POLIPHARMACY IMPACT IN THE QUALITY OF LIFE IN OLDER ADULTS

O IMPACTO DA POLIFARMÁCIA NA QUALIDADE DE VIDA DE IDOSOS

EL IMPACTO DE LA POLIFARMACIA EN LA CALIDAD DE VIDA DE LOS MAYORES ADULTOS

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ABSTRACT

Objective: to analyze the impact of polypharmacy on the quality of life of the older adults from the scientific productions. **Method:** this is a bibliographical study, integrative literature review type. Data collection was carried out in the Medline, LILACS and Scielo databases between 2006 and 2016, in English, Spanish and Portuguese, submitted to the Content Analysis Technique in the Thematic Content Analysis Mode. **Results:** the polymedication can lead to the development of a series of complications for the older adult due to the adverse effects of the drugs, affecting the quality of life and the performance of their daily activities. Care with medication interaction, the time of taking the medication and education in health are of great relevance in the context of aging, compromising the physiological aspects of the patient. **Conclusion:** the nurses' performance is indispensable by the theoretical knowledge of Pharmacology and the aging process since it contributes to drug surveillance and side effects for the elderly people, who often use medications without a medical prescription. **Descriptors:** Aged; Pharmaceutical Preparations; Quality of Life; Nursing Care; Health of the Elderly; Nursing.

RESUMO

Objetivo: objetivou-se analisar o impacto da polifarmácia na qualidade de vida dos idosos a partir das produções científicas. **Método:** trata-se de estudo bibliográfico, tipo revisão integrativa de literatura. Realizou-se a coleta de dados nas bases de dados Medline, LILACS e Biblioteca Scielo, entre o período de 2006 e 2016, nos idiomas inglês, espanhol e português, submetendo-se à Técnica de Análise de Conteúdo na Modalidade Análise de Conteúdo Temática. **Resultados:** evidenciou-se que a polimedicação pode levar ao desenvolvimento, no idoso, de uma série de complicações por conta dos efeitos adversos dos fármacos, afetando a qualidade de vida e a realização das suas atividades diárias. Defende-se que o cuidado com a interação medicamentosa, o aprazamento e a educação em saúde são de grande relevância no contexto do envelhecimento, comprometendo os aspectos fisiológicos do paciente. **Conclusão:** observa-se que a atuação do enfermeiro é indispensável pelo conhecimento teórico de Farmacologia e do processo de envelhecimento, pois contribui para a vigilância medicamentosa e dos efeitos colaterais em relação aos idosos que, muitas vezes, fazem uso de medicamentos sem prescrição médica. **Descritores:** Idoso; Preparações Farmacêuticas; Qualidade de Vida; Cuidados de Enfermagem; Saúde do Idoso; Enfermagem.

RESUMEN

Objetivo: analizar el impacto de la polifarmacia en la calidad de vida de los ancianos a partir de las producciones científicas. **Método:** se trata de un estudio bibliográfico, tipo revisión integradora de la literatura. Se realizó la recolección de datos en las bases de datos Medline, LILACS y Biblioteca Scielo, entre el período de 2006 a 2016, en los idiomas inglés, español y portugués, submetiéndose a la Técnica de Análisis de Contenido en la Modalidad Análisis de Contenido Temático. **Resultados:** se observó que la polimedicación puede llevar al desarrollo de una serie de complicaciones al anciano por cuenta de los efectos adversos de los fármacos, afectando la calidad de vida y la realización de sus actividades diarias. Se defiende que el cuidado con la interacción medicamentosa, el tempo de tomar la medicación y la educación en salud son de grande relevancia en el contexto del envejecimiento, comprometiendo los aspectos fisiológicos del paciente. **Conclusión:** se observa que la actuación del enfermero es indispensable por el conocimiento teórico de Farmacología y del proceso de envejecimiento, pues contribuye para la vigilancia medicamentosa y de los efectos colaterales en relación a los adultos mayores que muchas veces usan medicamentos sin prescripción médica. **Descriptor:** Anciano; Preparaciones Farmacêuticas; Calidad de Vida; Atención de Enfermería; Salud del Anciano; Enfermería.

