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Review Articles

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Factors associated with non-adherence to pharmacotherapy in older people in primary health care in Brazil: a systematic review

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Abstract

Objectives: To identify the factors associated with non-adherence to pharmacotherapy in elderly Brazilians assisted by Primary Health Care (PHC) through a systematic review of the literature. *Method*: This is a systematic literature review in English, Spanish, and Portuguese, performed in the SciELO electronic library and in the electronic databases MEDLINE - via PubMed, LILACS, Embase, and Web of Science from January 2010 to June 2020. Study selection was performed independently by two reviewers using the Rayyan selection application. *Results:* After applying the eligibility criteria, nine studies were included in the systematic review. The most frequent method used to measure the outcome was the Morisky-Green Scale (4-items). The results point that the main factors related to non-adherence to pharmacotherapy in PHC are difficulties in medication access, multimorbidities, polypharmacy, the use of potentially inappropriate medications for the elderly, the degree of trust in the medical professional, beliefs, negative self-perception of health and functional disability. *Conclusions*: In the context of PHC, non-adherence to pharmacotherapy by the elderly population presents itself as a very frequent problem, being triggered by multiple factors and with negative consequences for the control of health conditions, the rational use of medications, and healthy aging. It is also noteworthy that part of the associated factors are subject to intervention at this level of health care.

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INTRODUCTION

The aging process brings numerous challenges such as motor, cognitive, and mental losses, increased vulnerability, social isolation, and the development of chronic non-communicable diseases (NCDs). Increased life expectancy in the world - and quite significantly in Brazil - did not necessarily imply an improvement in the quality of life of people in more advanced ages. Thus, based on the healthy aging paradigm, strategies to improve the lives of older people need to be thought out and implemented in different areas[1,2].

The older population notably presents characteristics inherent to aging that become social and health demands as this population becomes more and more prevalent. Thus, people started to deal with health conditions that last for years and require full monitoring, and which can often accumulate throughout life, which makes the older person frequently present more than one chronic NCD. With a greater number of health problems, older people often need complex and continuous pharmacotherapeutic regimens[3,4].

The literature points out that this scenario creates precedents for the irrational use of medications, especially when adherence to the pharmacological treatment - understood as the degree of correspondence between the recommendation of a healthcare professional and the patient's behavior in the use and management of medications - is not effective and triggers a series of damages to the health of the older person[5].

Thus, non-adherence to pharmacotherapy is a multifactorial public health problem representing a challenge to the progression of pharmaceutical care in the Unified Health System (SUS). Thus, non-adherence involves the process of accessing medicines, but also and mainly the use and correct handling of medicines promoted by proper guidance by health professionals[5,6].

Primary Health Care (PHC) plays a crucial role in carrying out healthcare actions at the individual and collective levels, in the ordering of care, and the search for comprehensiveness, considering the territorialization and epidemiological profile, being frequently accessed by the Brazilian older population [7]. However, pharmaceutical care in this scenario is still far from the ideal implementation, despite being growing and essential for the identification and resolution of pharmacotherapeutic problems such as non-adherence[8].

Taking into account the aforementioned issues and the many challenges of adherence to therapeutic regimens, knowing the factors that can interfere with adherence to pharmacotherapy is essential in an attempt to increase the quality of health care and improve public policies for older people[5]. Thus, the present study aims to identify and analyze the factors associated with non-adherence to pharmacotherapy of Brazilian older people in the context of PHC through a systematic review of the literature.

METHOD

This is a systematic review of the literature based on the recommendations for systematic reviews of the *Cochrane* Collaboration. The study's protocol was registered in the *International Prospective Register of Systematic Reviews* (PROSPERO) under the registration code CRD42020202476. The guiding question was: *What are the factors to influence older people not to adhere to the pharmacological treatment prescribed in the context of primary health care in Brazil?*

We considered the observational epidemiological design studies published from January 2010 to June 2020 in Portuguese, English, and Spanish including the older population (60 years and older, as recommended by the WHO for developing countries and criterion adopted by the Elderly Statute), the PHC health services, the assessment of non-adherence to pharmacological treatment and its associated factors, in the context of Brazil.

