Nursing Care for Prevention of Falls in the Elderly: an Integrative Review

Abstract

Objective: To evaluate the literature evidence on nursing care for preventing falls among the elderly.

Method: Integrative review of studies published between 2005 and 2015 available in the LILACS, PubMed and CINAHL databases. The search was carried out in English, Portuguese and Spanish and combined the following descriptors: elderly, accidents from falls and nursing care.

Results: Ten studies were selected. The thematic analysis resulted in three categories: health education as strategy for preventing falls in the elderly, identification of risk factors for the occurrence of falls in the elderly as preventive strategy and use of care technologies for preventing falls in the elderly.

Conclusion: More participation of nursing in the production of research directed to this theme is suggested, particularly the development of intervention studies that may reveal the care to be provided in the different care scenarios for the health of the elderly.

Introduction

Falls are a common and serious cause of morbidity and mortality among the elderly [1]. Compared to other disabling conditions, falls are associated with greater disability and increased likelihood of hospi-
talization and admission to long-term care facilities [2-3]. Thus, falls in the elderly are considered an important public health problem, due to the incidence, complications and costs to the health system. These events lead to loss of autonomy and independence because they are directly related to the occurrence of fractures [4].

The elderly are at increased risk of death or serious injury when experiencing falls, especially with the advancing age. In the United States, about 20 to 30% of elderly people who fall suffer moderate to severe injuries such as bruises, hip fractures or head trauma. The magnitude of the risk may be due, at least in part, to the physical, sensory and cognitive impairment associated with aging as well as to the difficulty in adapting the environment to the needs of the elderly population [5]. In Brazil, the hospitalization rate due to falls among people over 60 years of age in 2012 was 41.37 per 10,000 inhabitants [6].

Falls that led to hospitalizations were the most serious and, therefore, required more intensive care. However, in many of these cases, the elderly did not seek health services for not seeing serious consequences such as fractures or some other kind of injury. Furthermore, some cases are treated in emergency services or in the Family Health Strategy program, a fact that reveals that the problem has been underestimated in the statistics because it negatively affects the quality of life of these people [7].

Falls are not considered purely random events. They may be related to numerous risk factors, including: visual deficiency, vitamin D deficiency, foot pain, urinary incontinence (particularly emergency), malnutrition, use of psychoactive drugs, cardiac arrhythmia, reduced limb muscle strength and impaired balance and gait [8]. Thus, falls, as multifactorial events, should be addressed with a preventive focus on safe environments, habits and attitudes of the elderly [9].

An episode of fall in an older person may cause a variety of effects. They may involve physical damage such as tissue damage, injuries and fractures, functional decline and increased dependence and psychosocial issues such as fear of falling, isolation and loss of autonomy. Considering the seriousness of many of these consequences, there is a need for effective care in order to prevent falls [10]. Thus, it is important that the nursing staff establish care actions/strategies aimed at preventing falls among older people, whether in hospitals, long-term care facilities or at home [7, 9].

The comprehensive evaluation of the problem shows that planning and implementing care to prevent falls in the elderly are necessary to effectively reduce morbidity and mortality rates from falls among the elderly in Brazil. Therefore, the instrumentalization of health professionals, especially nurses, in the health care of the elderly is understood as necessary. It is important to consider the preparation and the commitment of the team to a comprehensive and contextualized care to the elderly, with recognition of individual and collective aspects of this population, aiming to promote their health [4].

The understanding of the increase of the elderly population, the impact of falls and consequent factors on the life of the elderly, families and society and the lack of studies on this topic [11-12] led to interest to develop the present research. Knowing the care provided by the nursing staff to prevent falls among older adults is important because this will help to design the experiments developed until present and their repercussions.

Thus, the aim of this study was to evaluate the literature evidence available on nursing care for preventing falls in the elderly.

