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INTEGRATIVE LITERATURE REVIEW

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FACTORS ASSOCIATED WITH POLYMEDICATION IN ELDERLY CARE IN PRIMARY HEALTH CARE

Fatores associados à polifarmácia em idosos atendidos na atenção primária à saúde

Factores asociados a la polimedición en el cuidado del anciano en la atención primaria de salud

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ABSTRACT

Objectives: to identify the factors associated with polypharmacy in elderly people treated in Primary Health Care. **Method:** integrative literature review conducted in October 2021. The inclusion criteria were articles published in the last 10 years, in the language Portuguese and available in full. Repeated, off-the-topic and review articles were excluded. **Results:** 18 articles were part of this review. It was evidenced that polypharmacy is a reality among the Elderly Brazilians assisted in the scope of Primary Health Care. There was an association with multimorbidity, female gender, negative self-perception of health, poorer economic class, overweight, factors related to chronic diseases and frailty, not being able to read and write. **Conclusion:** knowledge of the factors associated with polypharmacy in the elderly is important for the reflection of health professionals regarding the importance of identifying and monitoring the most vulnerable groups of elderly.

DESCRIPTORS: Polypharmacy; Aged; Primary health care.

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RESUMO

Objetivo: identificar os fatores associados à polifarmácia em idosos atendidos na Atenção Primária à Saúde. **Método:** : revisão integrativa de literatura realizada no mês de outubro de 2021. Os critérios de inclusão foram artigos publicados nos últimos 10 anos, no idioma português e disponíveis na íntegra. Foram excluídos artigos repetidos, fora da temática e de revisão. **Resultados:** fizeram parte dessa revisão 18 artigos. Evidenciou-se que a polifarmácia é uma realidade entre os idosos brasileiros atendidos no âmbito da Atenção Primária à Saúde. Observou-se associação com multimorbidade, sexo feminino, autopercepção negativa de saúde, classe econômica mais pobre, sobrepeso, fatores relativos às doenças crônicas e à fragilidade, não saber ler e escrever. **Conclusão:** o conhecimento dos fatores associados a polifarmácia em idosos é importante para a reflexão de profissionais de saúde quanto à importância de identificar e monitorar os grupos de idosos mais vulneráveis.

DESCRITORES: Polimedicação; Idoso; Atenção primária à saúde.

RESUMEN

Objetivos: identificar los factores asociados a la polifarmacia en ancianos atendidos en Atención Primaria de Salud. **Método:** revisión integradora de la literatura realizada en octubre de 2021. Los criterios de inclusión fueron artículos publicados en los últimos 10 años, en el idioma portugués y disponibles en su totalidad. Se excluyeron los artículos repetidos, fuera de tema y de revisión. **Resultados:** 18 artículos formaron parte de esta revisión. Se evidenció que la polifarmacia es una realidad entre los ancianos brasileños atendidos en el ámbito de la Atención Primaria de Salud. Hubo asociación con multimorbilidad, sexo femenino, autopercepción negativa de la salud, peor clase económica, sobrepeso, factores relacionados con enfermedades crónicas y fragilidad, no saber leer y escribir. **Conclusión:** el conocimiento de los factores asociados a la polifarmacia en ancianos es importante para la reflexión de los profesionales de la salud sobre la importancia de identificar y monitorear los grupos de ancianos más vulnerables.

PALABRAS CLAVE: Polifarmacia; Anciano; Atención primaria de salud.

INTRODUCTION

The ageing of the population, caused by the demographic and epidemiological changes of the twentieth century, is becoming more and more prevalent in Brazil, requiring public policies and specific care for the elderly.¹ With the physiological changes associated with ageing and the development of chronic diseases, there is a need for continued use of drugs. However, the ageing process alters pharmacokinetic and pharmacodynamic responses to drugs, and effects and side effects may be increased.²

The population is ageing rapidly. There is evidence of an association between increasing age and the number of prescription drugs taken, leading to polypharmacy.³ In addition, because of their higher risk of developing chronic degenerative diseases, the elderly account for approximately 50% of drug users. According to the World Health Organization (WHO), polypharmacy, defined as the routine or concomitant use of four or more medicines, is one of the most important patient safety issues.⁴⁻⁵

