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Learning to assess the fall risk in clinical nursing education: an interpretative study

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ABSTRACT

Background: Falls are a complex problem for the health and quality of life of older persons. Risk assessment is important for identifying people at risk and planning preventive measures. Few studies have focused on how health professionals learn to assess this risk.
Objective: The aim of this study was to explore how nursing undergraduate students learn to assess fall risk in older adults/people during their hospital-based clinical practice.
Methods: This qualitative study was conducted within an interpretive paradigm. The focus group was selected as the method to address the research question: *How do nursing students learn to assess of fall risk in the older population during clinical practice?* The participants were students enrolled in a Bachelor of Nursing program. To support data organization and enhance analytic rigor, qualitative data analysis software (WebQDA®) was employed.
Results: Fifteen students participated in two focus groups. The analysis identified three main categories: (i) risk factors assessed; (ii) risk assessment; and (iii) learning to manage fall risk in clinical practice. Students reported that nursing supervisors primarily emphasized physical factors, mobility, and cognitive status. The findings also highlighted a gap between the assessment and the implementation of individualized interventions, as well as the difficulty in converting records into preventive actions and risk management.
Conclusions: Nursing students learn to assess fall risk primarily through observation of clinical practices and the influence of supervisors, although they do not always understand the instrumental basis or the correlation between risk and intervention. The results indicate the need to strengthen the training of professionals and students.

1. Introduction

Falls are a serious public health problem worldwide, being the most common cause of fatalities related to unintentional injuries in the ageing population (World Health Organization, 2018). Falls represent a frailty syndrome, resulting from the complex interaction of biological, psychological and social factors (Taguchi et al., 2022), characterized by a decline in reserve and function across multiple body systems, leading to increased vulnerability to stressors and the likelihood of adverse health outcomes like falls, acute diseases, and injuries (Hamilton,& Round, 2017).

Frailty leads to a significantly increased risk of falls, incapacitation, and death (Deng and Sato, 2024). The association of frailty syndrome with falls reflects the sequelae of some pathologies, chronic diseases, and the effects of aging on various systems, namely the skeletal muscles, and the neurological and sensory systems (Baixinho and Dixe, 2017; Montero-Odasso et al., 2022).

This adverse event is a major cause of fractures; fear of falling and loss of self-confidence in performing daily life activities. It is also associated with increased morbidity and mortality, reduced activity after a

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fall - with or without disability, loss of muscle strength, functional decline, and social isolation, among other consequences (Sampaio et al., 2021; Strini et al., 2021; Wang et al., 2021).

Hospitalized older people have a higher risk of falls compared to community residents. Beyond individual risk factors, the unfamiliar environment can cause difficulties with walking and mobility, or even worsen the risks of dementia, incontinence, and changes in balance, strength, mobility and vision, all of which are associated with fall risk. Furthermore, hospitalization frequently reflects complex clinical circumstances, such as the presence of acute and chronic diseases and polypharmacy, which further increase vulnerability s to falls in the hospital environment (Montero-Odasso et al., 2022; Sampaio et al., 2021).

Although significant progress has been made in understanding fall prevention and implementing national and international guidelines, the occurrence of falls, especially in hospital environments, is anticipated to rise as a consequence of increased life expectancy and the higher prevalence of multimorbidity, disability, and polypharmacy (Baixinho et al., 2020; Marques-Vieira et al., 2021; Zhang et al., 2021).

Both the risk of falls and the development of frailty in older persons can be prevented, monitored and addressed through appropriate referral and intervention. (Taguchi et al., 2022). Although risk assessment is not in itself a preventive measure, it is a measure that appears in all guidelines for the prevention of falls, being considered a cost-effective approach to prevention for identifying the risk, and allowing the individualization of preventive measures (Baixinho et al., 2020; Montero-Odasso et al., 2022). Wang et al. (2021) warn that preventing falls depends on being able to recognize and address modifiable fall risk factors.

Some authors have observed that despite advances in knowledge about this phenomenon and solid evidence about preventive measures, implementation remains difficult (Frazer et al., 2021; Juckett et al., 2021). Juckett et al. (2021) even suggested that professionals struggle to implement fall prevention interventions due to lack of time, money, or knowledge. A study aimed at assessing nurses'e knowledge, attitudes, and practices toward fall prevention in older hospitalized patients, reported that 98 % of participants were familiar with institutional fall prevention policies and patient safety goals, as reflected their response to a fall and risk assessment. Nonetheless, were less aware of the fall risk factors, such as recurrent falls (61 %), depression (44 %), and lower-extremity numbness (40.5 %) (Alsaad et al., 2024).