Method
The method of integrative review was selected to reach the proposed objective. This method allows the inclusion of theoretical and empirical literature and studies with different methodological approaches [13].
For its operation, the following steps were followed: selection of the guiding question; determination of inclusion and exclusion criteria of studies in the sample; definition of the information to be extracted from selected studies; analysis of the studies included in the sample; interpretation of results and presentation of the review [13]. The guiding question of this study was: What is the evidence available in the literature on nursing care for the preventing falls in the elderly?

The bibliographic survey was conducted in November 2015 through virtual access to the Latin America and the Caribbean Literature on Health Sciences (LILACS), Medical Literature Analysis and Retrieval System Online (PubMed) and Cumulative Index to Nursing and Allied Health Literature (CINAHL). Controlled (Health Sciences Descriptors - DeCS and Medical Subject Headings - MeSH) and uncontrolled (keywords) descriptors were used, as established according to the synonyms of controlled descriptors presented in DeCS and MeSH and through previous readings on the topic of interest. To ensure a thorough search, controlled and uncontrolled descriptors were combined in different ways. Full-length articles were accessed through the portal of journals of the Coordination of Improvement of Higher Education Personnel (CAPES) in the site with recognized Internet Protocol (IP).

In the PubMed database, the controlled descriptors aged, accidental falls, and nursing care were used, and the keywords elderly, senior citizen, older adult, elderly over 65, aged person, elderly lies, old age, geriatric, senescence, accidental fall. In CINAHL database, the controlled descriptors aged, accidental falls, nursing care were used, and the keywords elderly, senior citizen, older adult, elderly over 65, aged person, elderly lies, old age, geriatric, senescence, accidental fall. In LILACS database, the controlled descriptors elderly, accidents from falls and nursing care were used.

We used the advanced search form. Descriptors and keywords, as well as their combinations and sequence of intersections are described in Table 1.

| **Table 1.** Crossing controlled and uncontrolled descriptors in databases for selection of articles included in the review. Teresina, PI, 2015. |
|-----------------|-----------------|
| **PUBMED**     | ("Accidental Falls") OR "accidental fall" and "Nursing Care"[MeSH Terms] Filters: published in the last 10 years |
| **CINAHL**     | (aged or elderly OR elderly lies or elderly or "senior citizen" or "older adult" or "old age" or "elderly over 65" or "aged person" or geriatric or senescence) and ("Accidental Falls" or "accidental fall") and (MH "Nursing care") Limiters - publication Date: 20050101-20151231 Search Modes - Boolean/Phrase |
| **LILACS**     | (tw: (elderly) and (tw: ( "Accidental falls") and (tw: ("Nursing Care") and (instance: "regional") and (db: ("LILACS") and la: ("pt" OR "es" OR "en")) and year_cluster: ("2011" OR "2012" OR "2013" OR "2014")) |

The inclusion criteria adopted for selection of studies were: primary studies that focused on nursing care for preventing falls in the elderly; published in English, Portuguese or Spanish; published between January 2005 and November 2015.

In turn, book chapters, news, reply letters, editorials, doctoral theses, dissertations, technical reports, studies on other age groups, narrative/traditional reviews of literature, systematic or integrative review, articles already selected in other database and studies that did not respond to questions of the present study were excluded.

The search was performed by three researchers, independently, who standardized the sequence of use of descriptors and combinations in the database. Results were compared in order to check inconsistencies, in order to diagnose and correct any possible misunderstanding in the search phase.

The search resulted in 177 studies found in the PubMed database, 19 in the CINAHL database and five in the LILACS database, totaling 201 publications. Then, selection was carried out. Initially, potentially eligible studies were those whose titles and abstracts reported the prevention of falls in people aged 60 or more as the object of study. In this step, 33 publications were elected and read in full-length.