The last decade was chosen as the time frame based on the analysis of the results of the 2010 Demographic Census, which showed the growth of the Brazilian older population and brought the need for current assessments of the population aging process. The languages, on the other hand, were determined as they are the main choices for the publication of studies carried out in Brazil.

Studies on treatment adherence to specific medications without a description of the method used to measure said adherence and without a description of the type of study were excluded, as well as publications in the annals of scientific events, literature reviews, and case reports.

Studies were searched in the electronic library *Scientific Electronic Library Online* (SciELO) and in the databases *Medical Literature Analysis and Retrieval System Online (MEDLINE)* - via PubMed, Latin American & Caribbean Health Sciences Literature (LILACS), *Excerpta Medica Database* (*Embase*), and *Institute for Scientific Information Web of Knowledge (Web of Science)*. The restricted access databases *Embase* and *Web of Science* were accessed free of charge via the Federated Academic Community (CAFe) access by Capes Journal. Databases were chosen taking into account the number of records, their scope, and their importance in the field of health sciences.

The descriptors were adapted for each database and combined using Boolean operators (OR, AND, and NOT). The following descriptors were used for the search strategy in the databases according to their definition in the Health Descriptors (DeCS) in English, adopting the following search strategy used in all databases: ((aged) or (older person) or (aging) or (older) or (advanced in years)) and ((medication adherence) or (treatment adherence) or (adherence to medicinal treatment) or (adherence evaluation) or (medication non-adherence) or (pharmacological treatment adherence) or (drug therapy adherence)) and ((Primary Health Care) or (health services)) and ((Brazil) or (Brasil) or (Brazilian)).

The studies were independently selected by two reviewers from September to December 2020 using the selection application *Rayyan* developed by *the Qatar Computing Research Institute (QCRI)* as an auxiliary platform to archive, organize, and select the papers.

Initially, titles and abstracts were analyzed (screening phase) to verify if each study found referred to the theme and if it was following the eligibility criteria. The papers considered eligible in the screening phase were then analyzed in their entirety with the reading of the entire text by the two reviewers who made the pre-judgment regardless of the inclusion or exclusion of the study. The inclusion was carried out in pairs by the consensus of the two reviewers who assessed the consistency in the use of the eligibility criteria in each study. Disagreements in the full reading phase were resolved based on the analysis of a third reviewer.

The data extraction process started only after all papers have been included and reviewed according to the eligibility criteria. At this stage, the two study selection evaluators proceeded by filling out a form from the *Google Forms* software with all the variables of interest to the study: authors, year of publication, location, study title, journal name, type of study design, sociodemographic and behavioral characteristics of the sample, estimates of the prevalence of non-adherence, the instrument used to measure adherence, and factors associated with non-adherence to the pharmacotherapy described.

Then, all the information present in the forms was checked, with the data of the selected articles being systematized in an electronic *Excel* spreadsheet (database indexation phase). This rigorous and organized process avoided frequent returns to the original texts of the papers and facilitated the analyzes by bringing together all the data of interest for the systematic review in a single structure. A flow diagram was created for a visual representation of the identification process of the papers included in the systematic review.

The instrument for the critical assessment of prevalence studies proposed by Loney et al.[9] was used with adaptations to determine the methodological quality of the papers. It is an evaluation guided by eight criteria: 1) study design and appropriate probabilistic or census sampling methods; 2) adequate sampling source; 3) previously calculated sample size; 4) use of objective and adequate criteria using a validated instrument to measure the outcome; 5) outcome impartially measured by trained evaluators; 6) adequate response rate (>70.0%) and description of refusals; 7) presentation of confidence intervals and subgroup analyses when appropriate; and 8) study participants and subjects well described and similar to the research question. Each criterion could get a score of zero or one (met criterion). Thus, the total score can range from zero to eight, and the higher the

score, the better the quality. Studies were considered of high quality if they scored 7 or 8 points, moderate quality from 4 to 6 points, and low quality from 0 to 3 points. The critical quality assessment was not used as an exclusion criterion for papers. This assessment allowed us to verify the interference in the results and a possible endangerment in the level of evidence.