Training professionals in fall risk management is vital to controlling this public health problem (Baixinho & Dixe, 2017). Evidence suggests that this may be a gap area in nursing curriculums. Studies report that nursing students' knowledge of fall risk varies considerably, with some demonstrating adequate understanding in certain areas but lacking awareness of subtle risk factors and the broader consequences of falls (Kovács et al., 2020; Luctkar-Flude et al., 2016; Patton and Henry, 2019). The risk factors most often valued are related to the physical environment and physical abilities, while there is a lack of understanding of the role of psychological factors, such as fear of falling (Turjamaa et al., 2020).

Older people should be cared for by professionals who have undergone appropriate training and know how to implement individualized preventive measures, and staff level and skill mix should reflect the needs of patients (Strini et al., 2021), because it is necessary to understand how professionals acquire knowledge and develop skills that enable them to assess fall risk in the older population.

In view of the above, the objective of this study was to explore how nursing undergraduate students learn to assess fall risk in older adults/people during their hospital-based clinical practice.

2. Materials and methods

2.1. Study design

This study fits within the interpretivist paradigm because it is based on the belief that reality is subjective, socially constructed, and understood through human interpretation. The interpretivist approach emphasizes understanding the meanings individuals attribute to their experiences, rather than measuring objective facts. The use of Focus Groups (FG) provides an ideal setting for exploring these meanings as they emerge through discussion and interaction (Krueger and Casey, 2014).

The methodological approach was selected in accordance with the study's objective, and also on the limited number of studies exploring this phenomenon in the specific population and context. It allowed for data collection from a population with similar experience and facilitated the analysis of how the participants perceive (Krueger and Casey, 2014) the contribution of clinical practice in developing their competence to assess fall risk in the older population. Aligned with the study aim and method, the research question was: How do nursing students learn to assess fall risk in the older population during clinical practice?

The method allows researchers to explore subjective meanings and to understand the underlying reasons behind decision-making (Krueger and Casey, 2014), as well as how students' interactions with professionals in clinical settings influence their learning. This process generates rich, contextualized data, as focus groups capture the depth, nuance, and diversity of perspectives that cannot be reduced to numerical or categorical representations (Tausch and Menold, 2016). Therefore, focus groups align closely with the interpretivist commitment to understanding human experience from the participants' point of view. The emphasis is placed on interpretation, context, and meaning, rather than on prediction or generalization. Consequently, the knowledge produced is context-bound, qualitative, and co-constructed between participants and the researcher (Denzin and Lincoln, 2018; Krueger and Casey, 2014).

2.2. Participants and eligibility criteria

The following inclusion criteria were defined: nursing students completing the last clinical practice of the NDC; in hospital services that provided care for the older person and who have been successful in clinical practice. The following were considered as exclusion criteria: students who had clinical practice in community contexts, nursing homes, pediatric services, neonatology, outpatient consultations, day hospitals and pediatric intensive care units, or when they failed clinical practice.

The choice for a purposive sampling was based on the recommendations of Krueger and Casey (2014) to allow focusing the discussion on the topic, since the participants had a common experience that was relevant to the topic under discussion.

After identifying the students who met the eligibility criteria, and who showed interest in participating in the study, individual face-to-face meetings were held to clarify the purpose of the study, describe the method, and clarify doubts. This first contact was made face-to-face in order to promote FG participation (Tausch and Menold, 2016).

2.3. Data collection

The semi-structured interview guide was developed through team meetings and an extensive review of the literature. Its final version was established by consensus among the research team, which included members with expertise in qualitative research and interview methodologies. The research question of the study helped in the development of secondary questions, without conditioning the participants' sharing (Krueger and Casey, 2014).

The secondary questions were:

- From your experience in the clinical practice, which fall risk factors are valued by nurses during the period of hospitalization of older persons?
- Considering your experience, how did you learn to manage fall risk during the clinical practices of the nursing degree course?
- What strategies and resources are used to help develop this learning?

Additional prompt questions were used to encourage deeper reflection, elaboration, and clarification from participants. In the context of a focus group, these questions enable the facilitator to encourage elaboration, clarify meanings, explore underlying reasons, facilitate interaction, and maintain alignment with the research objectives. The use of additional prompts enhances the depth and richness of qualitative data, supporting the interpretivist aim of understanding participants' lived experiences and meanings in their own words (Krueger and Casey, 2014).