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INTRODUCTION

The decrease in birth and death rates in the last decades has increased a gradual growth of the elderly population, revealing an evolution in the quality of life and the facilitation of the aging process.¹⁻²

In developed countries, the phenomenon of population aging is already a much-discussed topic since the large number of older adults has consequences related to the diseases in the aging process and retirements, bringing high costs to the government and increasing the need for public policies for this population as a whole. According to the World Health Organization (WHO), an older adult in developed countries is the person aged 65 years old or older; in Brazil, as a developing country, the elderly is the individual over 60 years old.³⁻⁴

The older adults are about 50% of drug users due to the greater risk of developing chronic-degenerative diseases such as respiratory and cardiovascular diseases, Diabetes Mellitus, neoplasias, among others, which automatically results in the predominance of permanent conditions of health, inducing them to increase the use of medicines and leading them to the practice of polypharmacy.^{2,5-6}

Polypharmacy is understood as the use of two or more drugs or the use of at least one drug without a medical prescription, in view of a list of possibly essential prescriptions. The pathogenic effect of a drug or the action of several drugs are characterized as iatrogenic, a factor that causes adverse drug reactions.^{5,7}

Through the indiscriminate use of medicines, there is an increased risk in the number of diseases associated with the use of these substances. All drugs prescribed for the elderly population are required to be evaluated for risk-benefit, as the drugs have the function of helping in functional activity, but they may also compromise it.^{2,8}

There is a concern regarding the polymedication in the older adults since they already have a decrease of the physiological functionality, showing loss of muscle mass, loss of body fluid, reduction of the hepatic activity and homeostatic mechanisms and difficulty in the filtration and excretion, which represents an obstacle to the elimination and metabolization of drugs, generating an accumulation of toxic substances.⁸

Nurses play an important role in encouraging the rational use of medications,

through patient orientation on the inappropriate use of non-prescribed drugs, instruction on the importance of medical consent for any insertion, modification or exchange of any drug, in addition to making the appointment according to the medical prescription and feeding of the patient, avoiding the drug interaction and, consequently, minimizing the risks of adverse drug reactions.⁹

The guiding question of the study is: what is the impact of polypharmacy on the quality of life of the older adults? The following objectives were defined: (a) to analyze the impact of polypharmacy on the quality of life of the older adults from the scientific outputs; and (b) to describe the implications for Nursing regarding the factors that influence the quality of life of these people.

This study is justified by the increase in the elderly population in Brazil since the life expectancy in the country has been increasing progressively. Data collected in 2008 showed that there was an increase in this statistic for 72.8 years old and it is estimated that, until 2050, this figure reaches 81.3 years old, also raising the incidence of chronic diseases from aging. According to researchers, a change in the pattern of illness related to chronic-degenerative, cardiovascular, locomotor and psychiatric diseases has been observed, which has led to more frequent use of drugs such as cardiovascular drugs, psychoactive drugs, analgesic, and gastrointestinal anti-inflammatories drugs.¹⁰⁻²

There has been an increase in the demand for health services, leading to the increase of the technical-scientific knowledge of health professionals related to care for the elderly person, as well as a reform in models of care for them.¹²

The study aims to contribute to the reflection of nursing professionals on the factors arising from polypharmacy that influence the quality of life of the older adults and on the awakening of professionals regarding evidence-based practice for the purpose of improving care for them. For the society, the research offers information about the risks that the indiscriminate use of medicines can cause for the health of the elderly people, providing the knowledge on the subject for the population.

OBJECTIVES

- To analyze the impact of polypharmacy on the quality of life of the older adults.

- To describe the implications for Nursing regarding the factors influencing the quality of life of the older adults.

