

# NURSING INTERVENTIONS FOR THE PREVENTION OF FALLS IN THE ELDERLY IN PRIMARY CARE: INTEGRATIVE REVIEW

## INTERVENÇÕES DE ENFERMAGEM PARA PREVENÇÃO DE QUEDAS EM IDOSOS NA ATENÇÃO PRIMÁRIA: REVISÃO INTEGRATIVA

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### ABSTRACT

**Aim:** identify how nursing interventions proposed to prevent falls in the elderly in the context of primary care. **Methods**: integrative literature review; studies were identified in the PubMed, CINAHL and LILACS databases in April 2020. **Results**: fifteen articles were selected, from which two main themes emerged: nursing interventions related to the assessment and management of the risk of falls in elderly people in primary care; nursing interventions in multidisciplinary programs for the prevention of falls in the elderly in primary care. **Final considerations**: nursing interventions for the prevention of falls in the studied population consist of assessing the risk of falls; guide the elderly/caregivers regarding the promotion of safety at home and behavioral changes; promote permanent education for the health team on the subject; lead and/or participate in multiprofessional programs with a fall prevention panel. These findings can contribute to the planning of actions of professionals who are daily faced with the challenge of preventing falls in elderly people in primary care.

Keywords: Accidental Falls; Aged; Nursing; Nursing Care; Primary Health Care.

#### RESUMO

**Objetivo:** identificar as intervenções de enfermagem propostas para prevenir quedas em idosos no contexto da atenção primária. **Métodos:** revisão integrativa da literatura cujos estudos foram identificados nas bases de dados PubMed, CINAHL e LILACS em abril de 2020. **Resultados:** foram selecionados quinze artigos, dos quais emergiram duas temáticas principais: intervenções de enfermagem relacionadas à avaliação e gestão do risco de quedas em idosos na atenção primária; intervenções de enfermagem em programas multiprofissionais para prevenção de quedas em idosos na atenção primária. **Considerações finais:** as intervenções de enfermagem para prevenção das quedas no público estudado consistem em avaliar o risco de quedas; orientar idosos/cuidadores quanto a promoção da segurança no domicílio e mudanças comportamentais; promover educação permanente para a equipe de saúde sobre a temática; conduzir e/ou participar de programas multiprofissionais com a finalidade de prevenir as quedas. Estes achados podem contribuir para o planejamento das ações dos profissionais que se deparam cotidianamente com o desafio de prevenir as quedas em idosos na atenção primária.

**Palavras-chave:** Acidentes por Quedas; Idoso; Enfermagem; Cuidados de Enfermagem; Atenção Primária à Saúde.



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#### **INTRODUCTION**

Falls consist of events in which the individual falls to the ground or lower levels inadvertently, except for intentional changes in position to lean on furniture, walls or other objects. They are considered an important public health problem, a priority issue in the health field worldwide and are mainly related to the elderly population, in view of the morphological and physiological changes inherent in the aging process that increase the vulnerability to these events<sup>(1)</sup>.

According to the World Health Organization (WHO), falls are the second leading cause of accidental or unintentional death worldwide, and the elderly aged 65 years and over are the ones who suffer the most from fatal falls<sup>(2)</sup>. Data referring to episodes of falls in this population are alarming and indicate that between 28 and 35% of people aged  $\geq 65$  years experience at least one episode of fall per year, and for those aged  $\geq 70$  years, the estimate increases to 32 to 42%. It is estimated that about 5% of falls in the elderly in the community cause fractures, and 5 to 10% cause soft tissue and head injuries<sup>(1)</sup>.

Several factors contribute to the occurrence of falls. These factors can be classified as intrinsic, related to characteristics inherent to the individual, such

as advanced age, diseases and fear of falling; and in extrinsic ones, which concern the interaction with the environment, such as slippery floors, insufficient lighting, among others. It is noteworthy that extrinsic factors are considered modifiable, therefore, they are the target of preventive actions<sup>(3-4)</sup>.