The to focus group (FG1 and FG2) were conducted online, using the Colibri® platform, on January 2024; they lasted 97 min and 84 min, respectively, and they were recorded and transcribed. The discussions provided rich and detailed insights, and data saturation was achieved when no new themes or information emerged during the second focus group, indicating that the collected data were sufficient to comprehensively address the research objectives.

The choice of moderator and co-moderator was based on the recommendations of Krueger and Casey (2014). The moderator led the discussion, and the co-moderator managed the recording equipment, controlled the logistical conditions, and wrote notes to document non-verbal cues, group dynamics, and contextual factors (Krueger and Casey, 2014). After each FG, recordings were transcribed verbatim, and the transcripts were reviewed alongside the notes to ensure accuracy and completeness.

2.4. Data treatment and analysis

The recording of the 2 focus groups was reviewed by the investigators prior to its transcription by one of the investigators. Qualitative data analysis was performed by one of the investigators and independently validated by two other investigators the following steps: 1) Definition of objectives and a guiding frame of reference; 2) Constitution of a corpus; 3) Definition of categories; 4) Definition of analysis units. After organizing the data, they were categorized according to a list of the central ideas and regrouped by similarity, which was finally followed by the data interpretation (Bardin, 2016).

The data were then analyzed through an iterative process: preliminary categories were created based on literature and initial transcript readings and were subsequently refined through team discussions to ensure they accurately represented participants' perspectives. Units of analysis were carefully defined to capture meaningful segments of discussion. This approach enabled the construction of a rigorous, contextually grounded framework that reflected the co-constructed meanings emerging from the FG interactions (Bardin, 2016; Krueger and Casey, 2014).

The integration of field notes with transcribed data was undertaken to enhance understanding and interpretation of participants' contributions. In this study, field notes served several key purposes: clarifying meaning, informing coding – where observations of group dynamics guided the identification of themes and patterns, particularly when participants influenced one another's responses – and providing context, ensuring that analysis considered both what was said and how it was said (Krueger and Casey, 2014).

During the analysis process, decisions were made through a systematic and iterative approach, guided by the research questions and the interpretivist framework. This process was reflexive, with researchers continuously considering how their own perspectives and interpretations might influence the analysis (Denzin and Lincoln, 2018; Krueger and Casey, 2014).

Qualitative data analysis software (WebQDA®) was used to facilitate data organization and enhance analytical accuracy. One researcher conducted the initial coding, identifying meaningful segments, patterns, and themes within the data. As the software allows collaborative work, two senior qualitative researchers (validators) reviewed the coded transcripts, comparing their interpretations with those of the primary coder. Discrepancies were resolved through consensus meetings, and the coding tree was refined accordingly to ensure consistency and rigor in the analysis. In the elaboration of the categories, issues related to homogeneity, pertinence, representativeness and exhaustiveness were respected (Bardin, 2016).

2.5. Study rigor

Methodological rigor was maintained from the study design through all subsequent methodological procedures. All interviews were conducted and transcribed by the same researcher, and the transcripts were carefully reviewed to ensure accuracy and trustworthiness. Credibility was achieved through the validation of the emerging codes by two independent experts and then by consensus within the research team. Furthermore, transcription and categorization were returned to the participants for analysis and validation. Confirmability was guaranteed by presenting the participants' quotations.

2.6. Ethical considerations

This study is part of a larger study, approved by the ethics committee of the Leiria Polytechnic Institute per protocol no. CE/IPLEIRIA/46/2020. Participants signed consent forms, which were explained and clarified. Data were coded in order to maintain confidentiality, by assigning a letter (P) and a number (1, 2, 3 …) to each participant.

All interview data, including audio recordings and transcripts, were stored securely to ensure participant confidentiality and comply with ethical standards. Digital files were saved on a secure cloud platform with access restricted to authorized members of the research team. All transcript files uploaded to the qualitative data analysis software were secured with password protection and user authentication. Transcripts were de-identified by assigning unique participant codes to eliminate any personally identifiable information. The data will remain stored in a single, encrypted file, with access limited solely to the principal investigator.

3. Results

The 8 participants in the first FG are female. The mean age was 22.4 years (±1.09), all were single. In the second FG 7 students (6 female and 1 male) participated, with a median age of 23.2 years (±3.02). All participants were in the 4th year and 2nd semester of the NDC.

The analysis of the participants' discourse in this FG allowed the definition of 3 categories that are associated with learning to assess fall risk in the hospitalized older persons and their respective registration units (RU): valued risk factors (RU = 61); assessing the risk (RU = 38) and learning to manage fall risk in CP (RU = 87) (Table 1).