METHOD

This is a bibliographical study, based on an integrative literature review. The development of an integrative review is defined according to the research method of each author. For the preparation of an integrative literature review, six stages are necessary to carry out.¹³

The research topic was chosen in the first stage and the guiding question of the study was delimited - what is the impact of polypharmacy on the quality of life of the older adults?

The criteria for inclusion and exclusion of the research were determined in the second stage and, after choosing the theme, the following inclusion criteria were considered: articles that addressed people over 60 years old; available online in Portuguese, English or Spanish; that could be located with the descriptors “Aged”, “Polymedication” and “Quality of Life” and with a temporal cut of ten years (2006-2016). Data were collected between March 15, 2017, and April 5, 2017.

Descriptors	English	Spanish	Portuguese
Aged	<i>Aged</i>	<i>Anciano</i>	<i>Idoso</i>
Quality of Life	<i>Quality of Life</i>	<i>Calidad de Vida</i>	<i>Qualidade de vida</i>
Polypharmacy	<i>Polypharmacy</i>	<i>Polifarmácia</i>	<i>Polimedicacão</i>

Figure 1. Descriptors and their equivalents in Portuguese, English, and Spanish. Niterói (RJ), Brazil, 2017.

The categories of the research were identified in the third stage with the aim of systematizing and synthesizing the information collected through data collection. A table was designed to structure the selected studies in Microsoft Office Word 2013 software with the following variables: year of publication, database, periodical, article title, and main results.

In the fourth stage, the studies involved in the integrative review were critically analyzed to show the similar and divergent results among them, grouping the data using the Content Analysis technique, in Thematic modality, after successive readings of the articles, carried out by two evaluators, to understand the thematic nuclei mobilized in the construction of the study problems.¹⁴

In the fifth stage, the interpretation and discussion of the results were developed, according to the comparison between the studies carried out and the conceptual knowledge discussed in the previous stage.

Levantaram-se os dados sobre o tema na biblioteca virtual da *Scientific Electronic Library Online* (SciELO), nas bases de dados Literatura Latino-Americana e do Caribe em Ciências da Saúde (LILACS) e *Medical Literature Analysis and Retrieval Sistem Online* (MEDLINE). Efetuou-se a busca dos artigos por meio dos descritores: idoso, polimedicacão, qualidade de vida e os seus respectivos correspondentes nos idiomas inglês e espanhol, como exposto na figura 1.

The exclusion criterion was the articles that did not address the purpose of the study and those that were repeated in more than one database - they were counted as only one article - and theses and dissertations.

Data were collected on the topic in the Scientific Electronic Library Online (SciELO) virtual library, in the Latin American and Caribbean Literature on Health Sciences (LILACS) and Medical Literature Analysis and Retrieval Sistem Online (MEDLINE) databases. The articles were searched through the descriptors: aged, polymedication, quality of life and the same words in English and Spanish, as shown in figure 1.

The last step was the review of the study, which consists of the production of the document that exposes the steps explored by the reviewer to achieve the results, according to the references collected.

RESULTS

Initially, there was a search with the descriptors individually to register the quantitative of works in each base, according to figure 2.

Descriptors	Database/Virtual Library			
	SciELO	LILACS	MEDLINE	Total
Aged	3 150	19148	804.422	826720
Quality of Life	4 987	7369	70.401	82757
Polypharmacy	133	160	1.698	1991
Total	8270	26677	876521	911468

Figure 2. Individually searched descriptors. Niterói (RJ), Brazil, 2017.

After the initial collection, a refinement of the data would be necessary due to the high number of results found. Table 2 shows the

search of the descriptors associated with each other.

Descriptors	Database/Virtual Library			
	SciELO	LILACS	MEDLINE	Total
Aged AND Polypharmacy	55	100	1.142	1297
Aged AND Quality of Life	503	1731	30.243	32477
Polypharmacy AND Quality of Life	12	14	61	87
Aged AND Polypharmacy AND Quality of Life	9	12	51	72
Total	579	1857	31497	33933

Figure 3. Quantitative distribution of bibliographies found in the VHL with associated descriptors. Niterói (RJ), Brazil, 2017.

