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## ELDERLY PATIENT SAFETY IN THE HOSPITAL ENVIRONMENT: AN INTEGRATIVE LITERATURE REVIEW

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**Abstract: Goal:** to identify studies published in national and international scientific journals on the safety of elderly patients in the hospital environment. **Method:** this is an integrative literature review, carried out in May 2021, with a search for publications in the databases SCOPUS, PUBMED, Scientific Electronic Library Online (SCIELO), Web Of Science, between the years 2010 and 2020, in the languages Portuguese, English and Spanish, with the descriptors “elderly”, “hospital medicine”, “patient safety”. **Results:** 38 articles were part of the review corpus, which were categorized into four themes: Adverse drug reactions in geriatric patients; Elderly medication management; Safety of the geriatric surgical patient; Risk of falls in the elderly. **Final considerations:** The studies showed the need to establish guidance for professionals working in the hospital environment on the safety of elderly patients, in order to reduce adverse events and ensure a better quality of care provided. Added to this fact, it was found that the adoption of technologies contributes to prevention, risk reduction and governance in elderly care. **Keywords:** Patient safety. Hospital Medicine. Elderly. Elderly Population.

## INTRODUCTION

The World Health Organization (W.H.O.)<sup>2</sup> defines patient safety as reducing the risk of unnecessary harm associated with health care to an acceptable minimum. The prevention of adverse events and their consequences is essential, especially with the elderly, who are experiencing a process of transformation in their bodies, with progressive loss of capacities, such as the impairment generated by the main geriatric syndromes, namely: postural instability, incontinence, cognitive disability, immobility, communicative disability, family insufficiency and iatrogenic. Such problems have a direct impact on the ability to adapt

to the environment, the capacity for self-care, the maintenance of their autonomy and independence.<sup>3, Morais2010-</sup>

In 2004, the World Health Organization<sup>4</sup> launched the World Alliance for Patient Safety, with the objective of contributing to the development of policies and practices focused on patient safety. In Brazil, in 2013, the National Patient Safety Program (PNPS) was instituted through Ordinance No. 529, of April 1, 2013. Ordinance No. 2,095, of September 24, 2013 also established six basic protocols for patient safety.<sup>5</sup> These protocols reinforce the need for a careful look by health professionals towards their patients, from hand hygiene to the need to prepare and prescribe measures according to the risk of each individual.

Patient safety is an emerging topic in Brazil and in the world, in addition to population aging, there is a demand for studies that address this portion of the population. With changes in the age pyramid, especially in more developed countries, population aging is a reality. It is estimated that the number of elderly aged 60 in 1950 in the world was 202 million, in 2020 this number reached 1.1 billion and forecasts indicate that 2100 will reach 3.1 billion elderly and many of these need or will need of tertiary medicine care, bringing to light the issue of patient safety focused on the specificities of the elderly.<sup>1</sup>

Nursing professionals verify the patient's risk factors in the hospital environment since admission, where care involving prevention, rehabilitation and maintenance of well-being in care is provided. In addition, they perform preventive actions, such as surveillance, care at the bedside and in relation to falls, which are essential for patient safety.<sup>35</sup>

Therefore, it is essential to identify and incorporate nursing care practices aimed at the safety of elderly patients during the hospitalization period. Thus, the question that

outlined the review was: What are the available scientific productions focused on the safety of elderly patients in the hospital environment?

Besides, the objective of the research is to identify scientific studies published in national and international scientific journals on the safety of elderly patients in the hospital environment.

## METHOD

As a research method, an integrative literature review was developed, as it allows the researcher to approach the problem being studied and learn about the evolution of the theme over time, observing possible research opportunities. Therefore, the steps of this integrative literature review were: (a) the guiding question; (b) the formulation of the purpose of the review; (c) the establishment of criteria for inclusion and exclusion of studies; (d) previous reading to select the articles that made up the review corpus; (e) analysis of all studies included in the review; and, (f) discussion of the results and presentation of the synthesis.<sup>6,7</sup>

Data collection was carried out in May 2021. Inclusion criteria were online, complete texts published between 2010 and 2020 in scientific journals available in the databases: SCOPUS, PUBMED, Scientific Electronic Library Online (SCIELO), Web Of Science, which addressed the safety of elderly patients in the hospital environment. As exclusion criteria, editorials, letters, reviews, experience reports, abstracts in event annals, expanded abstracts, studies published in languages other than Portuguese, English and Spanish were defined. Articles in which study participants were not elderly in the hospital environment or surveys with a heterogeneous sample (example: adults and elderly) were also excluded.