The students stated that they had learned to assess fall risk, but they noted that during the CP, the supervising nurses focused their attention, and consequently directed the learning, essentially, on early establishment of some risk factors associated with physical capacity and cognition.

Clinical nurses and medical staff frequently expressed concern about patients' physical condition, particularly when there were changes in mobility, which altered gait quality and/or balance. They alerted students to detect this risk, even if they did not use a fall risk assessment tool.

As one student observed:

Table 1
Categories of content analysis and their representativeness. Lisbon; Portugal. 2024.

Category	Subcategory	Registration Units
Valued risk factors	Biophysiological	**28**
	Cognitive	**20**
	Socioeconomic	**8**
	Associated with medical devices	**5**
Assessing the risk	Evaluation in the clinic: hiatus in the theory	**27**
	Difficulties in the evaluation	**9**
Learning to manage fall risk in CP	Learning to intervene	**23**
	Learning to assess risk	**39**
	Awareness	**25**
	Total	**186**

I think another factor is pretty much the physical condition and the weakness itself. It is not the weakness that I mean, it is more the level of body fragility, especially if the older person is more emaciated, for example … or if it is noticed that they have more mobility difficulties, for example … I think these are factors that arouse more attention from nurses (FG1P2).

All participants corroborated the clinical concern with changes in mobility, as well as, changes in state of consciousness, especially when there were periods of confusion, disorientation and/or psychomotor agitation that, in addition to altering older persons' judgment about the risk of accidents, lead to attempts to get out of bed. This is expressed in these two excerpts:

I think something that is highly valued is one's orientation state. Therefore, if an older person is disoriented in time and space, it is already known that they have a greater predisposition to the occurrence of a fall (FG1P3).

A patient who is disoriented, especially if they have psychomotor agitation, is always a patient at risk of falling off the stretchers in the emergency room and even without an assessment of the risk of falling, the entire team remains alert to maintain surveillance of this patient (FG2P2).

The patient's psychomotor agitation … so, if he runs the risk of jeopardizing his own safety and the safety of other patients around him … (FG1P7).

There was still concern about the clinical evolution of the older person and how it could influence both mobility and cognition:

Urgency is different from other services, we are always waiting for the clinical situation to worsen and with that the risk of falling increases, even because the increased likelihood of the person becoming confused or delirium during hospitalization and even the immobility due to always being on the bed/stretcher (FG21P6).

Whether or not there was deterioration in the person's general condition … and in this sense, perhaps the fall risk increased, or even decreased if there really was an improvement in health (FG1P5).

The students reported that the emphasis on these two risk factors led to improvement in their expertise/competence in the assessment of bed mobility, gait, and the risks associated with gait quality. They also mentioned that this orientation contributed to the multidimensional appreciation of other risks and an understanding of their interaction, especially in highly complex care practice environments such as the ER, or in medical wards/services with more complexity.

They also reported occasional uncertainty as to whether the early identification of these two risks influenced the completion of the institution's fall risk assessment instrument, or even clinical decisions regarding the implementation of preventive measures, which were very standardized and targeted to the control and restriction of mobility within wards.

Regarding the category "assessing the risk,", the participants said that there were difficulties with assessment. The first was that this was not always done systematically, especially in the emergency department and observation room:

In the emergency room, that didn't happen … unless the patients were hospitalized or we didn't know they were going to be hospitalized and, as soon as we opened the process, we did that, but from the moment when they were only still under surveillance, whether it was in the blue and green, yellow, or orange rooms, we only had ready a care plan in which falls are prevented, or fall measures are applied … we didn't have a risk assessment (FG1P1).

All participants had the opportunity to use the Morse Fall Scale in the computer system, under the supervision of the supervising nurse, but they indicated that there was no reflection on its importance, and it was not clear why some evaluation decisions were made. As this student observed:

Nurses already know what the fall risk assessment is according to the Morse Scale, and they almost intuitively know whether or not this patient has a higher risk of falling or not, sometimes even without seeing the scale (FG1P7).

The Morse scale is not always filled out at the moment of triage or arrival at the service, but for me, as a student, it was not always clear how the nurse assessed the person and filled out the scale (FG2P1).

On the other hand, filling out the scale did not guarantee that care would be provided, as seen in this excerpt:

I've never heard any colleague, at shift change, saying that a certain preventive measure should be implemented, depending on the risk … even with the record made about the risk and the intervention, at shift change it is not talked about … it is there, this is something that should be implemented in the services and be discussed in a multidisciplinary team, so that there is agreement between all (FG1P4).