RESULTS

The electronic search in the databases retrieved a total of 1021 studies. Duplicates (n=80) were removed, resulting in 941 studies for evaluation. After analyzing the title and abstract of each study, 909 were removed as they did not fit the theme and/or objectives of the study. Thus, 32 studies were selected for full reading, and 23 of these were excluded for not meeting the eligibility criteria.

Therefore, nine studies were included in this systematic review. Most studies were published in national journals, two in English and seven in Portuguese, and they were carried out in four of the five regions of Brazil between 2010 and 2020. Figure 1 shows the steps taken in the study selection process.

Table 1 shows the characteristics of the studies included in this review, presenting the following items: author, year of publication, study design, study subjects, division of groups, variables analyzed, and results. Table 2 describes the assessment of methodological quality, and Table 3 presents the assessment methods, prevalence, and factors associated with non-adherence to pharmacotherapy.

Table 1. Characteristics and results of the studies included in the systematic review. Juiz de Fora, MG, 2021.

Author, year, place of study, and journal	Research design	Sociodemographic characterization, health, and behavioral profile
Aiolfi et al., 2015 Dourados (MS) Revista Brasileira de Geriatria e Gerontologia[10]	Cross-sectional study.	N = 124 Gender: male (32.3%) and female (67.7%) Age: 71 years and over (55.64%) Education: illiterate (38.70%) Family arrangement: accompanied (79.83%) Self-rated health: bad/very bad: (12,1%) *Per capit*a income: up to one minimum wage (73.3%) Medications per day: 4 or more (59.68%) Health diagnoses: 3 or more (58.87%) Cognitive deficit (61.29%)
Borba et al., 2018 Recife (PE) Science & Public Health[11]	Cross-sectional study	N = 150 Gender: male (26.7%) and female (73.3%) Age: 60 to 69 years (54.7%) Education: up to 8 years of study (58.7%) Family arrangement: spouse + family members (60%) Self-perceived health: regular (62%) and poor (12%) Monthly income of the older person: from one to two minimum wages (52.7%)
Obreli-Neto et. al., 2010 Salto Grande (SP)[12] Revista de Ciências Farmacêuticas Básica e Aplicada[12]	Cross-sectional study	N = 102 Gender: male (38.3%) and female (61.7%) Age: average 64.7 years old Education: incomplete elementary education (76.5%) Monthly Family Income: average of one minimum wage Color: black (68.6%) Dissatisfaction with UBS: 66,7% Average number of reported diseases: 2,4

to be continued

Continuation of Table 1

Author, year, place of study, and journal	Research design	Sociodemographic characterization, health, and behavioral profile
Saraiva et al., 2020 Crato (CE) Journal of Diabetes e Metabolic Disorders[13]	Cross-sectional study	N = 300 Gender: male (35.7%) and female (64.3%) Age: average 61 years old Education: up to 8 years of study (65%) Marital status: married (69.7%) Monthly Family Income: up to 1 minimum wage (65%) Regular practice of physical activity: 40.3% Number of chronic complications: 1 to 2 (52.7%)
Schmitt Júnior, Lindner, Santa Helena, 2013 Blumenau (SC) Revista de Associação Médica[14]	Cross-sectional study	N = 150 Gender: male (27.8%) and female (72.2%) Age: 60 to 69 years (62.9%) Education: 3 to 4 years of study (45.7%) Color: White (81.2%) Marital status: married/common-law marriage (47%) Number of medications: 5 or more (43%) Prescription of inappropriate medications for older people (16.6%)
Silva et al., 2014 Londrina (PR) Revista de Ciências Farmacêuticas Básica e Aplicada[15]	Cross-sectional study	N = 117 Gender: male (35.7%) and female (65%) Age: 60 to 69 years (45.3%) Education: up to 7 years of study (65%) Color: White (70.9%) Self-perceived health: bad or very bad (13.7%) Does not practice any physical activity (65%)
Stefano et al., 2017 Marília (SP) Revista Brasileira de Geriatria e Gerontologia[16]	Cross-sectional study	N = 150 Gender: male (35.7%) and female (62,3%) Age: 60 to 69 years (53.5%) Education: up to 4 years of study (57,9%) Marital status: married/common-law marriage (49,1%) Retired or pensioners (78.9%)
Tavares et al, 2013 Bagé (RS) Revista de Saúde Pública[17]	Cross-sectional study	N = 1242 Gender: male (35.7%) and female (62,3%) Age: 65 to 74 years (45.3%) Education: 55.7% (up to 7 years of study) Socioeconomic status: C (39.5%) Self-perceived health: regular/bad/very bad (40.6%) Cognitive Deficit (13.4%) Disability for Instrumental Activities of Daily Living (34.6%) Number of reported morbidities: 3 or more (30.4%)
Ungari, Amauri, 2010 Ribeirão Preto (SP) Brazilian Journal Pharmaceutical Sciences[18]	Cross-sectional study	N = 109 Gender: male (15.6%) and female (84.4%) Age: 60 years and over (55.1%) Education: up to 8 years of study (75.35) Marital status: married (56%) Color: White (81.7%) Does not practice any physical activity (50.5%)

