a need to improve current strategies and processes to: inform nurses about interventions that would be performed after reporting and disclosing practice errors; send feedback about the consequences of reporting; explain how future similar incidents would be prevented; and provide support to facilitate coping with the stress of making mistakes and reporting them [49,50].

Nurse leaders were held responsible for encouraging nurses to report errors [50,51]. However, conflicts arose with those colleagues involved in errors, including bullying, inappropriate social responses, and being excluded from social events, hindering reporting and disclosure to administrators

and nurse leaders [50]. Negative reactions and feedback by nurse leaders, encouragement of selective reporting of incidents, ignoring nurses' clinical reasoning and judgment in handling error reports, anonymity and confidentiality issues, concerns over being sued and reprimanded by administrators at the workplace, and endangering nurses' professional reputation were mentioned as barriers to reporting and disclosing practice errors [50,52].

4. Discussion

This integrative systematic review using data from qualitative and quantitative studies identified factors that influenced disclosing and reporting practice errors by nurses in residential long-term care settings. Empirical evidence was sparse but congruent with Vincent's framework (1998) [45]: patient, healthcare provider, task, work environment, and organization and management. Given a lack of similar systematic reviews on reporting and disclosing practice errors in long-term care settings, we discussed our findings using the current international notion of the study phenomenon in various healthcare settings, including ambulatory and short-term.

Reporting and disclosing practice errors by nurses was influenced by older people's and their families' understandings of, and reactions to, error disclosure. Communication and sharing ideas on nursing care with residents and their families should be developed to improve their participation in their own care [53]. This way, active participation of older people and their families in patient safety initiatives improves their willingness to receive the disclosure of practice errors and engenders a more positive reaction when safety concerns are raised [54]. Reporting errors may also send a message of honesty and ethical competence [55,56] but should be predicated on patients' and families' understandings of safety [57,58]. Patients and families are valuable sources of information regarding care and have the right to know about errors or near misses in which they are involved, so that similar incidents may be prevented in the future [23]. However, nurses are not often willing to disclose errors to patients and families, due to fears of legal consequences, loss of trust, and lack of error disclosure guidance [59].

Nurses' knowledge and attitudes to reporting practice errors and the complexity of reporting tasks affected error reporting. Nurses' lack of confidence and knowledge, the time-consuming nature of error reporting, and fear of repercussions have been recognized as barriers to error disclosure in all levels of healthcare systems [60,61]. Since nurses collaborate with other healthcare professionals to inform patients regarding therapeutic decisions and their outcomes, they need to have sufficient knowledge and positive attitudes towards disclosing and reporting errors if they are to manage challenging conversations about patient safety with patients and families [62].

Workplace characteristics, in terms of the presence of a positive and supportive atmosphere for reporting and disclosing practice errors, were highlighted as affecting reporting. Improvement in patient safety requires incident reporting by all healthcare staff [63] and depends on support and encouragement [12], appropriate work conditions, supervision, teamwork, and collaboration [64–66]. Reducing nurses' concerns regarding reprimands and punishment after reporting practice errors appears to improve error disclosure and reporting [67]. Disciplinary actions, blame cultures, and frustrations due to lack of organizational change after reporting are barriers to reporting and disclosing [23,31].

Nurse leaders were recognized as having crucial roles in how reported incidents were processed and used for improving patient safety in residential long-term care settings. Generally, nurse leaders are responsible for encouraging error disclosure through policy making, creation of a supportive culture, and encouraging nurses to consider ethical values via provision of care, education, and mentorship [37,68,69]. Alleviation of moral distress after making errors, following up by apologizing to patients and their families [70], standardized tools and feedback [71,72], training regarding communication skills, and coping strategies to reduce nurses' emotional stress [37,73] are considered key leadership roles for nurses. Systematic, in-built support for error identification [19,20]

and disclosure should remove the responsibility to inform patients and their families from individual nurses [59]. User-friendly guidelines and reporting mechanisms should be implemented [74,75].

The limitations of this review concern the search strategy and heterogeneity of the selected studies. The full range of international databases was used, and Spanish and Nordic databases were included. Despite the limited number and heterogeneity of articles eligible for inclusion, the results of this review provide an overview of current knowledge of the topic. The search terms were developed based on the previous literature and were pilot-tested, but the terminology of this study topic is multidimensional, wide, and not fully established. Bias was reduced as much as possible through collaboration between researchers with differing linguistic and research backgrounds.

5. Conclusions

Alignment of the review findings regarding factors affecting practice error reporting in residential long-term care settings with Vincent's theoretical framework may facilitate their application by healthcare managers and policymakers, who should consider systematized, formal documentation to identify and report errors and adverse events, ideally while problems are containable and before patients are harmed [19,20].

The vulnerability of older people in long-term care facilities and their families to practice errors creates heavy responsibilities for nurses. Accordingly, nurses should act to protect and maintain older people's and their families' rights through disclosing errors. More attention should be given to nurses' knowledge, confidence, and competence on how to disclose and report practice errors and how the related information is used for learning and improving the quality and safety of care.

Future studies should describe the roles of older people and their families, nurses' roles, responsibilities, and interprofessional collaboration, the workplace atmosphere, nurse managers, and policy makers, and how these impact the safety and well-being of older people in long-term care.

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