Studies have found an association between polypharmacy and several factors, including age and health status. Polypharmacy is problematic when multiple medications are prescribed inappropriately, or when the patient does not receive the expected benefit from one medication.⁶⁻⁷ Thus, primary health care (PHC) is essential for monitoring long-term drug treatment in older people, enabling and influen-

cing access to health care, as well as for health promotion and the prevention of polypharmacy.⁸

Elderly people, because of their age, require differentiated care by PHC practitioners, with a view of selecting a most appropriate and safe drug therapy, considering indications, dosage, interactions and contra-indications of each drug. In addition, pre-defined criteria for polypharmacy should be considered, beyond the best available evidence.⁹

The nurse, in the context of PHC, should promote the rational use of medicines by the elderly population, providing health advice and education on the inappropriate use of non-prescribed medicines, explaining the importance of obtaining a doctor's consent for any introduction, change or substitution of medicines, and ensuring that the patient takes the medicines as prescribed, avoiding drug interactions and minimizing the risk of adverse reactions.¹⁰⁻¹²

The study of polypharmacy and its associated factors is of paramount importance for nurses, together with the multidisciplinary team of PHC, to develop guidelines for the management of chronic diseases in the elderly, with the aim of avoiding polypharmacy, achieving better health outcomes and ensuring the safety of elderly patients. It is noteworthy that the study will contribute to the reflection of care professionals on the factors associated with polypharmacy, with the aim of evidence-based practice. Therefore, the objective of this research is to identify the factors associated with polypharmacy in elderly people treated in PHC.

METHOD

This is an Integrative Literature Review that looks for similarities and differences between articles found in the scientific literature, resulting in a synthesis of knowledge based on the collection of information on a particular topic. This method is related to evidence-based practice, which combines research methods from different knowledge bodies that provide beneficial results for nursing care.¹³

The methodological process for constructing the review included the following steps: selecting hypotheses to test; choosing selection criteria; collecting data using a tool to ensure the relevance of the information; synthesizing the produced knowledge; analyzing the data and results; and interpreting the results.¹⁴

In this sense, the present study was carried out by the following guiding question: What are the factors associated with polypharmacy in elderly people treated at PHC in Brazil between 2011 and 2021, according to the scientific literature?

The following health science descriptors (DECs) and combined Boolean operators were used as search methods "medication use" OR "medication" OR "polypharmacy" AND "elderly" AND "primary health care" OR "family health strategy". The searches were performed in the following databases: bibliographic database specialized in the field of nursing (BDENF), Latin American and Caribbean literature in health sciences (LILACS) and online system for search and analysis of medical literature (MEDLINE). Data collection was conducted from October to November 2021.

To carry this review, we used the following criteria for inclusion of articles: publication period between 2011 and 2021, conducted in Brazil, in any language, respond to the objective and availability of full visualization. The following criteria were used to exclude articles: repeated articles, articles not available in their entirety, articles on topics outside the scope of PHC, integrative, narrative and bibliographical reviews or editorial letters, dissertations, theses and monographs.

To assess the results obtained, a classification of the level of evidence was used to determine the reliability for the use of the results.^{15,16} For the analysis of the articles, a careful reading of the titles and abstracts of all publications found by the search method was performed, applying the inclusion and exclusion criteria, followed by a full reading of the selected articles.

RESULTS

The searches in the databases initially yielded 3,971 results, of which 115 remained after the inclusion filters were applied (full text and publication period from 2011 to 2021). Of these, 97 were excluded, namely 56 were off topic; 38 did not address the objective; nine were not in the PHC framework; one was a letter to the editor; three were integrative revisions and six were repeated in the databases.

At the end of this review, 18 articles were included in this study, which were read in full, highlighting its journal title, database, publication year, authors, title of article, location, level of evidence¹⁶ and main results.