The descriptors and keywords used were: Patient Safety, Hospital Medicine, Elderly,

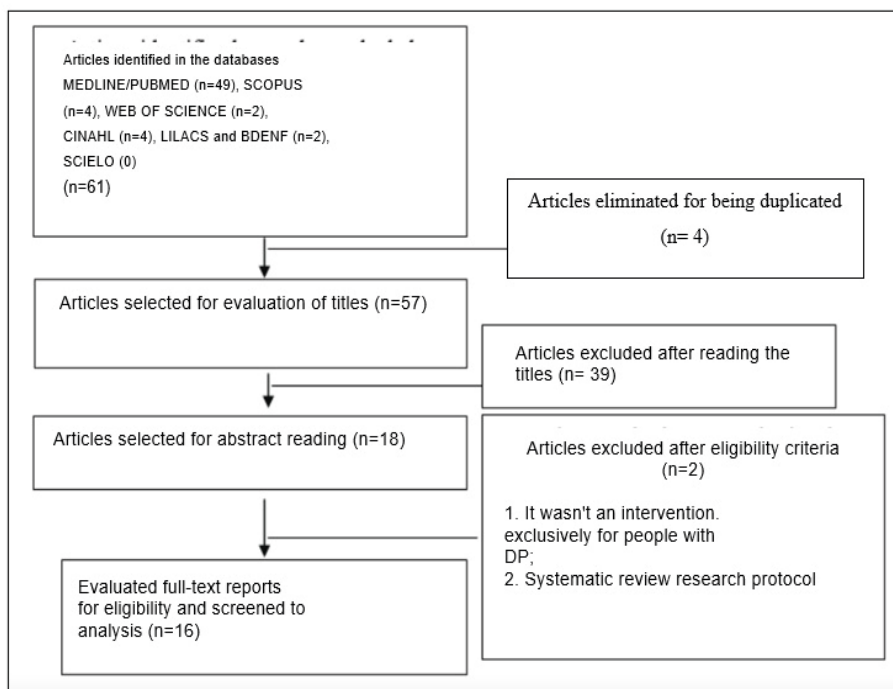
Elderly Person, Elderly Person, Elderly Persons, Elderly Persons, Elderly Population (plus the respective terminology in Spanish and English, according to what is in the DECS). The Boolean operators AND and OR articulated to the descriptors were used to optimize the search results.

The selection process of titles and abstracts was carried out independently by two authors based on the inclusion and exclusion criteria, who proceeded with the reading, evaluation and selection of the articles in full. In the end, a consensus was reached that 38 publications would be considered for reading the full text and we would have the following information extracted: authors' names, year of publication, country, design, objective, main results and thematic content addressed on the phenomenon of elderly patient safety in the hospital context.

To extract data and obtain information that answered the research questions, a chart was used as an instrument to organize and analyze the pre-selected articles, containing authorship, year of publication and country of research, participants, type of study and synthesis of main results.

For data analysis, the full text of all studies was reviewed, and the extracted data were organized according to themes and related using constant comparison, so that they were categorized and grouped by similarity (WHITTEMORE; KNAFL, 2005).

Therefore, data reduction was carried out, initially classifying subgroups by recurrent concepts, knowledge user involved in the research and proposed intervention/behavior in each study. In the second phase of data analysis, data display was performed, which involved converting data extracted from individual sources and relationships between concepts. Finally, the relationships between the selected concepts were described, which led to the identification of patterns and themes



Source: survey results (2019). Elaboration of the authors.

Figure 1 – Literature search flowchart and article selection process. Florianópolis, Santa Catarina, Brazil, 2019

related to nursing care for people with PD.

## **SIMONY'S THESIS**

Data analysis was derived from the results found, being organized in a descriptive way, with the synthesis of each article, establishing the relevant points regarding the theme of elderly patient safety.

## **RESULTS**

As shown in figure 1, 2,545 studies published between 2010 and 2020 were found. However, repeated articles were identified, with 20 excluded at this stage. Thus, after solving the duplications, 2,525 articles were selected for reading the titles and abstracts; at this stage, 2,433 publications were excluded when the inclusion criteria were applied. After reading the entirety of the 92 selected articles, it was found that: 58 articles dealt with children, only adults or elderly people who were not in the hospital context. Thus, 38 studies were included in the review for analysis between 2010 and 2020.