Considering that falls are preventable events, it is essential to adopt preventive actions, for example, the identification of risk factors<sup>(5)</sup>. In this context, the work of nurses in preventing falls in the elderly is highlighted, given their notorious role in primary care. The nurse is competent to perform clinical judgment and establish accurate Nursing Diagnoses (ND) - for example, the ND of the ICNP Risk for Fall and Risk For Fall-Related Injury<sup>(6)</sup>, or the ND of NANDA-I Risk for Falls<sup>(7)</sup>, which favors the establishment of interventions aimed at preventing falls and their consequences<sup>(8)</sup>.

It is noteworthy that the WHO considers the prevention of falls as one of the international goals of patient safety. In addition, the National Patient Safety Program, created in 2013 by the Ministry of Health, Anvisa and Fiocruz, established the Fall Prevention Protocol in order to reduce the occurrence of these events and their damage<sup>(9)</sup>, however, The preventive measures proposed are aimed at the hospital context, with a gap with regard to actions that suit the





specificities of the elderly assisted in primary care.

This same gap is observed in the nursing literature, in which studies aimed at addressing falls (including nursing diagnoses, results and interventions) in institutionalized<sup>(10)</sup> and hospitalized<sup>(8-11)</sup> elderly are found, however, there are still few works carried out with elderly people in the community and that synthesize knowledge about nursing interventions for the prevention of falls.

Given the above, the objective of this research was to identify the nursing interventions proposed for the prevention of falls in the elderly in the context of primary health care available in the literature.

#### **METHODS**

This is an integrative literature review, a type of investigation used in Evidence-Based Practice, which includes the search, critical analysis and synthesis of available scientific evidence on a particular topic or issue, aiming at the incorporation of new knowledge in clinical practice<sup>(12)</sup>.

This review was carried out in six stages: identification of the theme and definition of the research question; choice of inclusion and exclusion criteria for studies; definition of the information that will be extracted from the studies; evaluation of the studies included in the sample; interpretation of results and presentation of the review<sup>(12)</sup>.

The research question was delimited with the help of the PCC strategy, thus, it was considered P (patient): elderly; C (concept): nursing interventions to prevent falls; C (context): primary health care. Therefore, the research question was "What nursing interventions are proposed to prevent falls in the elderly in the context of primary health care?"<sup>(13)</sup>.

Then, the eligibility criteria of the studies were defined. The inclusion criteria consisted of: studies developed with an elderly population (age  $\geq 60$  years); that addressed nursing interventions to prevent falls; performed in the context of primary care; published in Portuguese, Spanish or English; made available in full. Studies with other populations (adults) in the context of institutionalization and/or hospitalization were excluded, as well as reviews, experience reports, editors' opinions, publications in conference proceedings and editorials.

The searches were carried out in April 2020 in the PubMed, CINAHL and LILACS databases with the DeCS and MeSH descriptors: aged, accidental falls, primary health care, nursing, nursing care. These descriptors were combined using the Boolean operators AND and OR to compose the search



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strategies, according to the specificities of<br/>each database. For LILACS, descriptors inPortuguese and Spanish were included (Chart<br/>1).

Chart 1 - Search strategies, according to selected databases.

Search strategies
("aged"[MeSH Terms] OR "aged"[All fields]) AND
("accidental falls"[MeSH Terms] OR "accidental falls"[All
fields]) AND ("primary health care"[MeSH Terms] OR
"primary health care"[All fields]) AND ("nursing"[MeSH
Terms] OR "nursing"[All fields])
"aged" AND "accidental falls" AND "primary health care"
AND "nursing"
("Aged" OR "Anciano" OR "Idoso") AND ("Accidental Falls"
OR "Accidentes por Caídas" OR "Acidentes por Quedas")
AND ("Primary Health Care" OR "Atención Primaria de
Salud" OR "Atenção Primária à Saúde") AND ("Nursing" OR
"Enfermería" OR "Enfermagem")

Source: Survey data, 2020.

The studies that resulted from the search were exported to the EndNote Web reference manager, in which the duplicates were excluded. Then, they were exported to the Rayyan tool, where titles and abstracts were read and selected individually and independently by reviewer 1 (DGS) and reviewer 2 (PHFS). Soon after, the two reviewers began reading and analyzing the articles in full, to select the studies that would compose the final review sample. At the end of these procedures, disagreements were resolved between the two reviewers. After selecting the studies, data were collected in a spreadsheet consisting of the following variables: authors, year of publication, country where the study was conducted, nature and type of study, research participants and, finally, the results that allowed to answer the research question of this review.