DISCUSSION

In a cross-sectional study of 227 older people in two Basic Health Units (BHU) in Belo Horizonte, Minas Gerais, polypharmacy was positively associated with age below 70 years and with more than three diseases. The authors emphasize the importance of care in PHC as an indicator to seek the safe and effective use of medicines, with the aim of minimizing the risk of health problems in the elderly.¹⁷

In parallel, an analytical study of 100 elderly people in Santa Catarina showed that among the elderly with multimorbidity and polypharmacy, 78% were female. The average age was 69.3 years, 42% had less than four years of schooling and 76% belonged to economic class C. The data from this study indicate that polypharmacy in the elderly should be carefully monitored under the supervision of health professionals.¹⁸

In a study of 153 older people registered with a Family Health Strategy (FHS) in Mato Grosso do Sul, having suffered at least one fall in the past year, being a smoker and rating their health as fair, poor or very poor were associated factors. In line with the studies described above, the average age of the elderly in polypharmacy was 69.8 years.¹⁹

Alcohol consumption is inversely related to polypharmacy, according to a study carried out in Brasília, Federal District. Only 7.32% of older people on polypharmacy consumed al-

Figure 1 - Flowchart of the selected data. Porto Alegre, RS, Brazil, 2021

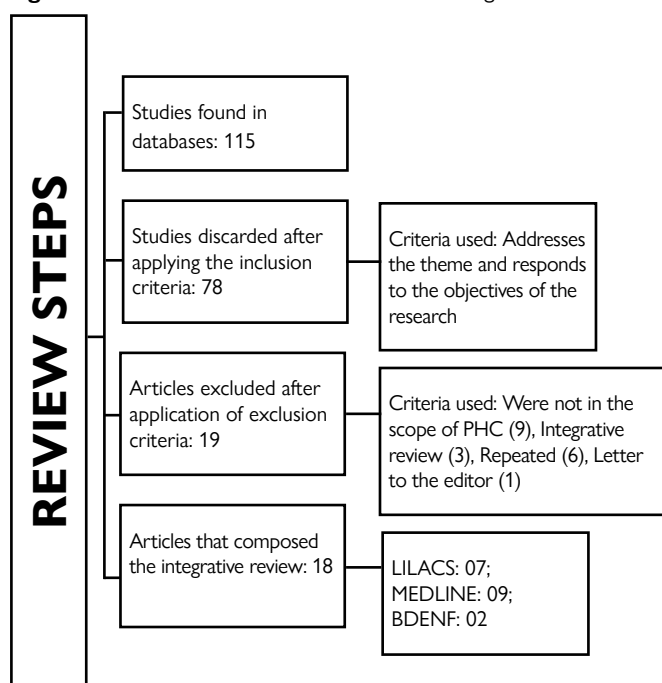


Table 1 - Description of the studies included in the integrative review. Porto Alegre, RS, Brazil, 2021