Table 2. Critical assessment of the methodological quality of the studies included in the systematic review according to Loney. Juiz de Fora, MG, 2021.

Author and Year	Quality Score	Assessment
Aiolfi et al., 2015.[10]	7	High Quality
Borba et al., 2018.[11]	7	High Quality
Obreli-Neto et. al., 2010.[12]	7	High Quality
Saraiva et al., 2020.[13]	7	High Quality
Schmitt Júnior, Lindner, Santa Helena, 2013.[14]	8	High Quality
Silva et al., 2014.[15]	8	High Quality
Stefano et al., 2017.[16]	7	High Quality
Tavares et al, 2013.[17]	8	High Quality
Ungari, Fabbro, 2010.[18]	7	High Quality

Table 3. Assessment methods, prevalence, and factors associated with non-adherence to pharmacotherapy of older people. Juiz de Fora, MG, 2021.

Author and Year	Assessment Method	Prevalence	Factors associated with non-pharmacological pharmacotherapy	Association measures and statistical significance
Aiolfi et al., 2015.[10]	8-item Morisky Medication Adherence Scale (MMAS-8)	68.5% (Non-Adherence)	Absence of cognitive deficit Younger older people	PR= 1.28 (95% CI 1.02 - 1.61); p=0.003* PR= 1.62 (95% CI 1.27 - 2.01); p<0.001*

Borba et al., 2018.[11]	Positive response to questions related to the use of medications	66.7% (Partial Adherence) and 6% (Non Adherence)	Beliefs related to the use of medications:
			    For partial adherence
			    For non-adherence
				Adjusted OR = 9.65 (95% CI 1.6 - 56.6)**
				Adjusted OR = 18.15 (95% CI 3.5 - 95.4)**
				OR adjusted by the variables: self-perception of health, understanding the explanations about diabetes, and professional responsible for guiding treatment.

Obreli-Neto et. al., 2010.[12]	8-item Morisky Medication Adherence Scale (MMAS-8)	37.3% (Low adherence)	Patients' dissatisfaction with healthcare services Medication Regimen Complexity Index Number of medications taken Number of diseases reported Number of residents per household	r=0.884; p<0.0001 ** r=-0,705; p<0,0001 ** r=-0,604; p<0,0001 ** r=-0,604; p<0,0001 ** r= 0,328; p<0,0001**

