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Accidental Falls Involving Elderly People: An Integrative Literature Review

Acidentes por Quedas em Pessoas Idosas: Um Estudo de Revisão

Caídas Accidentales en Ancianos: Un Estudio de Revisión

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ABSTRACT

Objective: The study's target has been to identify the scientific productions on fall-related accidents involving elderly people over the period from 2012 to 2016. **Methods:** It is a descriptive study with a qualitative approach. The sample was comprised by 69 scientific productions referenced in the Virtual Health Library, which were selected in 2017 according to the established inclusion and exclusion criteria descriptors. The collected data were organized in spreadsheets and processed by quantitative analysis through simple descriptive statistics (absolute frequency and percentage). **Results:** The largest number of publications addressing fall-related accidents involving elderly people occurred in 2012 for the SciELO and *LILACS* databases, which showed linear reduction over the years. The quantitative data analysis method represented 94.20% (n=65) of the sample, while the qualitative one was 4.35% (n=3). **Conclusion:** The researchers from health sciences still poorly publish their productions on fall-related accidents involving elderly people.

Descriptors: Accidental Falls, Elderly People, Aging.

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RESUMO

Objetivo: Identificar as produções científicas sobre acidentes por quedas em pessoas idosas no período entre 2012 a 2016. **Método:** Estudo descritivo, com abordagem quantitativa e uma amostra composta por 69 produções científicas referenciadas na Biblioteca Virtual em Saúde, selecionadas em 2017, a partir dos descritores estabelecidos pelos critérios de inclusão e exclusão. Os dados coletados foram organizados em planilhas e submetidos à análise quantitativa por meio de estatística descritiva simples (frequência absoluta e percentual). **Resultados:** Encontrou-se maior quantitativo de publicações em 2012, nas bibliotecas virtuais SCIELO e LILACS, com uma linearidade decrescente ao longo dos anos. O método de análise de dados quantitativo representou 94,20% (n=65) e o qualitativo foram 4,35% (n=3) dos estudos identificados. **Conclusão:** O olhar dos profissionais da saúde para a pesquisa e a publicação referente aos acidentes por quedas ainda são escassos, apesar de esses eventos acontecerem com frequência em pessoas idosas.

Descritores: Acidentes por Quedas, Idosos, Envelhecimento.

RESUMEN

Objetivo: Identificar las producciones científicas sobre accidentes por caídas en ancianos en el período entre 2012 y 2016. Método: Estudio descriptivo, con abordaje cuantitativo y una muestra compuesta por 69 producciones científicas referenciadas en la Biblioteca Virtual en Salud, seleccionadas en 2017, descriptores establecidos por los criterios de inclusión y exclusión. Los datos recolectados fueron organizados en hojas de cálculo y sometidos al análisis cuantitativo por medio de estadística descriptiva simple (frecuencia absoluta y porcentual). Resultados: Se encontró mayor cuantitativo de publicaciones en 2012, en las bibliotecas virtuales SCIELO y LILACS, con una linealidad decreciente a lo largo de los años. El método de análisis de datos cuantitativo representó el 94,20% (n = 65) y el cual era 4,35% (n = 3) de los estudios identificados. Conclusión: La mirada de los profesionales de la salud para la investigación y la publicación referente a los accidentes por caídas todavía son escasos, a pesar de que estos eventos ocurren con frecuencia en personas ancianas.

Descriptores: Caídas accidentales, Ancianos, Envejecimiento.

INTRODUCTION

The natural process of aging makes the elderly person vulnerable to the occurrence of accidents due to falls, because of the involution of the physical condition and functioning of the organism and consequent weakening of adaptive reactions and maintenance of the neural mechanism for the postural stability. The fall episode occurs when the individual loses control of postural balance and possible adjustments in the neural system to overcome the existing gravitational force. This neural mechanism, responsible for maintaining stable posture, could suffer from the influence of intrinsic and/or extrinsic factors capable of generating the fall episode, naturally, in the aging process, by diseases or accidentally.[1]

Demographic data show that more than a third of the stratum of the national elderly population are susceptible to fall events, many times, also recurrent, with serious consequences. Therefore, the fall event generates not only physical and psychological injury, but also socioeconomically affects the senior and family, moving different health professionals that deal daily with this injury.[2]