Journal/ Database	Year	Authors	Title	Local	Evidence Level	Results
Science & Collective Health / MEDLINE	2021	Oliveira PCD, Silveira MR, Ceccato MDGB, Reis AMM, Pinto IVL, Reis EA ¹⁷	Prevalence and Factors Associated with Polypharmacy in Elderly Attended in Primary Health Care in Belo Horizonte-MG, Brazil	Belo Horizonte Minas Gerais, Brazil	IV	Age ≤ 70 years, schooling > 8 years, presence of more than three diseases and symptoms of depression
Research Journal (Federal University of the State of Rio de Janeiro)/LILACS	2021	Bongiovani LFLA, Miotto N, Restelatto MTR, Cetolin SF, Beltrame V ¹⁸	Multimorbidity and polypharmacy in elderly residents in the community	Joaçaba, Santa Catarina, Brazil	IV	Women and lower economic class
Brazilian Journal of Family and Community Medicine / LILACS	2020	Andrade NO, Alves AM, Luchesi BM, Martins TCR ¹⁹	Polymedication in adults and the elderly enrolled in the Family Health Strategy: association with sociodemographic factors, lifestyle, social support network and health	Três Lagoas, Mato Grosso do Sul, Brazil	IV	Have suffered at least one fall in the last year, is a smoker, evaluate health as fair/bad/very bad.
Journal of Scientific Dissemination S/ LILACS	2019	Mello DAD, Pereira LC, Karnikowski MGDO, Garcia KR, Melo GFD, Chiarello MD ²⁰	The use of polypharmacy and alcohol consumption in the elderly population of a neighborhood of Brasília	Brasília – District Federal, Brazil	IV	Alcohol consumption was inversely associated with polypharmacy in the elderly
Brazilian journal of geriatrics and gerontology/LILACS	2019	Marques PDP, Assumpção DD, Rezende R, Neri AL, Francisco PMSB ²¹	Polypharmacy in community elderly: results of the Fiber study	Campinas (São Paulo); Belém (Pará); Poços de Caldas (Minas Gerais); Ermelino Matarazzo (São Paulo); Campina Grande (Paraíba); Parnaíba (Piauí) and Ivoti (Rio Grande do Sul), Brazil	IV	Obesity, increased waist circumference, and the presence of two, three, or more chronic diseases.
Medicine (Ribeirão Preto Online) /LILACS	2018	Carneiro JA, Ramos GCF, Barbosa ATF, Medeiros SM, Lima CDA, Costa FM et al ²³	Prevalence and factors associated with polypharmacy in community-based elderly: a population-based epidemiological study	Minas Gerais, Brazil	IV	High blood pressure, diabetes mellitus, heart problem, osteoporosis, stroke, frailty and not knowing how to read
Science & Collective Health / MEDLINE	2018	Silva MRR, Diniz LM, Santos JBR, Reis EA, Mata AR, Araújo VE et al ³²	Use of medications and factors associated with polypharmacy in individuals with diabetes mellitus in Minas Gerais, Brazil	Minas Gerais, Brazil	IV	Aging, presence of comorbidities and greater access to health services.
Journal of Public Health / MEDLINE	2018	Córralo VS, Binotto VM, Bohnen LC, Santos GAG, De-Sá CA ³⁴	Polypharmacy and associated factors in diabetic elderly	Frederick Westphalen, Rio Grande do Sul, Brazil	IV	Retirement
Journal of Public Health / MEDLINE	2017	Nascimento RCRM, Álvares J, Guerra Junior AA, Gomes IC, Silveira MR, Costa EA et al ²⁷	Polypharmacy: a reality in the primary care of the Unified Health System	Five regions of Brazil	IV	Age group over 45 years, low self-perception of health, presence of chronic diseases, having health insurance, emergency service care and region of the country
Brazilian Journal of Geriatrics and Gerontology / LILACS	2017	Cavalcanti G, Doring M, Portella MR, Bortoluzzi EC, Mascarello A, Dellani MP ²²	Multimorbidity associated with polypharmacy and negative self-perception of health	Rio Grande do Sul, Brazil	IV	Perception of health (fair/poor/very poor)
Brazilian Journal of Epidemiology / MEDLINE	2017	Pereira KG, Peres MA, Iop D, Boing AC, Boing AF, Aziz M et al ²⁶	Polypharmacy in the elderly: a population-based study	Santa Catarina, Brazil	IV	Female gender, increased age, negative self-rated health and medical consultation in the last 3 months