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Continuation of Table 3

Author and Year	Assessment Method	Prevalence	Factors associated with non-pharmacological pharmacotherapy	Association measures and statistical significance
Saraiva et al., 2020.[13]	Morisky-Green Scale (4 items) and Beliefs about Medicines Questionnaire (BMQ)	77.3% (Low adherence)	Marital Status (married)	RP= 1,27 (IC 95% 1,02 - 1.59) p=0,01 *
			Arterial hypertension	RP= 1,14 (IC 95% 0,99 - 1,32) p=0,03 *
			Does not practice physical activity regularly	RP= 1,16 (IC 95% 1,02 - 1.33) p=0,01 *
			Low belief in the need for medication	p=0,038**
Schmitt Júnior, Lindner, Santa Helena, 2013.[14]	Morisky-Green Scale (4 items)	35.4% (Non Adherence)	Previous interruption due to lack of medication	Adjusted OR = 2.9 (95% CI 1.3-6.9)p=0.01 **
			Prescription of inappropriate medications for older people	Adjusted OR = 2.9 (95% CI 1.1-7.9) p=0.03 **
				Adjusted OR for the variables: consumption class, how you feel about your treatment, and report of adverse reactions
Silva et al., 2014.[15]	Morisky-Green Scale (4 items)	45.3% (Non adherence)	Male gender	p<0.05 / ***
			Older age (octogenarians)	p<0.01 / ***
Stefano et al., 2017.[16]	Haynes and Morisky-Green Scale (4 items)	40.3% (Low adherence)	****	***
Tavares et al, 2013.[17]	Brief Medication Questionnaire (BMQ)	32.9% likely low adherence and 1/3 low adherence.	Age between 65 and 74 years old	Adjusted PR= 1.25 (95% CI 1.00–1.56); p=0.052 **
			Does not have health insurance	Adjusted PR= 1.01 (95% CI 1.00); p=0.028 **
			Need to buy (in whole or in part) the medications	Adjusted PR= 1.07 (95% CI 0.86 – 1.33)p<0.001 **
			Presence of three or more morbidities	Adjusted PR= 1.39 (95% CI 1.06 – 1.82)p=0.004 **
			Present functional disability for instrumental activities of daily living	Adjusted PR= 1.25 (95% CI 1.05–1.49); p=0.009 **
			Greatest number of medications used	Adjusted PR= 10.18 (95% CI 5.65 – 18.33); p<0.001 **
				PR adjusted by the set of variables presented

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Continuation of Table 3

Author and Year	Assessment Method	Prevalence	Factors associated with non-pharmacological pharmacotherapy	Association measures and statistical significance
Ungari, Fabbro, 2010.[18]	Morisky-Green Scale (4 items)	Less adherent: 20.2% (Criterion 1) and 56.9% (Criterion 2)	Lower degree of trust in the healthcare professional	PR= 1.06 (95% CI 0.26 - 4.31); p=0.03 *
			Greater number of antihypertensive medications used	PR= 1.78 (95% CI 0.80 – 3.92); p=0.071*