Extrinsic factors relate to an inappropriate environment, when the senior's space of locomotion presents physical barriers that allow moving safely, while intrinsic factors relate to the physical condition of the individual within the aging natural process, including those added to the body by use of chemical substances.[3]

Hence, dentifying factors associated with accidents due to falls in the elderly people can contribute to explain the causal phenomena and, thereby, facilitate the development of individual or collective preventive measures. In this sense, science stands out as a mediator of knowledge, extending to society in need for solutions and answers to the uncertainties that surround them, as well as signal to public and private powers to guarantee adequate assistance.[4]

The spread and control of knowledge about a particular phenomenon studied by researchers has a strong ally in electronic databases created from the need to collect, evaluate, and select the existing productions. Thus, the productions took diverse directions following stratifications in science at the same time they expanded to cover the whole society.

Thereby, knowing about accidental falls recorded in researches shall guide the public power and professionals from diverse areas for more effective, directed and assertive actions to minimize falls in elderly people and their consequences. Regarding the care for the elderly person, it contributes to alert seniors' caregivers in the performance of tasks, aiding in the promotion of awareness in self-care, as well as observing the intrinsic and extrinsic conditions for the event of falls.

Therefore, the following question emerged, guiding the study: What is the representativeness of records published on accidental falls in the elderly performed in certain period? Thus, this study aimed to identify the scientific production on accidental falls in elderly people over the period from 2012 to 2016.

METHODS

This is a descriptive study with a bibliometric approach, considering productions published and publicized about accidents due to falls in elderly people. The bibliometric study analyzes quantitatively scientific activities or technical procedures recorded in publications publicized in the existing national and/or international databases, aiming at the development of evaluative indicators that confirm the veracity and reliability of the information provided in the various areas of knowledge.[4]

The sample consisted of scientific productions referenced in the Virtual Health Library (VHL), considering the *Banco de Dados em Enfermagem* (BDENF) [nursing database], Scientific Electronic Library Online (SciELO)

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and the *Literatura Latino-Americana e do Caribe em Ciências da Saúde* (LILACS) [Latin-American and Caribbean Literature in Health Sciences], from the list of descriptors in the Health Science Descriptors/Medical Subject Headings (DeCS/MeSH), namely, "accidental falls" and "elderly people" and "aging".

The search period in the referenced base occurred in May 2017, returning 196 articles from the listed descriptors. In the whole sample (n=196), the following filters were applied: full text, portuguese language and the years 2012 through 2016, resulting in 86 articles, submitted to the inclusion and exclusion criteria to form the empirical basis of this study in order to answer the question, as shown in the flowchart in **Figure 1**.

The inclusion criterion was all original articles published in national journals with theme and/or study objective related to reporting of accidental falls in elderly people. The exclusion criterion was articles that repeated in the base and between databases, review and publications that were not scientific articles, such as theses, dissertations, book reviews, letters, editorials, preliminary notes and updates.

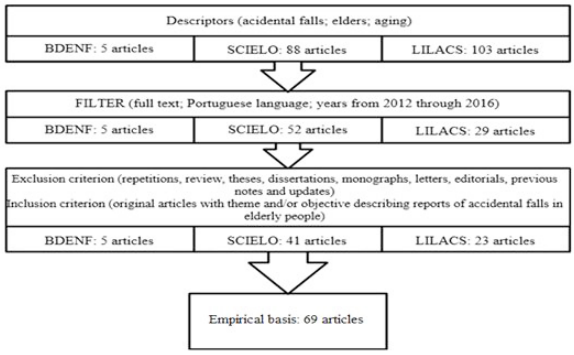

Figure 1 - Flowchart of the procedures to select the sample.
Source: Research data, 2017.

From the corpus of empirical basis selected (n=69), a structured guide was used as a tool for the judicious analytical reading in order to remove the variables: database, journal and year of publication, authors, knowledge area, location of data collection, instruments and techniques used and the type of analysis.

The collected data were recorded and organized in spreadsheets in Excel® format, submitted to quantitative analysis by means of simple descriptive statistics (absolute frequency and percentage), and the results are presented in graphs and tables that led the discussion based on the analyzed authors.