These difficulties associated with non-completion, incomplete completion (especially due to lack of information about falls in the 3 months prior to hospitalization), and absence of individualized care plans according to risk is considered as a hiatus in the theory, which impairs theoretical-practical knowledge integration and can lead to some devaluation of the risk assessment:

I had a lot of doubts when it came to planning interventions to prevent falls, even in people who were hospitalized as a result of a fall injury, I felt that we did not individualize the preparation for discharge depending on the reason for the fall and the consequences, even though we knew there was a risk (FG2P1).

I, personally, think that the school can never truly prepare us for a service with such an influx of people (…) the fall I witnessed, the last one, was a patient who was completely autonomous and who got up to turn on the television, and to turn on the television he had to climb on a chair and ended up falling. The simple fact that we later made the TV remote available, which the room did not have, was a factor that prevented another fall. There are sometimes small things that are not mentioned at school, and that in clinical practice we can see and realize that really a simple thing can influence fall risk (FG1P4).

One student stated that she felt that a nurse had a positive attitude towards her in relation to filling out the scale:

I did the scale and they told me "Ah, that's not the score, because at this point you have to pay attention to this" and I countered from my point of view and realized that many professionals don't have the same understanding of the various topics … (FG1P8).

This verbal reflection on the criteria for filling out the scale encourages critical questioning and evaluation of clinical judgments, even

among experienced professionals, whose assessments may vary. For students, this process is particularly valuable, as it enhances understanding of the rationale underpinning clinical decision-making.

"Learning to manage fall risk in CP" is done at 3 different stages. Future nurses felt that they first must learn to intervene to prevent falls (theoretical learning at school). Then they focus their attention on learning risk assessment (learning at the clinic) and on the use of different instruments for this purpose. And later there is awareness that assessment and intervention are 'inseparable' in order to manage the fall risk, and must be integrated:

> *What I remember is that at school they gave a lot of importance to when we do the first lift, in order to prevent orthostatic hypotension, to prevent falls (…) I really think that what stuck from the classes was prevention* (FG1P6).

> *At school I really liked this subject and we were given a lot of material, but I felt that during the internship it took me a while to understand what was being done and to integrate the knowledge I brought from school, I talked about this with the nurse who guided me who helped me understand things that are even done to prevent falls and that I hadn't associated with other care* (FG2P6).

There is a consensus that theoretical classes talk about assessment, but lack of clinical experience at that time keeps the focus on solving the problem and not on its identification, which becomes more abstract for students.

In the clinical context, risk assessment makes more sense because this is what individualizes care:

> *We also assess the scale on admission … when it is not possible to assess on admission, it's always done within the first 24 hours after admission. As for the history of previous falls … this factor is part of our scale, and in order to highlight that this person has a history of previous falls, it is in our shift change sheets, with great prominence, because it is a factor that draws the attention of nurses to the need for extra care* (FG1P2).

On the other hand, the previously described reflections, or the existence of projects to improve the quality of care, with the active participation of students, became the turning point for understanding the problem and the importance of evaluating and intervening in this matter for nursing care:

> *As the patient was at risk of falling, we insisted on saying that he was at risk of falling, and we had the interventions that applied to this patient and that should be applied at home … and I think there was an added value because that way, if there is a need to follow up at a health center, the family will have a letter they can read, saying what happened to that patient, what care should be taken by other health professionals and from other specialties, even if it is the case of, I don't know, physiotherapy or something else …* (FG1P7).

Apparently, this awareness supports the development of the competencies of these future nurses in fall risk management.

4. Discussion

The participants' accounts reinforce the importance of clinical experience in developing essential skills for managing the risk of falls in the hospitalized older population.

The findings highlight the importance that students attribute to fall risk factors related to the biophysiological dimension and cognitive status. A study conducted in Finland, which explored the experiences of nursing students in fall prevention during clinical practice with older home care clients, observed that students tend to adopt an illness-centered approach in fall risk assessment. Their evaluations focused primarily on clients' physical disabilities and chronic illnesses, emphasizing the use of medications, impaired balance, reduced physical functioning, and environmental hazards, such as a cluttered home (Kovács et al., 2020).

The results help to understand and reinforce the literature, indicating that, from a fall prevention perspective, there is often a lack of comprehensive evaluation and understanding of the significance of psychological factors, such as fear of falling (Kovács et al., 2020). Studies are unanimous in stating the need to increase knowledge about the behavioral factors that constitute the etiology of fall risk, especially because falls can interfere with functionality, leading to increasing dependence, with a need for care by third parties (Baixinho et al., 2020; Montero-Odasso et al., 2022).