## **DISCUSSION**

After analyzing the articles, four thematic categories were established that constituted the synthesis of the analyzed studies: Identification of adverse drug reactions in the elderly; clinical evaluation for the use of medication for the elderly; Elderly surgical patient safety strategies; identification of risk factors for falls in hospitalized elderly.

### **IDENTIFICATION OF ADVERSE DRUG REACTIONS IN THE ELDERLY**

The Adverse Drug Reaction (ADR) in geriatric patients is an emerging issue with increasing aging and the physiological changes of the aging process, pharmacokinetic and pharmacodynamic changes occur, with emphasis on renal and hepatic decline, which leads to the need for adjustments in doses of

medicines with a view to patient safety. Added to this, polypharmacy significantly increases the risk of side effects and, considering that this aging process generates numerous comorbidities that lead to hospitalization, the problem becomes even more serious with the risk of drug interactions and, consequently, ADRs.<sup>8</sup> Thus, iatrogenesis is presented as an indicator of quality of service by the nursing team and other professionals in the hospital environment, as it shows complications or adverse effects related to the care provided to the patient. Thus, quality care provided by the nursing team prevents iatrogenic events, being extremely important for patient safety.<sup>36</sup>

Studies show that ADR is among the factors associated with hospital admission. In a survey carried out in a university hospital in Brazil with 287 medical records of patients over 60 years old, it was shown that 2.79% of the reasons for hospitalization were due to ADR, this data is in line with a retrospective cohort study carried out from April 2003 to March 2008 in Canada on the identification of elderly people who make visits to the emergency room related to ADR, showing that approximately 0.75% of the total annual visits of people aged 65 years or older were related to ADR and of these 21% required hospitalization. Generating a visiting health service burden of \$333 Canadian dollars, \$7528 per hospitalization and \$35.7 million to Canada.<sup>9,10</sup>

Another topic addressed on incidents of ADRs and their consequences on the length of hospital stay, a prospective cohort study conducted in Chile from March 2015 to June 2016 with 229 acutely ill elderly people showed that the mean age of these elderly people was 72.9 years and of these 57.6% were women. These data corroborate with another Dutch study that pointed out that elderly people aged around 75 years have a four times greater risk

of being hospitalized than elderly people up to 64 years old, and once again this study also pointed out that females have a higher risk of hospitalization due to ADR.<sup>8,11</sup>

All these data corroborate studies that address the problem of hospitalization among the elderly, pointing out that women aged 60-74 years are at a higher risk of hospitalization, the factors being associated with their longer life expectancy, which is linked to the phenomenon called feminization of aging described in the gerontological literature, who are more concerned with their self-care and health. These data reinforce the need for continuing education for health professionals, for pharmaceutical care to prevent ADRs, in order to improve the quality of life of the hospitalized elderly and, consequently, increase the benefits of pharmacotherapy.<sup>12</sup>

In this perspective, pharmacotherapy must be prescribed for therapeutic purposes and when exclusively necessary, in addition to considering the minimum amount of medication in order to prevent drug interactions, which may be associated with the risk of ADRs. Therefore, possible drug interactions must be verified in the pharmacotherapy of the elderly population and, thus, employ effective ways of guaranteeing the effectiveness and safety of the treatment.<sup>38</sup>

### **CLINICAL EVALUATION FOR DRUG USE AND ADVERSE REACTIONS IN THE ELDERLY**

The World Health Organization identifies "No Harm Medication" as the third challenge to patient safety. Science demonstrates that the prevalence of potentially inappropriate medications (PIM) among hospitalized elderly is a problem faced in all parts of the world, in China, a study carried out using the American Beers criteria and the Chinese list of PIM pointed out that of the 508 elderly of

the survey, 69.3% of the elderly had at least one MPI in the Beers criteria and 66.7% of the elderly in the Chinese list. In Brazil, a survey of 406 medical records and identified 3,059 prescription drugs, found that 81.1% of the elderly had at least one PIM.<sup>13-15</sup>

In Pakistan, 1,044 elderly people were used in intensive care, of which 70.17% experienced at least one potential drug interaction. In addition, 3,019 potential drug interactions were found, of which 1,398 (46%) were more severe, 1,533 (50.8%) were moderate and 6 (0.2%) were less severe, numerous gaps were found in relation to notification of these data only 12% was considered good document while 49.2% was considered bad.<sup>16,17</sup>