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After this analysis, 23 studies were excluded for not addressing nursing care for prevention of falls in the elderly. Ten studies remained; eight from PubMed database, one from CINAHL database and one from LILACS database. These ten studies were included in the sample of the present review. (Figure 1)

For data extraction, a data collection form designed for this purpose of the study was used. The form contained information on authors and year of publication; database and journal of publication; place where the study was carried out, and language; objectives, results and conclusions of the studies.

The final synthesis was carried out in a descriptive way, with regard to objectives, results and conclusions obtained from each one of the studies. These data were grouped by similarity and organized into thematic categories. Finally, in the last step, a document with the complete description of the steps was created.

Results
It was found that the studies included in the sample were published between the years 2006 to 2010 and were developed in the United States, Belgium, New Zealand, Poland, Australia, China, Japan and Brazil. One study did not inform the place where it was conducted. As for the journal, studies were published in ten different journals.

Regarding the method used in the selected studies, only one conducted a documentary and retrospective research, and the other articles involved basically intervention studies and randomized controlled trials carried out mainly by nurses or with nursing staff as target for training, who later would put into practice the care aimed at preventing falls in the elderly.

The analysis of the ten studies included in the sample of this research, regarding year and place of execution, authors, methodological designs and objectives, nursing care for the prevention of falls, target population of the intervention, results and conclusions of the studies are summarized in Table 2. The analysis of objectives, results and conclusions of the ten selected studies allowed the creation of three categories: health education as a strategy for preventing falls in the elderly, identification of risk factors for the occurrence of falls in the elderly as preventive strategy and use of care technologies for preventing falls in the elderly.
Table 1. Summary of studies addressing nursing care for the preventing falls in the elderly included in the present research- Teresina, PI, 2015.