RESULTS AND DISCUSSION

In the empirical basis sample of 69 productions from 2012 to 2016, there was greater amount of publications on accidental falls in elderly people in 2012 for the databases SciELO and *LILACS* with a decreasing linearity over the years, as seen in **Chart 1**.

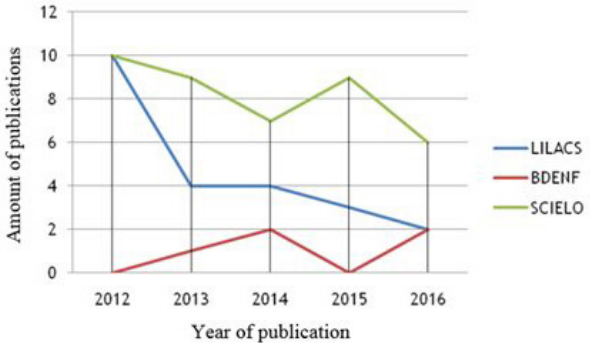

Chart 1 - Amount of publications per year in databases LILACS, SciELO and BDENF, n=69, João Pessoa city, Paraíba State, 2017.
Source: Research data, 2017.

The creation of the elder's national policy, Law No. 8,842/1994, and the senior's statute, Law No. 10,741/2003, may have instigated the concern and the warning of health professionals about the issues that surround the elderly person, maximizing the number of researches about accidental falls in elderly people in the year 2012. Therefore, studies discussing relevant thematic of strong socioeconomic influence emerged, such as the accidental falls in elderly people, due to their consequences. The accidental fall in elderly person is a serious public health problem, since it is among the leading causes of morbidity and mortality in the elderly population.[5,6]

However, the decreasing number of publications on accidental falls in elderly people from 2012 to 2016 on national databases shows the decline of interest in addressing the subject. This fact is alarming and worrying, because the amount of elderly people grows gradually. In this sense, public policies should be intensified and adapted to meet the growing demand given the differentiation of situations currently faced by elderly people not covered in the creation act, as independent, active and autonomous octogenarians; feminization of the elderly population; the increased number of long-term institutions; the (re)insertion in the labor market; the innovations and technologies of activities of education and culture; the differences in active sexuality; the new prospects of entertainment and leisure; among others.[7-9]

Therefore, studies about accidental falls in elderly people need to be intensified to contribute to policies that can improve the quality of life, considering problematic trends experienced by the elderly person regarding society, such as the aforementioned ones, observing the socioeconomic and/or biopsychosocial support networks.

The diverse perspectives of health professionals shared in studies about accidental falls in seniors are important for improving conditions of health promotion and prevention, minimizing injuries and consequences of the event. However, the results of this study pointed out the areas of knowledge concentration of health productions about accidental falls in elderly people, existing in the established period (2012-

2016), revealing that, when summing up the concentrated and fragmented areas of knowledge (nursing and physiotherapy), they accounted for over 50% when compared to the multidisciplinary area, as shown in **Chart 2**.

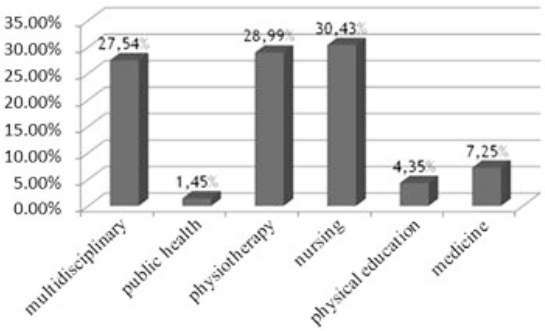

Chart 2 - Percentage by areas of knowledge concentration, n=69, João Pessoa city, Paraíba State, 2017.

Source: Research data, 2017.

Although in the health knowledge areas concentrated in physiotherapy, nursing, physical education and medicine, there should be an increased interest due to actions of targeted and specific care in daily practice, the results showed little commitment on the theme. The lack of incentive for researches, when added to the common practical knowledge of these professionals, may suggest that the theme goes unnoticed regarding the importance and need for recording the data from daily practice in scientific publications. On the other hand, professionals in health care activity do not see themselves as researchers in potential that can contribute to the academic community and to centers of research at Brazilian universities.