PR: Prevalence Ratio; OR: Odds Ratio; 95%CI: 95% Confidence Interval; *p:* probability of significance; *Calculated based on the paper's information; **Data presented in the original paper; ***Not possible to calculate the association measure; **** Only presented the descriptive analysis.
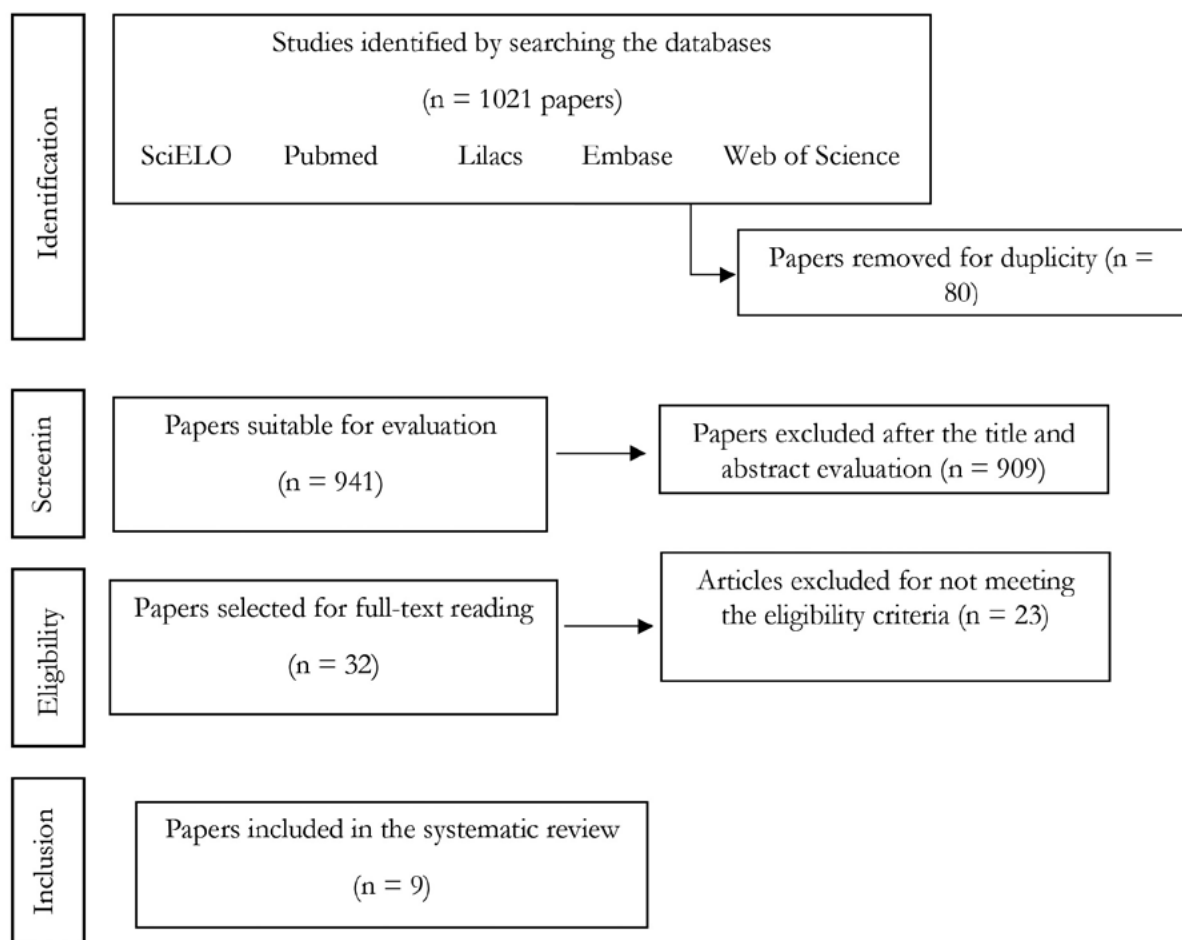

Figure 1. Flowchart of the search process, selection steps, and reasons for excluding the studies selected for systematic review. Juiz de Fora, MG, 2021.

DISCUSSION

The production of papers involving this theme of older people in PHC in Brazil is scarce. This revelation is presumably related to the challenges of PHC given the growing demand due to the population aging and the offer of practices under the logic of the biomedical model, which make it difficult to look at the multiple demands of the older person from the perspective of integrality[19,20].

The cross-sectional study was the only type of epidemiological research found, and not all authors[10,13,15,16,18] presented the association measures expected for studies with this design. In addition, the study[16] carried out in Marília (SP) was restricted to the descriptive analysis of the findings, which made it impossible to verify any association with the outcome, regardless of its nature.

Cognitive deficit and older age are pointed out by some researchers as risk factors for non-adherence to pharmacotherapy, which can be attributed to the increase in comorbidities that tend to accompany aging and also the difficulties related to the cognitive deficit, such as memory, attention, and concentration[17,21]. Opposing these findings, the study by Aiolfi et al.[10] observed the association between the absence of cognitive deficit and younger age as risk factors for non-adherence. According to the authors, this correlation is because younger older people have less support from family members and caregivers to help manage medication compared to those with some degree of cognitive deficit and older age. On the other hand, it is worth noting that a screening instrument for the cognitive decline was used, and not a specific test for the diagnosis of cognitive deficit. These findings reinforce the need for a care model in PHC involving the multidimensionality of care, which is anchored in physical, mental, functional, environmental, social, and other aspects[22].

In the study by Borba et al.[11], negative self-perceived health revealed an association with non-adherence to pharmacotherapy in the bivariate analysis. Although the independent variable was not associated with the outcome in the multivariate analysis, it is worth discussing this association since self-perception is a robust and powerful indicator in health care for measuring the quality of life and a predictor of morbidity and mortality recommended by the World Health Organization (WHO), being widely used in epidemiological studies related to population aging[23-26]. It is capable of synthesizing the interaction of multiple factors, such as the older person's physical, psychological, cognitive, and social well-being. Its application contributes to the development of prevention and health promotion actions within the scope of PHC, to the identification of priority needs, and the planning of public policies. This finding corroborates other studies relating it to the loss of autonomy and functional capacity, among which the ability to manage and take their medications[23-25].