Brazilian Journal of Geriatrics and Gerontology / LILACS	2017	Costa GM da, Oliveira MLC de, Novaes MR ³¹	Factors associated with polypharmacotherapy among elderly people assisted by the family health strategy	Brazlândia, Distrito Federal, Brazil	IV	Diabetes mellitus, cardiovascular complications and use of antihypertensive drugs
Brazilian Journal of Geriatrics and Gerontology /LILACS	2017	Almeida NA, Reiners AAO, Azevedo RCS, Silva AMC, Cardoso JDC, Souza LC ³³	Prevalence and factors associated with polypharmacy among the elderly living in the community	Cuiabá, Mato Grosso, Brazil	IV	Living with other people, circulatory, endocrine, nutritional and digestive tract diseases, and financial difficulties in acquiring medicines
Public Health Journal / MEDLINE	2016	Ramos LR, Tavares NUL, Bertoldi AD, Farias MR, Oliveira MA, Luiza VL, et al ²⁸	Polypharmacy and polymorbidity in the elderly in Brazil: a challenge for public health	Five regions of Brazil	IV	South Region, with poor self-perception of health, obese, with health insurance or hospitalization in the previous year
Interdisciplinary Studies on Aging / MEDLINE	2016	Corralo VS, Beans LC, Schmidt CL, De Sá CA ²⁵	Factors associated with polymedication in rural and urban elderly	Paraíso, Santa Catarina, Brazil	IV	It was not associated with the place of residence of the elderly (urban or rural environment) but with sex
Brazilian Journal of Epidemiology /MEDLINE	2014	Silveira EA, Dalastra L, Pagotto V ²⁹	Polypharmacy, chronic diseases and nutritional markers in elderly residents in the community	Goiânia, Goiás, Brazil	IV	Female, age range 75 - 79 years, eutrophic and obese nutritional status, use of diet, poor health perception, presence of two, three or more chronic diseases
Brazilian Journal of Epidemiology / MEDLINE	2012	Carvalho MFC, Romano-Lieber NS, Bergsten-Mendes G, Secoli SR, Ribeiro E, Lebrão M et al ³⁰	Polypharmacy among the elderly in the city of São Paulo - SABE Study	São Paulo, Brazil	IV	Female gender, age 75 years or older, higher income, being working, regular or poor self-rated health, hypertension, diabetes, rheumatic disease and heart problems
Research Journal Care is Fundamental Online / BDNF	2012	Silvano CM, Contim D, Santos AS, Gonçalves JRL ²⁴	The phenomenon of polypharmacy in the frail elderly	Uberaba, Minas Gerais, Brazil	IV	In the frail elderly, the presence of various diseases can lead to the use of polypharmacy.

cohol, showing that they avoid risky habits such as excessive alcohol consumption.²⁰

A study of older adults living in urban areas of seven Brazilian cities found that older adults who rated their health as poorer and who were multimorbid were more likely to use polypharmacy, as were Caucasians, who were overweight and who had a higher waist circumference.²¹

In addition, a cross-sectional cohort of 676 older people living in small communities in Rio Grande do Sul concluded that multimorbidity may negatively affect older people's self-perception of health and contribute to increased medication use.²²

In parallel, another study surveyed 686 elderly people in Minas Gerais and found the following factors associated with polypharmacy: arterial hypertension, diabetes mellitus, heart problems, osteoporosis, stroke, frailty and inability to read. There are important associations with factors related to chronic diseases and frailty.²³

Another study of six frail elderly people in Minas Gerais also found a link between polypharmacy and frailty. In frail older people, the presence of different health problems can lead to the use of multiple medicines. This condition requires

joint action by the state, the health care team, especially the nurse, the family and the elderly themselves.²⁴

A study aimed at assessing the practice of polypharmacy and related factors in elderly people living in rural and urban areas was carried out in Santa Catarina, involving 242 elderly people. However, no significant association was found with the place of residence of the elderly, but with female sex, single marital status, not being able to read and write, and a negative self-perception of health. Based on the results, the authors show that promoting the rational use of medicines by health professionals should reduce complications related to the use of multiple medicines.²⁵

Accordingly, a cross-sectional population-based study of a sample of 1,705 older people living in the urban area of Florianópolis, Santa Catarina, identified the following associations: female sex, negative self-rated health, medical consultation in the 3 months before the interview and increasing age. The groups of medicines most used by the elderly were those for the cardiovascular system, the digestive tract, the metabolism and the nervous system.²⁶

A nationwide study of polypharmacy among health service users surveyed 8,803 users of PHC units in 272 Brazilian mu-

nicipalities from the five regions of Brazil. An association was found between polypharmacy and low self-perceived health and the presence of chronic diseases, which is consistent with other studies analyzed. There was also an association with emergency care and with the region of the country, with users in the South region having the highest likelihood of polypharmacy. The most used drugs were those for the cardiovascular system.²⁷