<table>
<thead>
<tr>
<th>Year</th>
<th>Country</th>
<th>Database</th>
<th>Authors</th>
<th>Design</th>
<th>Objectives</th>
<th>Nursing Care</th>
<th>Target Population</th>
<th>Results</th>
<th>Conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>USA</td>
<td>PubMed</td>
<td>Bonner A, [14]</td>
<td>Longitudinal.</td>
<td>To evaluate the effectiveness of a training program on prevention of falls in a long-term care setting</td>
<td>Education program: interdisciplinary wheels, material of &quot;quick tips&quot;.</td>
<td>Members of the hospital staff (including nursing assistants).</td>
<td>The rate of likelihood to fall decreased considerably when treatments with and without training, and 30 and 60 days after training, were compared.</td>
<td>Improvement of fall rates after the educational intervention.</td>
</tr>
<tr>
<td>2008</td>
<td>Belgium</td>
<td>PubMed</td>
<td>Bouwen A [15]</td>
<td>Randomized and grouped controlled study</td>
<td>To assess the impact of an intervention targeting the team about the number of accidental falls among residents with and without cognitive impairment.</td>
<td>Multifaceted training on risk factors for the occurrence of falls, environmental and behavioral modification.</td>
<td>Nurses.</td>
<td>The intervention reduced by 50% the number of residents who experienced at least one fall.</td>
<td>The intervention resulted in a clear reduction in the number of falls among elderly with and without mobility problems or cognitive impairment.</td>
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<tr>
<td>2008</td>
<td>New Zealand</td>
<td>PubMed</td>
<td>Elley CR, [16]</td>
<td>Randomized, controlled study</td>
<td>To evaluate the effectiveness of a nurse coordinator of falls and fractures based on community and multifactorial intervention to reduce falls in older people.</td>
<td>Evaluation by the home care nurse of the risk factors for falls, fractures and dangers in the house referral to community interventions and to strength and balance exercise program.</td>
<td>Adults.</td>
<td>The conduct was not effective in reducing falls in the elderly living in the community and had fallen earlier.</td>
<td>There were no benefits in strength and balance among the elderly, as well as improved functional and physical activity or improved outcome in the measures of quality of life after one year.</td>
</tr>
<tr>
<td>2010</td>
<td>USA</td>
<td>PubMed</td>
<td>Gray-Miceli [17]</td>
<td>Intervention study with a pretest design and post-test of data</td>
<td>To determine whether the application of a comprehensive Fall Index Card (FIC) can reduce the incidence of falls in a community of continuous care for retirees.</td>
<td>Nurses used the FIC with 30 items as an intervention following the sequence of occurrence of a fall of the resident in order to carry out a comprehensive assessment.</td>
<td>Adults over 65 years.</td>
<td>The FIC appears to be an effective intervention to reduce falls in the elderly living in a community of continuous care for retirees.</td>
<td>Declines in fall rates are probably due to a coherent and rigorous use of FIC.</td>
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<tr>
<td>Year</td>
<td>country</td>
<td>Database</td>
<td>Authors</td>
<td>Design</td>
<td>Objectives</td>
<td>Nursing Care</td>
<td>Target Population</td>
<td>Results</td>
<td>Conclusions</td>
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<td>2007</td>
<td>Japan</td>
<td>PubMed</td>
<td>Inokuchi I; [18]</td>
<td>Controlled clinical intervention trial.</td>
<td>To determine whether an exercise program is effective in improving physical function and psychological status in older people, and in the reduction of falls and risk factors for falls.</td>
<td>An exercise program was provided by public health nurses and consisted of a weekly exercise class, two hours each session, performed for 17 weeks and complemented by daily home exercises.</td>
<td>Elderly.</td>
<td>The program significantly improved physical function and emotional state, and reduced the number of falls and risk factors for falls.</td>
<td>The intervention program was effective and feasible to operate in the community.</td>
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<td>2006</td>
<td>Unidentified</td>
<td>CINAHL</td>
<td>Jeske L [19]</td>
<td>Intervention study.</td>
<td>To describe how the nursing staff, with aid of patients and their families, designs an educational poster for fall prevention for use in the patient’s bedside.</td>
<td>Construction of an educational poster for nurses, with aid of the hospitalized elderly patients and their families.</td>
<td>Nurses, elderly and family members.</td>
<td>The implementation of the poster was associated with reduction of fall rates.</td>
<td>The importance of the partnership between professionals, patients and family members to find solutions was clear.</td>
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<td>2010</td>
<td>Poland</td>
<td>PubMed</td>
<td>Szczerbinsk K, [20]</td>
<td>Intervention study.</td>
<td>To evaluate the effectiveness of two types of multifactorial interventions to reduce the incidence of falls in the elderly living in three nursing homes.</td>
<td>Three nursing homes (A, B and C): in the homes A and B, training of nursing professionals was conducted for the prevention of falls and in the home C, training was conducted for only one specialized professional (physiotherapist). Duration of 18 months, and nursing professionals were trained for prevention of falls in the 5th and 6th month, fall prevention activities were implemented between the 7th and 12th month, and the cases were followed in the last six months.</td>
<td>Elderly residents in nursing homes.</td>
<td>Nursing homes A and B showed statistically significant reduction in the risk of falls, while in the home C this change was not significant.</td>
<td>Training and involvement of nurses in reducing the frequency of falls is much more efficient than just hiring a specialized professional (physiotherapist) for the prevention of falls.</td>
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<td>Year</td>
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<td>Database</td>
<td>Authors</td>
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<td>2006</td>
<td>China</td>
<td>PubMed</td>
<td>Kwok T, [21]</td>
<td>Randomized Controlled Clinical Trial.</td>
<td>To investigate whether access to bed-seat pressure sensors reduces the use of physical restraint in geriatric rehabilitation wards.</td>
<td>Nurses randomly assigned elderly with fall risk to the intervention and to the control group.</td>
<td>Hospitalized elderly.</td>
<td>There was no significant difference between intervention and control group in reducing the risk of falls.</td>
<td>Access to the bed-chair pressure sensor device does not reduce the use of physical restraints or improve clinical outcomes of elderly patients with perceived risk of falls.</td>
</tr>
<tr>
<td>2010</td>
<td>Australia</td>
<td>PubMed</td>
<td>Ward JA, [22]</td>
<td>Randomized controlled clinical trial by Cluster.</td>
<td>To test the efficacy of a full time nurse project to help in the care of resident elderly using approaches based on prevention of evidence of falls.</td>
<td>Employment of a full-time nurse for 17 months to encourage best strategic practices for the prevention of falls</td>
<td>Residents in elderly care facilities.</td>
<td>Despite significant increases in the use of hip protectors and vitamin D supplementation, there was no difference in the number of falls. There was also no significant difference in the number of falls between pre-intervention and intervention period.</td>
<td>It is very difficult to change the risk of falls in groups that have high risk factors such as elderly people with dementia, and in addition, more time would be needed to assess the impact of a facilitative nurse in preventing the risk of falls.</td>
</tr>
<tr>
<td>2011</td>
<td>Brasil</td>
<td>LILACS</td>
<td>Freitas R, [9]</td>
<td>Documentary study.</td>
<td>To create a proposal for nursing action to prevent falls in the elderly.</td>
<td>Eighteen medical records of elderly who have suffered falls were analyzed. Based on the profile (gender, age, previous occurrence, causes and consequences of falls) a proposal for nursing action to prevent falls in the elderly was drafted.</td>
<td>The nursing action proposal aimed at preventing falls according to the emerging needs: 1) Falls in older women and healthy eating; 2) Falls from the own person's height and safe environment; 3) Fracture and strengthening the musculoskeletal system.</td>
<td>Despite significant increases in the use of hip protectors and vitamin D supplementation, there was no difference in the number of falls. There was also no significant difference in the number of falls between pre-intervention and intervention period.</td>
<td>It is very difficult to change the risk of falls in groups that have high risk factors such as elderly people with dementia, and in addition, more time would be needed to assess the impact of a facilitative nurse in preventing the risk of falls.</td>
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Health education as a strategy for preventing falls in elderly