The professionals who supervise students and serve as role models often adopt a biomedical perspective on falls in hospitalized older adults, focusing primarily on intrinsic causative factors (Alsaad et al., 2024), which in turn influences students' learning. These findings align with Kovács et al. (2020), suggesting that, to effectively prevent falls among older clients, students require enhanced guidance in adopting a comprehensive, evaluation-based approach to fall risk assessment. Furthermore, there is a need for ongoing collaboration between educational institutions and clinical settings to develop strategies that integrate both theoretical knowledge and practical skills, thereby strengthening students' competence in fall prevention.

The "Assessing the Risk" category highlights the challenges in conducting a systematic and multidimensional assessment of fall risk, as well as the connection between risk evaluation and clinical decision-making for implementing preventive measures.

The objective evaluation of the phenomenon allows the individualization of interventions and, consequently, the reduction of the prevalence of falls and, simultaneously, the resulting injuries. Authors have concluded that appropriate nursing interventions, for example, in the etiology of the "fear of falling" associated with physical exercise (Marques-Vieira et al., 2021), have a positive impact both physically and cognitively, leading to an increase in quality of life, especially in older people who have a history of falls.

This way of being, differentiated in pedagogical terms, leads to the integration of theory and practice, which reinforces the need of active participation of the students, in the clinical context. Considering the findings, we corroborate the opinion of other authors about the need to invest in quality clinical practice environments and improve the supervision and the evaluation of the practice of the student (Cardoso et al., 2021).

The use of scales for measurement is crucial (Baixinho et al., 2020; Marques-Vieira et al., 2021; Montero-Odasso et al., 2022) to support decision-making in the context of clinical practice. Our results show that students use a fall risk assessment scale, but in situations where the person is at high fall risk, they are not guided towards systematic risk assessment and the use of instruments that allow the assessment of the cognitive state, such as the Mini-Mental State Examination, and functional assessment, such as the Timed Up and Go Test (Baixinho et al., 2020). Given the association of frailty syndrome with falls, it is also important that nursing students have knowledge of instruments that assess this syndrome and that can enable a multifactorial risk assessment, such as the Clinical Frailty Scale, the Fried Frailty Phenotype, the Edmonton Frail Scale (EFS) (Deng & Sato (2024).

Regarding the category "Learning to Manage Fall Risk in Clinical Practice," participants emphasized the importance of clinical experience in developing skills for risk assessment, use of assessment instruments, and integration of preventive interventions, following the theoretical instruction they received in nursing school.

Enhancing students' skill development during clinical practice requires the inclusion of curricular content addressing frailty syndrome, sarcopenia, falls, and evidence-based interventions to reduce their impact. These conditions represent significant contributors to adverse health outcomes among older adults. (Shaw et al., 2020). Teachers should develop specific teaching materials to address these issues, incorporating real-world situations and using more active pedagogical strategies such as simulation and the organization of practical

workshops (Cardoso et al., 2021; Shaw et al., 2020).

Future studies should evaluate the impact of pedagogical strategies on knowledge, attitudes, skills and behaviour related to falls prevention and determine whether the training had an effect on falls and injury rates.

It is expected that this increase in scale validations, associated with clinical practice, can increase the adherence of professionals to application of scales and to the introduction of measures that can prevent definitive institutionalization and the deterioration of older persons' quality of life (Lavareda Baixinho and Dixe, 2017; Marques-Vieira et al., 2021). By achieving the active participation of nurses, starting with nursing students, in understanding the objective assessment of risk factors, and increasing older persons' capability to adhere to safe behaviors (Baixinho and Dixe, 2017), we can begin to control this public health scourge.

4.1. Limitations

This study has limitations associated with its nature, method, and data collection technique. The intentional choice of participants limits the results to the context. The interactions among the moderator, co-moderator, and participants may have prompted socially acceptable responses, and influenced the overall direction of the participants' discourse.

5. Conclusions

Nursing students learn to assess fall risk of hospitalized older persons, based on the learning opportunities given to them in this context by clinical nurses. The observation of clinical practices and the influence of supervisors, support the decision in condition their decision on the risk factors to be considered for the occurrence of a fall and the preventive measures to be introduced. These experiences condition their learning about early determination of risks associated with changes in gait and/or balance and changes in cognitive status, and alert students to detect this risk, even if they do not use a fall risk assessment instrument.