In line with this, another cross-sectional population-based study with a national probability sample ($n = 9,019$) found that polypharmacy was higher among the elderly (20.0%), in the southern region (25.0%), among those who rated their own health as poor (35.0%), among the obese (26.0%), among those who reported hospitalisation in the last year (31.0%) and among those who reported chronic diseases, mainly diabetes mellitus (36.0%) and heart disease (43.0%).²⁸

A cross-sectional study assessing the health and nutritional status of 418 older people in Goiás found a significant association with the age group 75-79 years. It was also associated with being female, obesity, nutritional status, use of dietary supplements, poor health perception and the presence of multimorbidity.²⁹

In addition, a study conducted in São Paulo with a sample of 1,115 elderly people also showed that age equal to or greater than 75 years, female sex, regular or poor self-rated health and chronic diseases such as hypertension, diabetes, rheumatic diseases and heart problems showed a positive association with polypharmacy.³⁰

A sample of 211 elderly people were followed by an FHS team in a cross-sectional study conducted in Brazilândia, Federal District. Of the sample, 29.4% were receiving polypharmacotherapy, and the majority (26.5%) were using three different classes of drugs, with antihypertensive drugs being the most used. Diabetes mellitus, cardiovascular complications and the use of antihypertensive drugs were the factors associated with polypharmacy, which is a worrying reality and requires new attitudes on the part of health professionals to avoid harm and iatrogenic disease in the elderly.³¹

A cross-sectional study of 2619 people with diabetes mellitus in Minas Gerais. The authors showed that factors such as age, presence of multimorbidity and better access to health services were associated with polypharmacy.³² Another study of 127 elderly people diagnosed with type 2 diabetes mellitus in Rio Grande do Sul found that retirement had a statistically significant association with polypharmacy.²⁵

A cross-sectional population-based study assessed the self-reported health status of elderly people living in the municipality of Cuiabá, Mato Grosso do Sul. Elderly people who lived together, who reported financial difficulties in obtaining medication and who had some comorbidities were associated with polypharmacy, demonstrating that some social and health status aspects play an important role in the use of multiple medications among the elderly.³³ The effective

use of medicines requires the coordinated work of a team of professionals who provide direct support to the user.³⁴

Therefore, the nurse, as a member of the PHC team, should be aware of the ageing process and the strategies that contribute to better care for the elderly, including in this care the appropriate interventions regarding the rational use of medications. This professional can be a protagonist in the study of the use of polypharmacy in the elderly, with the aim of seeking alternatives that can minimize this practice.²⁴

The limitation of this study relates to the paucity of articles on the topic, especially from the perspective of nursing care of elderly patients with polypharmacy, which provides opportunities for further investigation. Further studies are needed to identify interventions to manage polypharmacy in the elderly in PHC, especially those carried out by the nursing team.

The discussions in this study can contribute to the consideration of measures related to the training of professionals to identify the factors associated with polypharmacy in the elderly in PHC, with the aim of providing comprehensive care. The study provides relevant data for the differentiation of groups in a state of greater vulnerability, thus contributing to the optimization of care for the elderly with polypharmacy, reinforcing the need for health education actions and the search for rational use of medicines.

CONCLUSION

The results of this RIL made it possible to identify the factors associated with polypharmacy among elderly people treated in PHC. It was demonstrated that the use of five or more medications is a reality among Brazilian elderly people treated in PHC. In most of the articles analyzed, a significant association was found between polypharmacy and multimorbidity, female sex, negative self-perception of health, low economic class, overweight, factors related to chronic diseases and frailty, and illiteracy.

The need for specific health care for aged people, taking into account the factors identified, is highlighted, and polypharmacy increases the risk of adverse effects, cumulative toxicity and drug interactions. The number of medications prescribed should consider the real needs of each individual and the analysis of potential benefits and risks. Therefore, nurses, together with the PHC team, should regularly evaluate the therapeutic regimens of older people, focusing on adherence and risk identification, to minimize harm and maximize benefit.

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