Functional incapacity was identified as a factor associated with non-adherence to pharmacotherapy. A study carried out by Ikemagi et al.[26] with community older people points out the feedback relation between drug treatment and functional performance that can occur in some cases. It is important to mention that functional performance is an important component of functional capacity. Older age[15], the greater number of chronic diseases,[12,17] and not practicing any physical activities[13] are factors associated with non-adherence and are also related to functional disability, thus demonstrating the existing interconnection in the complex health production of the older person. This entire spectrum emphasizes the difficulties in handling medications and the need for support from healthcare professionals to constantly stimulate self-care and medication adherence, especially in situations of vulnerability[26-28].

Furthermore, the lower degree of trust in the medical professional is also a factor for non-adherence[18]. In a study with older people from a multidisciplinary health center, Oliveira et al.[27] identified that low knowledge about the therapy, low clarity about the health-disease process, and impaired communication in the patient-professional relationship predisposes to the risk of non-adherence. Also, this condition is exacerbated when there are changes in the older person's routine to create delays and forgetfulness in the administration of medication, and these factors are also related[27].

In this perspective, some beliefs are understood as ideas, convictions, and attitudes taken by individuals towards health and that influence their quality of life, including the lack of NCD control as a result of non-adherence on the part of those who do not believe in pharmacotherapy. This condition makes beliefs an extremely delicate associated factor that needs to be explored by health professionals[11,29].

The education of the older person is important for understanding the health-disease processes and for analyzing and understanding adherence. Although no association between the education level and non-adherence was found, it should be noted that in all studies a profile of low education was identified. It is important to consider that low education can lead to a poorer understanding of what is prescribed in consultations and appointments, as well as less initiative to adopt essential routine behaviors such as the use of medications[5,30].

The magnitude of social inequalities in health in Brazil is reflected in the profile and behavior of use and adherence to pharmacotherapy. Thus, adherence is worse mainly among people with worse income and education conditions. Data from the National Survey on Access, Use, and Promotion of the Rational Use of Medications (PNAUM), the first and most recent population-based survey, identified a 20.2% prevalence of non-adherence to pharmacotherapy for chronic diseases in Brazil, mainly heart diseases and metabolic diseases. This prevalence is unevenly distributed. In the Northeast region, non-adherence is 27.8% while in the South region of the country it is 17%. These regional disparities are directly related to worse access to medicines and lower use of healthcare services when compared to other regions[5,31].

Linked to this Brazilian social panel, several aspects related to medications can be identified as factors associated with non-adherence. Many older people with multi-morbidities often take many medications daily, which exposes them to polypharmacy - which is the concomitant use of five or more medications - and its consequences such as a higher incidence of adverse reactions, cumulative toxicity, iatrogenic events, potential drug interactions, and non-adherence to the pharmacotherapy[12,17,18,32,33]. A study carried out by Arruda et al.[34] with older

people from an outpatient clinic in Vitória (ES) showed that 61.4% of non-adherents deal with polypharmacy. This scenario is complex and can be avoided by encouraging the rational use of medication at individual and collective levels and with a multidisciplinary follow-up[34].

Another factor associated with the older person's non-adherence to pharmacotherapy is the use of potentially inappropriate medications[14], those presenting more use problems than clinical benefits due to changes in pharmacokinetic and pharmacodynamic responses as a result of the aging process. When associated with a condition of polypharmacy, the use of these medications considerably increases the manifestation of adverse events that make the patient abandon or interrupt the treatment[35]. Furthermore, the selection and prescription of medications for older people are critical points to be assessed by the management of pharmaceutical care and by prescribers, aiming to ensure patient safety in PHC[36,37].

Going against the idea of a robust PHC that should have universal coverage in the Brazilian territory, the socioeconomic condition ends up being an important marker of the profile of its users who are mostly from a lower socioeconomic level. Thus, access to and purchase of medications are one of the most worrying factors associated with non-adherence in the daily lives of older people, as many depend exclusively on the medications provided by the healthcare service they attend to continue the treatments[38].