After the combinations of the descriptors Aged AND Polypharmacy AND Quality of life in were found (F) in the databases chosen, and the application of the inclusion and exclusion criteria, 72 articles were selected (S), 19, nine (F) and three (S) in SciELO, 12 (F) and three (S) in LILACS, 51 (E) and eight (S) in MEDLINE represented in figure 3.

Figure 3. Flowchart of the selection process of the articles searched. Niterói (RJ), Brazil, 2017.

An analytical reference with the information extracted from the selected studies, including the year of publication, the database, the journal, the title of the article and the main results are shown in figure 4 to begin the analysis of the data.

Database/Virtual Library and Year	Journal	Title of the article	Main results
SciELO 2012	Cadernos de Saúde Pública	The use of drugs in older adults living in urban and rural areas of the municipality of Southern Brazil: a population-based study.	The incidence of polypharmacy in urban areas is greater than in rural areas because the elderly person in the city is closer to medical care; consequently, there is an increase in drug prescriptions.
SciELO 2012	Revista Brasileira de Geriatria e Gerontologia	Profile of drug use by the elderly person assisted by the Program of Attention to the Older Adult (P.A.I.) of UNIJUÍ.	The performance that a drug can exert in a body and how it is possible to identify possible interactions, intervening when necessary.
SciELO 2012	Revista Brasileira de Epidemiologia	The use of continuous medications and associated factors in the older adult in Quixadá, Ceará.	Cultural, economic, social and health issues influence the choices and practice of polypharmacy.
LILACS 2011	Brazilian Journal of Pharmaceutical Sciences	Drug use by elderly inpatients of a philanthropic hospital.	The practice of polypharmacy favors adverse drug reactions (ADRs).
LILACS	Ciência Saúde	Socioeconomic,	The use of non-accompanying

2013	Coletiva	epidemiological and pharmacotherapeutic profile of institutionalized older adults in Brasília, Brazil.	polymedications may influence functional capacity, as well as the ability to trigger problems related to medication.
LILACS 2015	Revista Brasileira de Geriatria e Gerontologia	Inadequate prescription of drugs to elderly people with chronic diseases in a health plan in the city of São Paulo, Brazil.	The need for careful attention in the prescription of drugs, mainly by the combination of NSAIDs and other medications.
MEDLINE 2016	Journal Plos One	Deprescribing in Frail Older People: A Randomised Controlled Trial.	The medicine prescription should be done carefully, with the patient being the center of care.
MEDLINE 2016	Journal BMJ Open	Is herpes zoster an additional complication in old age alongside comorbidity and multiple medications? Results of the post hoc analysis of the 12-month longitudinal prospective observational ARIZONA cohort study.	The older adult already has a risk factor due to the practice of polypharmacy, related to age; adding this factor to herpes zoster, the risk increases, affecting the quality of life.
MEDLINE 2015	Journal BMJ Open	Interventions to improve the appropriate use of polypharmacy in older people: a Cochrane systematic review.	The need for an adequate prescription of medicines for the elderly person.
MEDLINE 2015	Journal BioMed Central Medicine	The rising tide of polypharmacy and drug-drug interactions: population database analysis 1995-2010.	Polypharmacy is linked to the use of nonprescription drugs and easy access, which influences drug interaction.
MEDLINE 2014	Revista Calidad de Asistencial	Intervención en ancianos con multimorbilidad y polimedicados: resultados en la prescripción y en la calidad de vida.	The withdrawal of certain non-prescribed medications results in an increase in patients' quality of life.
MEDLINE 2012	Journal BioMed Central Trials	Reducing inappropriate, anticholinergic and psychotropic drugs among older residents in assisted living facilities: study protocol for a randomized controlled trial.	Testing a relatively educational intervention on the improper use of anticholinergic and psychotropic drugs.
MEDLINE 2011	The American Journal of Geriatric Pharmacotherapy	Medication Use and Functional Status Decline in Older Adults: A Narrative Review.	The impact of drug use on the decline of functional status in the elderly person.
MEDLINE 2009	Revista Calidad de Asistencial	Implantación y mejora de un programa de atención al mayor polimedicado en un área de atención primaria.	The implementation of a program aimed at treatment and health education for the use of medicines.