Some studies have been conducted to relate the fall event to gender; cognitive capacity; quality of sleep; vision; mobility or functional capacity; pace; tendency, recurrence and/or fear of falling; postural balance; osteoporosis; muscle strength; fracture of the femur; chronic pain.[8-20] The studies that analyze or characterize the prevalence, incidence and/or factors associated with falls are predominant, referring sparsely to the occurrence of falls. Only one study was registered with approach in family care provided to the elder.[21-3]

The national journals stand out in the ratings for the quality of publications assessed and validated by the *Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES)* [Coordination for the Improvement of Higher Education Personnel] that put them at the same level of classification for better understanding of the development of the Brazilian research. **Table 1** shows that the Brazilian Journal of Geriatrics and Gerontology has the highest number of publicatiosn on accidental falls in elderly people (n=12; 17.39%) in the years from 2012 through 2016, followed by the journals: Science & Collective Health and Journal of Research Fundamental Care Online (n=6; 8.70% each). The journals with a frequency of one publication with the theme were grouped into two segments, by several nursing specific and diverse areas.

Table 1 – Absolute frequency and percentage of periodic publications searched in the nursing evaluation area of the CAPES 2013-2016 qualis--journals, n=69, *João Pessoa* city, *Paraíba* State, 2017.

Journal	f (%)
Rev. Bras. Geriatr. Gerontol (B2)	12 (17.39)
Ciência & Saúde Coletiva (B1)	6 (8.70)
J. res.: fundam. care. (B2)	6 (8.70)
Rev. Latino-Am. Enfermagem (A1)	4 (5.80)
Rev Bras Epidemiol (B1)	4 (5.80)
Cad. Saúde Pública (B1)	3 (4.35)
Revista Kairós Gerontologia (B3)	3 (4.35)
Fisioter Mov (B2)	3 (4.35)
Rev Saúde Pública USP (A2)	3 (4.35)
Rev Esc Enferm USP(A2)	3 (4.35)
Texto Contexto Enferm (A2)	2 (2.90)
Rev. Col. Bras. Cir (B1)	2 (2.90)
Rev Assoc Med Bras (B1)	2 (2.90)
Rev Bras Oftalmol*	2 (2.90)
Fisioter Pesq (B2)	2 (2.90)
Rev Bras Enferm(A2)	1 (1.45)
Cad. Saúde Colet (B2)	1 (1.45)
Rev. Eletr. Enf (B1)	1 (1.45)
Rev. enferm. UERJ (B1)	1 (1.45)
Others (Rev Bras Ativ Fis Saúde (B3); Rev APS (B2); Estud. interdiscipl. Envelhec (B3); Rev. CEFAC (B2); Motriz Rev. Educ. Fís/UEM(B2); Epidemiol. Serv. Saúde (B2), Rev. Gaucha Enferm. (B1); Rev Bras Med Esporte (B1)	8 (8.70)
Total	69

(*) non-evaluated periodical in the nursing area

Source: Research Data, 2017.

The quails-journals evaluation system of *CAPES*, held every quadrennium, classifies the scientific production of postgraduate programs in the country considering the articles published in journals classified in strata indicative of quality in A1 (the highest), A2, B1, B2, B3, B4, B5 and C (zero weight). In the 2013-2016 quadrennium, the Brazilian Journal of Geriatrics and Gerontology, highlighted in this study with the highest number of publications on accidental falls in the elderly, obtained B2 as indicative stratum of quality when considered in the nursing evaluation area. The amount of publications prevailed in this journal probably by the welcoming in this particular theme for publication developed by publishers whose goal is to contribute to the deepening of questions about human aging.

The publications in journals evaluated from 2013 through 2016 in the nursing area by the quails-journal of *CAPES* by indicative strata A1, A2, B1, B2 and B3, according to the data surveyed in 26 journals found in the sample. The occurrence of more publications in journals evaluated as Qualis B1 (n=9; 34,62%) and B2 (n=9; 34,62%) shows from where researchers seek to record the research results, as well as alert to the need for boldness to advance in the quality of the publication, regarding accidental falls in elderly people. On the other hand, the relevance of the topic does not reach the preference of evaluators and reviewers of journals of Qualis A1 (n=1; 3.85%) and A2 (n=4; 15.38%).