PIM, polypharmacy and inappropriate medication prescription are directly related to increased morbidity and mortality among the elderly. In Australia, a study evaluated the inadequate polypharmacy of 100 institutionalized elderly, which showed an improvement in the quality of life of the intervention group, as well as an estimated saving of \$4,400.24 AUD (Australian Dollar) equivalent to \$3,406 US dollars, actions like this corroborate to reduce Adverse Events (AE) and consequently for the safety of elderly patients.<sup>18</sup>

One way to change this scenario is to work with tools that can help the medical team's therapeutic reasoning in order to reduce polypharmacy and inappropriate prescription. A group of researchers in Switzerland developed a checklist to reduce incorrect prescription and polypharmacy for the elderly, the research included 900 patients with a median age of 76 years, about 37% of these hospitalized elderly had one or more PIM and at discharge 852 seniors 31% still had at least one MPI. After applying the intervention with the intervention list, there was a 22% reduction in the risk of being prescribed PIM at discharge, which corroborates the use of



these tools for medication reconciliation.<sup>19</sup>

Therefore, it is clear that it is essential to raise awareness on the part of health professionals, in order to prevent the prescription and indication of certain drugs, as they can increase the probability of triggering an ADR representing a risk to the health of this population, in addition to understanding the follow-up and professional guidance, in order to avoid self-medication and the occurrence of harmful results in the life of the elderly patient.<sup>37</sup>

## ELDERLY SURGICAL PATIENT SAFETY STRATEGIES

In 2004, the World Health Organization created the second global challenge known as Safe Surgery, with the aim of improving quality and safety standards in surgical care. Due to the constant increase in life expectancy, surgeries end up being more and more recurrent among the elderly population, especially functional ones. It is estimated that, out of every four surgical patients, one of these patients are people over 65 years old and this has several implications in the surgeries performed aiming at the well-being of this elderly person.<sup>20, 21</sup>

Studies that address surgical issues for the elderly are essential to increase the effectiveness of patient safety. In Germany, research is being carried out to investigate whether an intersectoral and multimodal intervention with staff training, a hospital environment adapted to the needs of the elderly, guidance for family members and best practices for preventing delirium can reduce the prevalence and cognitive decline of the elderly above 70 years postoperatively. According to the research, this investigation treats results in cost reduction and greater patient safety.<sup>22</sup>

A study carried out in the Netherlands used a web-based application to help physicians

perform a medication review, with a database that includes drug interactions, duplicate drugs, contraindications, dosage and amount to be administered, the STRIP Assistant, which according to study data increases from 58 to 76% of adequate prescriptions and reduces from 24 to 42% of wrong decisions, which generated an improvement in the prescription of the elderly and consequently increased patient safety.<sup>21,23</sup>

Therefore, nursing actions for elderly patients in the surgical center are based on immediate preoperative care, intraoperative care, and immediate and immediate postoperative care. Regarding immediate preoperative care, assessment scales can be applied to identify possible risks, the Systematization of Nursing Care (SAEP) to carry out the nursing process and humanized care. As for intraoperative care, prevention of pressure injuries, falls and infection is recommended, through actions that involve proper positioning and the use of devices. Concerning mediate and immediate postoperative care, the actions were related to the observation of signs and symptoms of infection, acute pain, care with vascular accesses, probes, drains and catheters; as well as prevention of falls, pressure injuries and medication errors.<sup>39</sup>

Another current theme in relation to the surgical elderly is the patient's experience. In the United Kingdom, a patient safety measure was developed the "*Patient Measure of Safety*" (PMOS), which consists of a tool that brings the patients' own considerations about the factors that influence their safety, based on the contributing factors for it, aiming at interventions to improve patient safety. The study using this tool was carried out with elderly patients with stroke, acute myocardial infarction and hip fracture, which concluded that understanding and receiving the perceptions and needs of the elderly

is essential for improving patient care and safety.<sup>24</sup>

That said, it is noteworthy that assessing the surgical risk of elderly patients is an essential action to ensure their safety, as they are repeatedly more vulnerable when hospitalized. Thus, the performance of the nursing team must be in line with what the PNPS proposes, aiming at quality technical care, following the principles of patient safety in order to prevent the occurrence of adverse effects and damage caused due to the care provided and thus, the safety of the elderly surgical patient will be established.<sup>40</sup>