Figure 4. Organization of the primordial results by year, database, journal, article title, and main results. Niterói (RJ), Brazil, 2017.

After analyzing these articles, two categories emerged: 1) The polypharmacy and quality of life of the elderly person; and 2) Implications of polypharmacy and its implications for Nursing.

DISCUSSION

The polypharmacy and quality of life of the elderly person

Aging is the decline of physiological actions, which causes changes in the body and the increase of fats in the tissue. With the yield of the compromised physiological system, the malabsorption of the drugs occurs by the organism, altering the performance of these drugs in several organs that are

essential for its assimilation. With the minimized functioning of these organs, the action of polypharmacy is possible, as there is an increase of free drugs in the plasma, increasing the levels of toxicity and observing that the receptors of the tissues are inappropriate.¹⁰

Polypharmacy in the elderly is identified as an aggravation of public health and a problem in collective health since this practice increases the fragility of the health of these patients and may lead to a high rate of complications related to excessive use of medications, and to high expenses by governmental power, associated with the drugs distributed by public services. The

elderly living in urban areas are more subject to the use of polymedication than those living in rural areas, since they have a broader access to health services and, consequently, they receive the greatest number of diagnoses of chronic diseases, leading to the use of more drugs.^{5,7,15}

The disorders caused by the indiscriminate use of medicines affect the quality of life of the elderly person, generating functional changes. According to studies, each elderly person takes four to six drugs on average, and this number increases with the advancement of age, associating this factor with morbidities, sedentary lifestyle, and other aspects that affect quality of life.^{12,16}

Some factors interfere in the quality of life of the older adult, such as inadequate prescription of medications, that trigger adverse reactions (ADR) and cause consequences in the physiological performance of the elderly person, due to the appearance of undesirable side effects, making the process of prescription of complex drugs, since the quantity of medications, the frequency of doses, the guidelines for the management and the prescribed dosage forms must be considered.¹⁷⁻¹⁸

Among the ADRs caused by the side effects of medications, the risk of falls is highlighted (the elderly who need the most drugs are the most vulnerable to falls because some drugs cause lethargy), the need to go to the toilet more often, reduction of reflexes, postural hypotension, and vertigo. All these symptoms favor the risk of falls and, as a result, the occurrence of fractures.¹⁹⁻²⁰

Another relevant factor is observed: the economic and psychosocial difficulty discovered by relatives, especially for the elderly person with reduced functional capacity; these elderly people become more dependent on everyday practices. It is believed that these socioeconomic and psychosocial factors linked to other problems, such as the lack of quality professional care, pre-existing health conditions and the difficulty of attending to public services can lead the patient to join pharmacotherapy.^{12,21}

Easy access to the purchase of medicines is another point that leads to the practice of polypharmacy since the drugs are mostly on free access counters and are not counted, especially the analgesics, simple antacids and antihistamines, as well as others that do not require medical prescription. Drug interactions are present, however, they are only perceived with continuous use for 84 days and, in most cases, they occur in an interrupted and sporadic manner.^{10,22}

Implications of polypharmacy and its implications for Nursing

In the therapeutic process, nurses have important roles in administration, scheduling, routine drug planning, patient orientation, and education, especially for those who use more than one medication. Nursing responsibility becomes significant regarding medical prescription since it is indispensable that the team involved in the care, and especially the nurse responsible for the follow-up, have a theoretical basis on Pharmacology, drug interactions and the possible related adverse reactions prescribed drugs, reducing risks and damages.²³⁻²⁴