Subsequently, the studies were evaluated according to the level of evidence: (1) results of meta-analysis of controlled and randomized clinical studies; (2) evidence obtained from individual studies with an experimental design; (3) evidence from quasi-

experimental studies; (4) evidence from https://doi.org/10.31011/reaid-2021-v.95-n.34-art.1104 Rev Enferm Atual In Derme v. 95, n. 34, 2021 e-021089



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descriptive (non-experimental) studies or with a qualitative approach; (5) evidence from case or experience reports; (6) evidence based on expert opinions<sup>(14)</sup>.

Finally, the stage of interpretation of the results was conducted, with thematic categorization by similarity of themes to facilitate the synthesis and presentation of the review results.

#### RESULTS

A total of 346 references were identified, distributed in the three databases, and 53 duplicates were excluded. Then, the titles and abstracts of 293 articles were read, and of these, 37 were eligible to read the full text. After a thorough reading and application of the established exclusion criteria, 15 articles were selected for the synthesis of evidence, according to the PRISMA model (Figure 1).





Source: Survey data, 2020.



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The 15 studies included were carried out from 1999 to 2017, in the United States (n=3), Brazil (n=2), New Zealand (n=2), Australia (n=1), Belgium (n=1), China (n=1), Spain (n=1), Portugal (n=1), United Kingdom (n=1), Sweden (n=1) and Thailand (n=1). Two studies were published in Portuguese (n=2), one study in Spanish (n=1) and the others were published in English (n=12). The characterization of the articles was presented in Chart 2.

**Chart 2** - Characterization of articles contemplating nursing interventions for the prevention of falls in the elderly in primary care, according to: authors, year of publication, country, nature/type of study, level of evidence and research participants. Brasilia, DF, Brazil, 2020.

Authors	Year of publication	Country	Nature and type of study	Level of evidence	Survey participants
Allen A; Simpson	1999	United	Quantitative,	2	Elderly
$JM^{(15)}$		Kingdon	experimental		
Fortinsky RH et	2004	United	Quantitative,	4	Professionals,
al <sup>(16)</sup>		States	observational		including
					nurses
Elley CR et al <sup>(17)</sup>	2007	New	Quantitative,	2	Elderly
		Zeland	experimental		
Prat-González I;	2007	Spain	Quantitative,	4	Elderly
Fernández-Escofet			observational		
E; Martínez-					
Bustos S <sup>(18)</sup>					
Elley CR et al <sup>(19)</sup>	2008	New	Quantitative,	2	Elderly
		Zeland	experimental		
Milisen K;	2009	Belgium	Quantitative,	4	Elderly and
Geeraerts A;			observational		professionals,
Dejaeger E <sup>(20)</sup>					including
					nurses
Woo J et al <sup>(21)</sup>	2009	China	Quantitative,	4	Elderly



			observational		
Macêdo ARC et	2012	Brazil	Quantitative,	4	Elderly
al <sup>(22)</sup>			observational		
Resnick B et al <sup>(23)</sup>	2012	United	Quantitative,	2	Elderly
		States	experimental		
Cabrita MFG;	2013	Portugal	Quantitative,	4	Elderly
José HMG <sup>(24)</sup>			observational		
Romi H;	2014	Australia	Quantitative,	4	Elderly and
Wendy M; Terry			observational		professionals,
PH <sup>(25)</sup>					including
					nurses
Fernandes BKC et	2016	Brazil	Quantitative,	4	Elderly
al <sup>(26)</sup>			observational		
Boorgird C et	2017	Thailand	Quantitative,	2	Elderly
al <sup>(27)</sup>			experimental		
Fahlström G et	2017	Sweden	Quantitative,	2	Elderly
al <sup>(28)</sup>			experimental		
Reinoso H;	2017	United	Quantitative,	2	Elderly
McCaffrey RG;		States	experimental		
Taylor DWM <sup>(29)</sup>					

Source: Survey data, 2020.

As for the methodological characteristics, the sample consisted of studies of a quantitative (n=14), qualitative (n=1), experimental (n=7) and observational (n=8) nature, with level of evidence 2 (n=7) and 4 (n=8), whose participants are elderly, nurses and other health professionals who work in the context of primary health care.