Health education strategy occurred in different ways depending on the applicability and ranged from systematic educational programs targeted to health professionals of the multidisciplinary team or specifically to nursing professionals, as well as educational programs designed with the elderly.

In the United States, a longitudinal study aimed to assess the effectiveness of a training program for preventing falls in a long-term care setting and involved the collaboration between a nursing school and long-term care facilities. The study promoted the adoption of a program that significantly improved quality that was later expanded to a clinical system at the local hospital. The intervention, where members of the hospital staff (including nursing assistants) got involved, caused a significant decrease in the rate of ease to fall when compared to the period before the training, and 30 and 60 days after the training [14]. In this study, health education is linked to the need to develop continuing education so that nursing professionals may be well trained in tools for dealing with this and other problems of aging.

In Poland, an intervention study in the European Network for Safety among the elderly also approached aspects related to the training of nursing professionals for prevention of falls in these patients. The objective was to evaluate the effectiveness of two types of multifactorial intervention programs to reduce the incidence of falls in three nursing homes (one based on the collaboration of the entire nursing staff in assessing the risk of falls and another with a well-qualified professional - physiotherapist - assigned to carry out the assessment). Training and involvement of nurses in reducing the frequency of falls proved to be much more efficient than just hiring a specialized professional (physiotherapist) for the prevention of falls [20].

A controlled intervention clinical trial conducted in Japan aimed at determining whether an exercise program provided by public health nurses is effective in improving physical function and psychological status of older people, reducing falls and risk factors for falls, and also aimed at identifying if the intervention could be a viable program within the community. They developed an exercise program that was provided by public health nurses and had the assistance of physiotherapists of the hospital sector. This intervention included a set two-hour sessions of weekly exercises, developed during 17 weeks and complemented by daily home exercises and an educational program about falls, which was developed in periods of about 15 minutes between exercises. This study showed physical improvements and reduction in the rate of falls and risk factors for falls and suggested that the program supplemented by exercises at home with good adherence resulted in significant improvements [18].