All participants had the opportunity to complete a fall risk instrument. However, no distinction was made regarding the use of other recommended tools, and the instrument alone was used to determine high fall risk. The association between risk and planning and implementation of individualized preventive measures for the person is not clear to students.

The results highlight the need for nursing curricula to strengthen evidence-based approaches to fall risk management, incorporating active learning methodologies that foster knowledge integration and skill development in using assessment tools for a multidimensional evaluation of individuals at high risk of falling. They also emphasize the importance of investing in staff training within healthcare services to enhance assessment practices, individualize risk-reduction measures, and promote better integration of theory into practice when supervising students. Also, the learning outcomes of clinical practice and the work of professors and clinicians should privilege the learning and development of skills to prevent falls and fear of falling and, at the same time, develop clinical judgment for autonomous decision-making based on evidence for future professionals.

CRediT authorship contribution statement

Ana Rita Pedrosa: Writing – review & editing, Writing – original draft, Methodology, Investigation, Data curation. **Maria dos Anjos Dixe:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Investigation, Data curation. **Luís Sousa:** Writing – review & editing, Writing – original draft, Visualization, Validation, Methodology, Investigation, Data curation. **Rogério Ferreira:** Writing – review & editing, Writing – original draft, Visualization, Validation, Methodology, Investigation, Data curation. **Cristina Marques-Vieira:** Writing – review & editing, Writing – original draft, Visualization, Validation, Methodology, Investigation, Data curation. **Andréa Marques:** Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Cristina Lavareda Baixinho:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization.

Ethics comitte

This study is part of a larger study, "Management of the Fall Risk in the Elderly Population," which was authorized by the Ethics Committee of the Instituto Politécnico de Leiria (Protocol N° CE/IPLEIRIA/46/2020).

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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References

Alsaad, S.M., Alabdulwahed, M., Rabea, N.M., Tharkar, S., Alodhayani, A.A., 2024. Knowledge, attitudes, and practices of nurses toward risk factors and prevention of falls in older adult patients in a large-sized tertiary care setting. Healthcare 12 (4), 472. https://doi.org/10.3390/healthcare12040472.

Baixinho, C.L., Bernardes, R.A., Henriques, M.A., 2020. How to evaluate the risk of falls in institutionalized elderly people. Rev. Baiana Enferm. 34, e34861. https://doi.org/10.18471/rbe.v34.34861.

Baixinho, C.L., Dixe, M., 2017. Team practices in fall prevention in institutionalized elderly people: scale design and validation. Texto Contexto Enferm. 26 (3), e2310016. https://doi.org/10.1590/0104-07072017002310016.

Bardin, L., 2016. Análise de conteúdo: edição revista e ampliada, 70. Edições, São Paulo.

Cardoso, M., Baixinho, C.L., Ferreira, O., Nascimento, P., Pedrosa, R., Gonçalves, P., 2021. Learning evidence based practice through involvement in investigation activities - the self-perception of students. Cogitare Enferm. 26, e79806. https://doi.org/10.5380/ce.v26i0.79806.

Deng, Y., Sato, N., 2024. Global frailty screening tools: review and application of frailty screening tools from 2001 to 2023. Intractable Rare Dis. Res. 13 (1), 1–11. https://doi.org/10.5582/irdr.2023.01113.

Denzin, N.K., Lincoln, Y.S., 2018. The SAGE Handbook of Qualitative Research, fifth ed. SAGE Publications.

Frazer, S., van der Veen, R., Baan, A., Hermans, M., Olij, B.F., 2021. Evaluation of implementing TOM: a group-based fall prevention programme among community-dwelling older adults in the Netherlands. Int. J. Environ. Res. Publ. Health 18 (12), 6360. https://doi.org/10.3390/ijerph18126360.

Hamilton, W., Round, J., 2017. Identifying frailty in primary care. Br. Med. J. 358, j4478. https://doi.org/10.1136/bmj.j4478.

Juckett, L.A., Bunger, A.C., Jarrott, S.E., Dabelko-Schoeny, H.I., Krok-Schoen, J., Poling, R.M., Mion, L.C., Tucker, S., 2021. Determinants of fall prevention guideline implementation in the Home- and community-based service setting. Gerontol. 61 (6), 942–953. https://doi.org/10.1093/geront/gnaa133.

Kovács, É., Erdélyi, V., Vass, D., 2020. A qualitative study of nursing students' experiences in fall prevention for older home care clients. Int. J. Environ. Res. Publ. Health 17 (14), 5051. https://doi.org/10.3390/ijerph17145051.