The analysis of the articles identified two recurrent themes: i) nursing interventions related to the assessment and management of the risk of falls in elderly people in primary care; ii) nursing interventions in multidisciplinary programs for the prevention of falls in the elderly in primary care (Chart 3).





**Chart 3** – Nursing interventions for the prevention of falls in the elderly in primary care. Brasilia, DF, Brazil, 2020.

Nursing interventi	ons related to the assessment and risk management of falls in the
elderly in primary	care
Authors	Main results
Allen A; Simpson	Nurses conducted a fall prevention program for seniors who had
JM <sup>(15)</sup>	recently fallen. The program included: comprehensive assessment,
	home visits, surveillance of environmental risk factors, medication
	review, referrals, and resistance exercise. Other professionals
	contributed to the construction of physical assessment, exercise and
	medication review components.
Woo J et al <sup>(21)</sup>	Nurses developed a tool to predict falls in elderly people in the
	community. They performed risk identification through rapid
	screening and referrals for detailed assessments.
Macêdo ARC et	Nurses developed actions related to the identification of aspects of
al <sup>(22)</sup>	autonomy and independence of the elderly, identification of
	intrinsic and extrinsic factors related to the occurrence of falls.
Resnick B et al <sup>(23)</sup>	Nurses performed a multicomponent intervention that involved the
	implementation of a care philosophy in which they helped the
	elderly with functional tasks and physical activity, environmental
	assessments, set individual goals, mentoring and motivation.
Cabrita MFG;	Nurses carried out home visits, observed the high incidence of falls
José HMG <sup>(24)</sup>	in the elderly, identified the factors that affect health, autonomy,
	such as multiple chronic pathology, polymedication, domestic
	accidents, hospitalizations, changes in the family structure,
	evaluated their physical and psychological environment, social and
	environmental. They provided guidance on safety and autonomy
	and, if necessary, made referrals to other professionals on the team.
Fernandes BKC et	The identification of nursing diagnoses contributed to the
al <sup>(26)</sup>	beginning of the establishment of care actions aimed at the elderly
	in order to minimize the prevalence of incidents of falls. Nurses
	intervene through prevention, encouraging or monitoring the
	practice of physical exercise, evaluating possible domestic risks
	(slippery carpets and floors) and monitoring the medications that





	make the elderly more vulnerable to falls.				
Nursing interventi	ons in multidisciplinary programs for the prevention of falls in				
the elderly in prim	the elderly in primary care				
Authors	Main results				
Fortinsky RH et	Nursing identified the barriers when addressing the seven risk				
al <sup>(16)</sup>	factors for falls: gait and transfer difficulties, balance disorders, use				
	of various medications, postural hypotension, sensory and				
	perceptual deficits, problems with shoes and feet, and				
	environmental risks. Nurses proposed fall risk management				
	strategies, provided education to health care providers, direct				
	intervention and referrals.				
Elley CR et al <sup>(17)</sup>	Nurses conducted risk assessment and management in the home				
	environment to reduce the risk of further falls, provided counseling				
	and referrals (eg, to the exercise program conducted by a physical				
	educator or physical therapist). The intervention included: i) health				
	assessment; ii) domestic risk assessment; iii) bone health				
	assessment; iv) referral to The Otago Exercise Programme.				
Prat-González I;	Nursing worked, together with physicians, in the implementation of				
Fernández-	a protocol for screening risk factors for falls. The intervention				
Escofet E;	included: exercises and training to increase muscle strength and				
Martínez-Bustos	balance, medication review, correction of vision and hearing loss,				
S <sup>(18)</sup>	changes in the environment and recommendation of an adequate				
	diet.				
Elley CR et al <sup>(19)</sup>	Nurses with experience in gerontology visited the elderly in their				
	homes and performed a standardized health assessment, using an				
	algorithm to assess the risk of falls. It also referred the elderly to				
	The Otago Exercise Programme, under the responsibility of a				
	physical educator or physiotherapist. Nurses observed the need for				
	environmental changes.				
Milisen K;	The nurse identified the risk factors, provided education on the				
Geeraerts A;	importance of exercise/individualized exercise program, performed				
Dejaeger E <sup>(20)</sup>	pertinent referral according to risk factors, implemented education				
	on the effects of medications on falls, advised to prevent postural				