Identification of risk factors for the occurrence of falls as a preventive strategy

It is noteworthy that the sample included studies seeking strategies to prevent falls in the elderly through the analysis of risk factors for the occurrence of falls. Methodological designs used for observation and assessment of risk factors comprised some randomized studies and one documentary study.

In Belgium, a cluster randomized trial involved ten wards of seven nursing homes, which were divided into a control group (five wards) and an intervention group (five wards). Nurses in the intervention group received training on risk factors for falls in the elderly, as well as instructions on changes in the environment. Then, relevant risk factors associated to each fall that occurred in the home would be recorded, completing a diary of falls, and the causes and possible preventive actions would be assessed. Fall rates were recorded six months before and after the intervention, and the training resulted in a reduction of 50% in the number of elderly experiencing at least one fall [15].
In New Zealand, a randomized controlled study included 312 elderly aged 75 years or more. The primary result of the trial was related to the rates of falls over the 12-month follow-up; secondary results were assessed in a follow-up visit in the person’s home and included assessment of muscle strength and balance, fear of falling, activities of daily living, physical activity and quality of life. The nurse, coordinator of falls and fractures, used a standardized health assessment tool and an evidence-based algorithm to assess the risk of falls. Based on the risk factors presented by the elderly in each assessment, data were sent to the multidisciplinary care team in order to plan programmed exercises based on each risk identified. This intervention was not effective in reducing falls in the elderly living in the community and who had previously fallen [16].

When considering the need for this knowledge to effective prevention, publications sought to train the nurses who would perform the preventive care. We did not identify the exact duration of these trainings in the studies. However, the team in one of the studies [15] pondered the following risk factors for estimating the predisposition to fall in the elderly: degree of independence (for toilet use, continence and mobility), the use of walking devices (cane or walker), the use of restraint devices, gait (unstable), state, continence, cognitive medical diagnosis, medication and fall in the last six months.

It was noted in the study of Elley [16] that the nurse referenced customers presenting risks of falling to other professionals, what she believed to be the most suitable option for the comprehensive evaluation. A general assessment scale was applied after the performance of each professional and this revealed that falling rates in the elderly did not decrease. The combination of care strategies possibly interfered with the intensity of falls, but this was not enough to reduce rates.

In Brazil, a documentary study carried out by nurses [9] analyzed 18 medical records of elderly who have fallen. The majority of patients were women aged between 60 and 69 years who fell from their own height and had fracture as the major consequence. Less than a third of the analyzed medical records had the history of accidents by fall. From the analysis of this profile, the authors built a nursing action plan focused on prevention through health promotion measures. These included guidance on nutritional aspects and specific actions for preventing bone mass loss; behaviors that lead safer home environments; actions aimed at strengthening the musculoskeletal system through guidelines to avoid physical inactivity.

Use of care technology for the preventing falls in the elderly

The communication process was identified in studies by various expressions, namely: orientation, training, dialogue and interdisciplinary meetings [14-15, 20, 22]. It is evident that the use of these types of technology increases the knowledge of nurses working directly in the prevention of falls in the elderly and decrease falls after the educational intervention [14, 15].

An international study focused on the construction of an educational poster for nurses in partnership with hospitalized elderly patients and their families in order to prevent falls. This intervention had a positive impact in the reduction of falls in elderly [19].

Study conducted in the United States used a sensor device to assist the elderly in physical restraint. The study showed that the access to bed-chair pressure sensor device neither reduced the use of physical restraints nor improved clinical outcomes of elderly patients with risk of perceived fall [21].