### **IDENTIFICATION OF RISK FACTORS FOR FALLS IN HOSPITALIZED ELDERLY**

The event of falls affects approximately 30% of the elderly over 60 and around 40-50% of the elderly over 80-85 years. It is currently estimated that 84% of all AEs in hospitalized patients, representing 20-30% of all incident reports in hospitals, it is estimated that 30-50% of these falls result in physical injury and 1-3% cause fractures. Falls that do not cause injury can have important psychological consequences for the elderly, such as the social isolation due to fear of falling, increased hospitalization time, prolonged functional recovery time, reduced quality of life and even institutionalization of this elderly person.<sup>10,25-28</sup>

Researches show the profile of elderly fallers, in Japan the research carried out with 49,059 admitted to a general hospital pointed out that 826 patients suffered falls, all were elderly in the age group of 70 years, with the incidence of falls from 4 am to 7 am. Of these patients, 45% were considered to have a high degree of chance of falls, and the place where there is a predominance of falls is the patient's room (67%), these data are in line with other national and international research that pointed out that most of falls occur during

the night shift, with ages ranging from 64-74 years, 45% of the elderly are at high risk of falls, and 36% of falls occur in the bedroom.<sup>27,29-31</sup>

The main causes of falls are related to the use of medications, mainly diuretics, urinary incontinence, visual impairment, heart failure and intrinsic factors such as confusion, agitation, gait limitations, reduced muscle strength and lipothymia. All these data corroborate the literature that points out that diabetes and systemic arterial hypertension and the use of their medications, polypharmacy, its side effects, reduced visual acuity, intrinsic factors such as delirium and mental confusion are the main factors of falls in hospitals.<sup>27,29,30</sup>

Falls and their consequences are important indicators of the quality of health services, high rates of falls generate expensive costs for all involved and require a review of processes. It is estimated that 1.9-10% of hospital income is spent on acute care related to falls and nursing interventions are disruptive in this process, as interventions are effective in reducing the incidence of falls. There are numerous initiatives in the national and international literature. In Spain, a randomized study showed that the intervention group carried out with training of the nursing team, presented a reduction in the length of hospital stay, only one elderly person in the intervention group suffered a fall, while in the control group six elderly people fell.<sup>33</sup>

Technological innovations aimed at the elderly public are an important option to prevent falls, especially those that come to reduce the risk. Thousands of AE (Adverse Events) caused by falls occur daily all over the world and coping strategies become fundamental. In Brazil, a study developed a device to prevent elderly people from falling while using the toilet, and the result brought benefits to everyone involved, from the elderly who felt safer while using the toilet, to



the team that had the opportunity to optimize their time with the elderly and can provide more qualified care.<sup>34</sup>

It is emphasized that among the most recurrent risk factors for the occurrence of falls in hospitalized elderly patients are functional decline, delirium, history of falls, advanced age and use of medication. Falls in the hospitalized elderly population represent harm to their health, thus verifying the importance of identifying risk factors in order to ensure safety for this target audience in the hospital environment. To this end, a multidimensional assessment of the hospitalized elderly person must be carried out according to the identified risk factors so that, based on this, one can intervene to prevent their occurrence and guarantee quality care through the establishment of protective measures. and prevention of falls in hospitalized elderly.<sup>41</sup>

## FINAL CONSIDERATIONS

The population demographic transition has been changing, where longevity has increased over the years. However, with the increase in life expectancy of the population, there is also an increase in health conditions that increase the number of hospitalizations of the elderly population. Elderly patient safety is an imminent topic within hospitals, discussing the topic brings new foundations and points to data from nursing and evidence-based medicine, for individualized and personalized care for the elderly.

The data from the studies showed the relevance of the theme and pointed out the need for this theme, reinforcing the importance of training and qualification of professionals for the integral care of the elderly individual, in order to reduce Adverse Event and provide a higher quality of care provided. In addition, the study pointed out that the development of technologies supports health professionals

to work on prevention, risk reduction and governance in the care of the elderly.

It is noted the importance of promoting a safe hospital environment for the elderly population, where health professionals must promote improvements in care. In this sense, it is important that new studies be developed in other scenarios and institutional realities for the elaboration of protocols and guidelines. Prevention actions are important tools for reducing Adverse Events and their associated risk factors to carry out effective intervention actions to enhance the safety of elderly patients.

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