hypotension and wearing appropriate shoes, performed the			
checklist for home safety and environmental assessment.			
The introduction of a program of multiple interventions, with the			
role of nursing, with a focus on providing culturally specific			
education on the risk of falls, effective behavioral changes for the			
prevention of falls and their consequences.			
The nurses were part of a multidisciplinary home exercise program			
that included multiple interventions. They carried out home visits,			
obtained information about environmental risk factors, encouraged			
the practice of physical exercise and the adoption of safe behavior			
in these activities.			
Nursing assistants worked together with physiotherapists in home			
exercise programs. Nursing assistants supervised the performance			
of activities during eight home visits, helped and encouraged the			
performance of activities.			
Nurses participated in the development and implementation of a			
fall risk prevention program. Their actions consisted of identifying			
risk factors during screening, managing and monitoring			
risk factors during screening, managing and monitoring hypotension, optimizing environmental safety and shoe			
risk factors during screening, managing and monitoring hypotension, optimizing environmental safety and shoe modifications. Together with other professionals, they carried out a			
risk factors during screening, managing and monitoring hypotension, optimizing environmental safety and shoe modifications. Together with other professionals, they carried out a thorough review and adjustment of diseases and pharmacological			

Source: Survey data, 2020.

## DISCUSSION

The professional nurse has an important contribution to the health care of the elderly in primary care. Among its attributions, we highlight providing comprehensive care to the elderly, providing assistance in the home environment and carrying out a multidimensional assessment of the elderly. Their performance must address the main problems that can compromise the health of this population, for example,  $falls^{(30)}$ .

In this sense, this integrative review sought to identify nursing interventions for the prevention of falls in the elderly in primary care. The articles included were published between 1999 and 2017, carried out in several countries. The heterogeneous characteristics in relation to publication date





and country allow us to infer that nurses working in primary care have focused their attention on falls in the elderly and improved their performance over the years to prevent these events in the public in question.

The analysis of the studies that integrated the sample of this review allowed us to identify two recurring themes in the articles, the first on nursing interventions related to the assessment and management of the risk of falls, and the second covers nursing interventions in the context of multidisciplinary prevention programs of falls in the elderly in primary care.

A study carried out in the United States pointed to the role of nursing in identifying risk factors for falls, including gait and transfer difficulties, balance disorders, of various medications, use postural hypotension, sensory and perceptual deficits, with shoes and feet problems and environmental risks. After identifying the risk factors, the nurses established fall risk management strategies, with direct interventions, pertinent referrals and offering training for the health team $^{(16)}$ .

Another research article carried out in Belgium showed that nurses worked to identify risk factors, offer guidance on the importance of physical exercise, effects of medications that can trigger falls, prevention of postural hypotension and use of appropriate shoes. In addition, they also carried out an environmental assessment and applied a checklist for home safety<sup>(20)</sup>.

In fact, nurses play a relevant role in identifying the risk of falls in the elderly. An integrative review study reiterated the importance of nurses, who maintain a greater bond with the elderly in their home environment, in the identification of risk environmental factors and those predisposing to falls and guidelines that address the real needs of the elderly, encouraging the practice of physical exercises to maintain balance and promote a safe home environment that maintains the autonomy and independence of the elderly $^{(31)}$ .

The role of nurses in implementing and conducting fall prevention programs for the elderly was also identified. In the United Kingdom, the program included home visits, comprehensive assessment of the elderly, identification of risk factors with an emphasis on environmental factors and medication review<sup>(15)</sup>. In the United States, nurses worked optimizing environmental safety, on modifying reviewing shoes and medications<sup>(29)</sup>.

One aspect that drew attention in the studies mentioned was the possibility of nurses working even in the home environment of the elderly. The home visit is considered an activity outside the basic health unit, it is a means of care that has light and light-hard technology, involving a more humanized,





welcoming care that requires sensitivity from the professional to identify needs<sup>(32)</sup>.

According the to Ministry of Health<sup>(33)</sup>, the need for nurses to have comprehensive and humanized care for the elderly in the context of their home is evident, in order to provide individualized care for each elderly person, promote actions to identify risk factors, the occurrence of falls during screening, optimizing the safety of the environment, guiding the elderly and their families about the risks of falling, with clear language for better understanding; modify shoes and provide education about the importance of exercise.