Another point of concern is the inadequate prescription, which generates adverse reactions, requiring nurses the necessary knowledge about the aging process, pharmacodynamics, and pharmacokinetics, the characteristics of diseases that affect the elderly person and the impact that physiological life of these patients.²⁵

Therefore, an accurate and individualized approach that promotes the prevention of indiscriminate medication, fulfillment, guidelines on healthy eating and possible drug interactions is an educational theme discussed in the Nursing consultation, which will promote a better quality of life for these elderly people.²⁵⁻²⁶

In Brazil, there is a high rate of elderly people who are medicated indiscriminately. In this context, nurses can intervene through health education practices, such as the prevention of the use of medicinal herbs, very popular among the elderly people, which may potentiate adverse reactions, discontinuation of therapy or the addition of drugs without knowledge of the professional who are involved.⁹

Projects related to the health of the older adults such as those in use in reference corporations and other centers for the support of the elderly person can act as precursors for the promotion of educational capacities aimed at instructing caregivers, family members or even even the aged person, on good practices in the rational use of medicines.^{9,27-28}

The interaction between drugs and food is still problematic since often, a nutrient or food can change the effectiveness of a drug, or a medicine can alter the absorption of some nutrient since most of them are absorbed in the small intestine. These alterations in the absorption can happen by reducing the time of emptying of the digestive tract, a common occurrence in the elderly people. Nurses need to be aware of the types

of drug interactions that exist to better guide the older adults in their eating habits.^{29,30}

Educational strategies as illustrative devices facilitate the correct understanding of drug therapy by the elderly person, contributing to the understanding and attendance of prescription and medical care. Some articles highlighted low educational level as a problem related to the effectiveness of the prescribed therapy and the indiscriminate use of medications, because it causes difficulty in reading and understanding the prescription, so the nurse needs to invest more time in the consultations for promotion purposes health of the elderly people, improving the quality of life.^{9,31-33}

Nurses are indispensable for the promotion of the quality of life of the elderly person. Therefore, it is important to promote the constant updating of knowledge regarding Gerontological Nursing and the search for practical theoretical deepening in the attention to this population. Strategies directed at the family, the elderly person and professionals guide good health practices, minimizing the impacts of the use of medicines on the life of patients.

CONCLUSION

The increasing number of elderly people in the population has also increased health demands, being a focus of health care. The changes resulting from the aging process need to be known by the professionals that care for the elderly person to promote their health.

These studies showed that polypharmacy negatively influences the quality of life of the elderly, since it increases the risk of falls and family dependence, besides provoking adverse reactions due to drug interactions.

In conclusion, Gerontological Nursing needs to maximize the vigilance of polypharmacy in the older adults since many adverse effects, drug interactions and physiological changes due to the use of medications can affect the quality of life of this people. The risk of falls was the most recurrent.

Nursing implications to these factors are understood as strategies for health education and continuous improvement. The nurse is identified as an agent capable of sharing with the older adults and their families the knowledge regarding schedules, doses, routes of administration and interactions in the use of medications. It is necessary to consider the level of education of the older person in the care process, in addition to the economic and social conditions in which the individual is inserted, to guarantee holistic and equitable

care, which is the basis of the health system Brazilian.

The aim of the Nursing consultation is to organize and plan drug therapy for the time using the medication, its administration, and the surveillance of adverse effects of drugs that influence the quality of life and the use of drugs indiscriminately. Education level was pointed out as an important factor in this context of medication use and understanding of therapy, since patients with less education level have a greater risk of using nonprescription medications, not adhering to the prescription and not understanding the care plan.

The study was limited to only two databases and to the localizable studies with the selected descriptors, and there may be more literature on the topic than the sample analyzed. Other factors are identified, such as the shortage of articles written by nurses, hindering to understand the implications and the educational actions of the nurse.

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