Krueger, R.A., Casey, M.A., 2014. Focus Groups: a Practical Guide for Applied Research, fifth ed. Sage, New Delhi.

Lavareda Baixinho, C., Dixe, M.A., 2017. Cuáles son las prácticas y comportamientos de los mayores institucionalizados para prevenir las caídas? Index Enferm. 26 (4), 255–259. http://scielo.isciii.es/scielo.php?script=sci_arttext&pid=S1132-129620170003000004&lng=es&tlng=es. (Accessed 29 June 2023).

Luctkar-Flude, M., Baker, C., Pulling, C., McGraw, R., Dagnone, D., Medves, J., 2016. Improving nursing students' assessment of fall risk in community-dwelling older adults. Nurse Educ. Today 37, 27–32. https://doi.org/10.1016/j.nedt.2015.11.004.

Marques-Vieira, C.M.A., Sousa, L.M.M.D., Baixinho, C.R.S.L., Reis, M.G.M.D., Pérez-Rivas, F.J., Sousa, L.M.R.D., 2021. Validation of the international 7-item falls efficacy scale in portuguese community-dwelling older adults. Texto Contexto Enferm 30, e20190243. https://doi.org/10.1590/1980-265X-TCE-2019-0243.

Montero-Odasso, M., van der Velde, N., Martin, F.C., Petrovic, M., Tan, M.P., Ryg, J., Aguilar-Navarro, S., Alexander, N.B., Becker, C., Blain, H., Bourke, R., Cameron, I.D., Camicioli, R., Clemson, L., Close, J., Delbaere, K., Duan, L., Duque, G., Dyer, S.M., Freiberger, E., Task Force on Global Guidelines for Falls in Older Adults, 2022. World guidelines for falls prevention and management for older adults: a global initiative. Age Ageing 51 (9), afac205. https://doi.org/10.1093/ageing/afac205.

Patton, S.K., Henry, L.J., 2019. Nursing students' experience with fall risk assessment in older adults. Nurs. Health Sci. 21 (1), 21–27. https://doi.org/10.1111/nhs.12427.

Sampaio, F., Nogueira, P., Ascenção, R., Henriques, A., Costa, A., 2021. The epidemiology of falls in Portugal: an analysis of hospital admission data. PLoS One 16 (12), e0261456. https://doi.org/10.1371/journal.pone.0261456.

Shaw, L., Kiegaldie, D., Farlie, M.K., 2020. Education interventions for health professionals on falls prevention in health care settings: a 10-year scoping review. BMC Geriatr. 20 (1), 460. https://doi.org/10.1186/s12877-020-01819-x.

Strini, V., Schiavolin, R., Prendin, A., 2021. Fall risk assessment scales: a systematic literature review. Nurs. Rep. 11 (2), 430–443. https://doi.org/10.3390/nursrep11020041.

Taguchi, C.K., Menezes, P.L., Melo, A.C.S., Santana, L.S., Conceição, W.R.S., Souza, G.F., Araújo, B.C.L., Silva, A.R.D., 2022. Frailty syndrome and risks for falling in the elderly community. Coda 34 (6), e20210025. https://doi.org/10.1590/2317-1782/20212021025pt.

Tausch, A.P., Menold, N., 2016. Methodological aspects of focus groups in health research: results of qualitative interviews with focus group moderators. Glob. Qual. Nurs. Res. 3, 1–12. https://doi.org/10.1177/2333393616630466.

Turjamaa, R., Äijö, M., Tervo-Heikkinen, T., Silén-Lipponen, M., 2020. A qualitative study of nursing students' experiences in fall prevention for older home care clients. J. Aging Res 2020, 7652623. https://doi.org/10.1155/2020/7652623, 1-7.

Wang, K.N., Bell, J.S., Gilmartin-Thomas, J.F.M., Tan, E.C.K., Cooper, T., Robson, L., Ilomäki, J., 2021. Use of falls risk increasing drugs in residents at high and low falls risk in aged care services. J. Appl. Gerontol. 40 (1), 77–86. https://doi.org/10.1177/0733464819888848.

World Health Organization, 2018. Falls fact sheet. Available from: http://www.who.int/mediacentre/factsheets/fs344/en/.

Zhang, K., Qi, J., Zuo, P., Yin, P., Liu, Y., Liu, J., Wang, L., Li, L., 2021. The mortality trends of falls among the elderly adults in the mainland of China, 2013-2020: a population-based study through the national disease surveillance points system. Lancet Reg. Health West. Pac. 19, 100336. https://doi.org/10.1016/j.lanwpc.2021.100336.