The topographic map of the regions of collection of data (**Figure 2**) on accidental falls in elderly people demonstrates the predominance of the southeast and south regions, which together totaled the majority of publications registered in the country (63.77%). Therefore, the Southeast and South regions

dominate quantitatively the national productions, elucidated by concentrated population demand in these regions.

Figure 2 - Distribution of the percentages of publications by Brazilian regions of data collection, n=69, João Pessoa city, Paraíba State, 2017.
Source: Research Data, 2017.

The instrument for data collection used in the methodologies of the researches enables the comparative knowledge of procedures. In this sense, the study found researchers whose choice was a questionnaire to obtain information on accidental falls in elderly people (**Chart 3**). Embedded in this data collection instrument, the method of analysis of quantitative data represented 94.20% (n=65) of the sample, while the qualitative one was 4.35% (n=3). The quali-quantitative multimethod was the choice of 1.45% (n=1) of the sample.

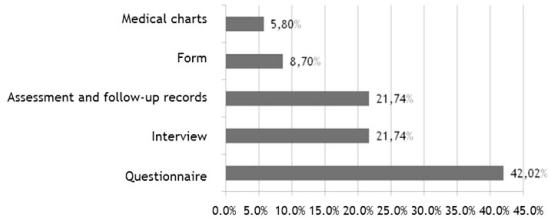

Chart 3 - Percentage of instruments used in the data collection of publications, n=69, João Pessoa city, Paraíba State, 2017.
Source: Research Data, 2017.

The researchers' choice for questionnaires can derive from the proximity of responses consistent with the expectations generated by the knowledge on the phenomenon. The research instruments for conducting the knowledge about accidents in the surveyed elderly people point out the weaknesses of extrinsic and intrinsic factors to the occurrence of falls, highlighting the home environment as one of the most vulnerable, with severe sequelae.[22,23]

Among the questionnaires and interviews used as an instrument for data collection, the tests or scales used that stood out were: the Team Up and Go Test, which evaluates mobility and balance; the Falls Efficacy Scale - International adapted to Brazil (FES-I-Brazil) that evaluates the fear of falling off during the execution of 16 social/external activities; and, the Mini Mental State. Another instrument raised in this study was the form based on the Mortality Information System (MIS), Department of Informatics of SUS/DATASUS developed by the Ministry of Health with the goal of collecting data on deaths in the country from the Brazilian standardized death certificate.[24-7]

The data collected through the *MIS* allow calculating mortality rate or coefficient and proportional mortality, when related to some specific characteristics such as age, gender, education, occupation, residence, among others. In this case, MIS raises the data on mortality of elderly people occurred by falls, covering the entire national territory and distinguishing among the regions, states, municipalities, the effectiveness of public policies implemented in the promotion, prevention and recovery of health condition in the elderly person.

The Body Mass Index (BMI) was also used as an instrument of data collection to relate the occurrence of falls in elderly people to nutritional factor, in addition to the Geriatric Depression Scale, the Epworth Sleepiness Scale and the Pittsburgh Sleep Quality Index). These instruments are strong allies in the analysis process of factors associated to the falls event in elderly people, because they arise with the natural process of aging with lethal consequences when not promoting the paths ideal for strengthening health conditions by basic prophylactic care.[28-30]

CONCLUSIONS

Scientific productions on accidental falls in the elderly presented in this bibliometric study provided a representative amount, although small, in the period from 2012 to 2016. Due to the knowledge about the expectations of increasing longevity in the elderly population in the period of publication raised in this study, there should have been more studies about accidental falls in Brazil than the results shown.

Especially when returning to the reflection that two areas of care directed to the elders' health, nursing and physiotherapy, have procedures in therapeutic practice to contribute to the improvement of health condition, and the consequent reduction of injuries, sequelae or risks faced by the elderly population. These two areas, even contemplating most studies, are still little present in publications regarding the demand in the universe of the community that needs solutions in the promotion and prevention of diseases and their setbacks. Therefore, this study can awaken the look of these professionals for researches and publications on the routine of accidental falls, suggestive of a serious public health problem with a tendency to morbidity-mortality in elderly people.

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