Discussion

The visible aging of worldwide population has given way to discussions on the several challenges related to the multidimensionality of this process and on the maintenance of the quality of life of
elderly people. The theoretical deepening on measures to prevent the biggest health problems of this population is the first step to promote active aging. Because falls contribute to the reduction of functional capacity of elderly people [11], they represent an important target of preventive strategies. Falls represent a serious global problem, as it is reflected in the characteristics of the publications included in the present study.

Studies on nursing care to prevent falls in the elderly selected in the present research were mostly published between 2006 and 2010. It is noteworthy that the collection of data found in the studies occurred in a time long before their publication. Furthermore, only one study was developed in Brazil, which demonstrates the need for updated scientific evidence for the improvement of nursing care to reduce falls in the elderly.

This situation of little scientific literature addressing the theme in Brazil is important because the Brazilian population aged above 60 years represents approximately 10.8% of the residents in the country, which corresponds to more than twenty and a half million people [23]. Associated with this reality is noteworthy that Latin America is the region that is experiencing the most rapid aging in the world [24-25]. This justifies the importance of deepening interventions to prevent accidents such as falling.

The methodological design covering, in particular, evidence-based intervention studies with scientifically proven benefits, and randomized clinical trials shows the international interest in the development of research with consistent scientific evidence with possible use in the context of nursing care to prevent falls in the elderly. Clinical trials aim to create base to support the use of therapies through analysis of different interventions, and these studies have several advantages, especially with regard to the reduction of bias in data collection and analysis, what gives prestige to this method in research [26].

Among the care strategies employed by nursing and identified in the analyzed studies, health education was the most present and cited in the studies. Diversification of approaches may be related to the fact that there is a variety of health education strategies.

Health education is undeniably relevant to the social practice of nursing in the context of practice between subjects and health care mediators [27]. It is a resource through which knowledge scientifically produced in the health field, mediated by health professionals, affects the daily lives of people. This is because the understanding of the determinants of the health-disease process and, in this particular case, the conditions for falls in the elderly, provides support to the adoption of new habits and health behaviors [28].

It is clear that falls, as multifactorial events of great complexity associated with a constantly changing environment and context of care, need continued training involving major risk factors, incidence, consequences and specific preventive measures. In the context of the occurrence of falls among elderly people, nurses emerge as the main professionals to promote safety to elderly patients, as well as for the development/use of risk assessment tools and implementation of scientific evidence-based preventive measures [29].

The high number of falls among elderly patients and the resulting consequences expose the imperative need of health professionals, particularly the nursing staff, to get prepared and upgraded to assist the elderly, as knowledge of their basic needs is not enough. Professionals need to look for different ways of learning and especially need to carry out research with the elderly. From this perspective, prevention of falls should be the focus of nursing care [12].

So, training nursing professionals in the health care of the elderly is necessary for them to perform their duties with quality and efficiency. It is important that professional be prepared and committed to a comprehensive and contextualized care to the elderly, with recognition of individual and collecti-
ve aspects of this population, aiming to promote health [4].

This health education perspective aimed at the elderly and involving not only the nursing staff but also other health professions reveals two essential premises to prevent falls among elderly patients: the need to involve the elderly as responsible for their own health care and the development of a multi-professional work. It is observed at this scenario that the inclusion of the elderly in discussions regarding their treatment plan and the consequent promotion of self-care in this context is very important. The main goal in gerontology, in the care for the elderly, is to maintain independence and autonomy for basic activities of daily life, which can be directly related to quality of life [11].

Moreover, interventions and preventive care indicate an association of factors related to various aspects such as drug control, health education, physical exercises and activities, accessibility, maintenance of functional capacity, among others. Thus, to reach the ideal of controlling falls, it is necessary that the elderly receive multidisciplinary support. In this sense, it is the duty of health professionals to understand this scenario, acting in their specificities with the collaboration of all involved and aiming at the better life of the elderly [30].