The articles revealed that during home visits, in addition to the assessment of intrinsic and extrinsic factors for falls, and identification of environmental risks, nurses offered guidance on environmental safety, promotion of the autonomy of the elderly and assessed the need to refer them for assessment of other health professionals<sup>(22-24)</sup>. To help assess the risk of falls, nurses also apply standardized health assessments and evidence-based algorithms to assess the risk of falls<sup>(19)</sup>.

It is important to emphasize the need for nurses to use tools that favor the identification of the risk of falls in the elderly in their clinical practice, such as the determination of nursing diagnoses<sup>(26)</sup>. In this sense, a survey carried out in the Federal District - Brazil, with the objective of evaluating the nursing diagnosis of Risk for Falls in the elderly in primary care, highlighted the importance of nurses using this resource together with other instruments to assess the risk of falls. Determining the diagnosis Risk for Falls enables the initial risk assessment and favors the nurse's decisionmaking when choosing the necessary interventions<sup>(34)</sup>.

Another aspect that drew attention in the articles was the nurse's decision-making on referring the elderly for evaluation by other health professionals. Although nursing interventions are essential for the prevention of falls, it must be assumed that these events are very complex, of multifactorial origin, and that it is only possible to achieve good results with the elderly if there is a multidisciplinary assessment and intervention.

In this sense, the second theme that emerged from the analysis of the results was about nursing interventions in the context of multidisciplinary programs for the prevention of falls. Even though the identified nursing interventions are similar to those presented in other articles, it is interesting to see how these interventions can contribute to achieving goals in the context of multidisciplinary work.

In a study carried out in Spain, nurses worked together with physicians in the implementation of a protocol for screening the risk of falls, medication review, correction of vision and hearing impairment, and changes in the environment<sup>(18)</sup>. In Australia,





nurses contributed to education about the risk of falls, behavioral changes and setting goals to increase the motivation and self-efficacy of the elderly<sup>(25)</sup>.

In another study, developed in Thailand, nurses were part of a home exercise program, in which they performed home visits to identify environmental risk factors, encouraged the practice of physical exercise and the adoption of safe behaviors<sup>(27)</sup>.

The review also included The Otago Exercise Programme, in which nurses with experience in gerontology conducted the assessment and management of environmental risks at home, provided counseling and referred the elderly to the physical exercise program conducted by physical therapists and physical educators, with the purpose of to improve balance, muscle strength and the ability to walk $^{(19)}$ . Also in the context of the program, nursing assistants contributed to the supervision of the elderly during the execution of the exercises<sup>(17)</sup>.

The participation of nurses in programs whose central component is physical exercise deserves attention, since it has been shown that the regular practice of physical activity as an isolated intervention is associated with a better health condition of the elderly and a lower incidence of falls<sup>(35)</sup>. Even though it is not the nurses' competence to act in the prescription and guidance for the practice of these exercises, it was found that they can contribute to other aspects of these programs, such as in the comprehensive assessment of the elderly, in the identification and management of the risk of falls (especially the environmental risk), in addition to offering guidance for the elderly and caregivers.

A possible limitation of this study is the unavailability of some articles for full reading, however, it did not prevent the achievement of the proposed objective. Furthermore, this review has contributed to filling a gap that exists so far in terms of the synthesis of studies that address relevant nursing interventions for the prevention of falls in elderly patients assisted in primary care.

#### FINAL CONSIDERATIONS

The integrative review made it possible to carry out a synthesis of studies on nursing interventions for the prevention of falls in the elderly in primary care. These interventions consist of: evaluating/identifying intrinsic and extrinsic risk factors for falls, with an emphasis on modifiable factors; identify and manage environmental risks, in the opportunity of home visits; provide guidance for the elderly/caregivers regarding the promotion of safety in the home environment and the need for behavioral changes; promote continuing education for health about the team preventing falls; conduct and/or participate in





multidisciplinary programs with the purpose of preventing falls.

It is believed that these findings can contribute to the planning of actions of nursing professionals who are daily faced with the challenge of preventing falls in the elderly population in the home context and in health units.

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