Knowledge on potential risks for falls among elderly people was a relevant priority to the development of prevention measures in these studies [9, 15-16]. Noteworthy is the fact that nurses were the main participants in the trials. They received training and carefully investigated the risk of these accidents. This fact shows that nurses are held responsible for educational activities among the population. Patients are primarily assisted by this profession, at any level of health care. Thus, the nursing team must know the intrinsic and extrinsic risks to falls; this is indispensable in the care to be provided to the customer.

The use of a record of falls [15] proved to be important in reducing the number of accidents, because through it, professionals could record the environmental and personal conditions that favored the elderly to fall. Therefore, it is important that the institutions receiving elderly clients adopt simple strategies where professionals may access the personal history of the client to develop individualized actions to promote health monitoring.

The only Brazilian study included in the sample of this review drew up an action plan for preventing falls based on the profile extracted from medical records of elderly patients who had fallen and were hospitalized. Despite the risks of falls among the elderly were caused mainly by functional changes of aging and despite the fact that these accidents led to generally expected consequences, it is emphasized that nursing care should be planned and evaluated in individual basis.

Within the context of Evidence Based Practice (EBP), assistive technologies for the elderly focusing on preventing accidents from falls have emerged as tools for improving the care provided by nurses. If consistently and rigorously used, properly validated measurement tools can streamline the decision-making process in nursing care [17].

In general the studies show in their results that the use of light, soft-hard and hard technologies optimize nursing care in the prevention of falls. In this sense, light technology refers to relations; soft-hard technology refers to the technical and scientific knowledge, and hard technology involves material resources [31].

Assistive technologies promote functional independence and facilitate the completion of activities of daily living [32]. Among the various assistive technologies to prevent the risk of falling in the elderly, hard technology is a modern practice. However, contrary to popular belief, not always the effectiveness of hard technology is equal to or better than light and soft-hard technology.

The construction of an educational poster on health care by nurses in partnership with the elderly and their families [19] demonstrated that professio-
nals who use soft-hard technologies as allies in the care can achieve satisfactory results with regard to the prevention of falls in the elderly.

In some of the care strategies adopted, the use of soft-hard technologies was observed, such as identification of the major risk factors for falls in the elderly, making it possible to establish priorities for future nursing interventions and prevention of falls in the elderly.

Each technology has its importance in the context of preventing falls and it is up to the nursing professional, in partnership with patients and others involved in the care process, to choose the ones that best fit the social reality of the elderly at risk of falling. In addition, the use of technology should not reduce assistance procedures to simple techniques, but should deepen relations, facilitate dialogue, humanize care and effectively prevent situations of falls.

The tools developed for multidimensional assessment assist in decision making and in social and health diagnosis. Thus, they suggest conducts and possible prognostics if effectively applied and interpreted for the therapeutic use.

**Conclusion**

The results of the study show health education as a mechanism to help nursing professionals in prevention of falls in the elderly. This is addressed in various scenarios with multiple strategies. The need for continuing education of these professionals to train them to carry out this role, as well as the education of older people, was evident.

We emphasize the analysis of risk factors as a strategy for preventing falls in the elderly. These should be carried out by nurses through methodological designs like observation and systematic assessment and preventive actions, as well as the use of assistive technologies for nursing care.

The studies analyzed showed that, in the international scenario, developing prevention actions is deemed as the duty of nurses. It is suggested that nurses in Brazil should also take on their responsibility in this issue.

Only few studies on this topic developed in Brazil were found. This is an incentive to nurses develop more studies, considering the projections of greater number of elderly in the Brazilian population.

Finally, it is proposed that nurses widen their role both in the assistance and in the production of research aimed at preventing falls in the elderly. This should be based on the development of intervention studies to prevent falls in different scenarios of care to the elderly, such as the Family Health Strategy program, hospitals and Long-term Care Institutions. The importance of including technicians and nursing assistants in the continuing education process is emphasized, training for the care of the elderly, in order to meet their needs, following a systematization to improve the functional capacity of the elderly.

**References**