Difficulties in accessing and purchasing medications or their lack were identified as factors for non-adherence in most studies, which shows their relevance for compliant pharmacotherapy. Considering the assumptions and objectives to guide a robust and resolute PHC, the medications prescribed must be standardized by the pharmacy of the basic healthcare unit and identified by the active ingredient with complete dosage and use prescription. Divergent situations may culminate in non-adherence problems, whether due to lack of financial condition for purchase, low level of trust in the health professional, or even lack of information to purchase and follow the prescription[38-40].

The Morisky-Green Scale (4 items) was the most frequently used instrument[10,12-16,18]. It is a psychometric scale with four items to which respondents respond dichotomously (yes/no), and the user classified as adherent is the one whose all responses were negative. Currently, it is the most used instrument in Brazil, and its wide choice is due to its easy application and low cost[8].

Regarding the prevalence measurement of non-adherence to pharmacotherapy, several methods can be used, such as interviews, pill counting, dispensing control, therapeutic monitoring, semi-structured questionnaires, among others. The diversity of instruments used to assess the outcome is a challenge for the comparative analysis of the findings. However, it should be noted that the method of choice is often based on the availability of the healthcare service budget, the availability of health professionals, the methodological and operational attributes of a survey, or even the profile of the population to be evaluated[41].

With the significant progress of pharmaceutical care in recent years and the enactment of several policies related to the area and context of the pharmacist's work, the importance of pharmaceutical care, especially for the older population in PHC becomes clear. This relevance is based on the possibility of the pharmacist monitoring individuals regarding the use of medications and identifying problems related to them. Based on this survey, the pharmacist proposes interventions in the use of medications and proposes interventions after the identification of each problem related to it to optimize the effectiveness and safety of the therapeutic treatments[42,43].

One of the proposals of pharmaceutical care is to enable the pharmacist to follow up and monitor the patient's use of medications, thus allowing a continuous assessment of adherence to pharmacotherapy and the adoption of different strategies for safe and rational adherence[42,43]. It is important to emphasize that the older person assisted by pharmaceutical care has all the necessary support to encourage adherence, as is the case in the city of Curitiba (PR), where PHCs offer it to all users and shows good and positive results on their health[42-44].

Therefore, the provision of pharmaceutical care is a potential investment and improvement that converges with the principles of SUS and reflects on the constant encouragement of healthy aging with health education proposals to assist on the older person's autonomy. Non-adherence to pharmacotherapy reflects a failure to control diseases and negative consequences for health in the short and long term, generating possible unexpected and additional expenses for SUS, and reflecting new health needs, hospitalizations, and the use of new technologies and resources[43,44].

Despite the adoption of all the methodological rigor involved in a systematic review, some limitations deserve consideration: the use of only an electronic library and database that make papers available for free, the small number of studies found, the heterogeneity between the outcome measurement methods and the analysis of adopted data that made it impossible to carry out a meta-analysis. Also, there is a discrepancy in the methods of statistical analysis used, and some studies[15,16,18] do not advance towards a more complex and robust statistical analysis, such as multivariate regression analyses. However, at the same time that these elements are configured as limitations, they are also signs of the need to deepen the discussion.

The critical assessment of the methodological quality of the studies included according to Loney's proposal points to high quality for all studies included. However, it should be noted that although the sampling criteria have been well delineated, the existence of biases in the sample selection and biases in the reporting of methodological processes is potential, as in studies[15,17] in which only participants living in the urban area were selected and a study considering only units with the Family Health Strategy to comprise the sample. It should also be noted that some of the studies[10,11,18] focus on specific health conditions such as Systemic Arterial Hypertension[10,18] and Diabetes Mellitus[11].

Therefore, studies investigating aspects of the older person's health in healthcare services require investments and continuous investigations to spread the expanded concept of health and meet the health needs of this population in line with

the attributes of the PHC such as longitudinality, comprehensiveness, accessibility, and coordination of care. Understanding the factors associated with the older person's non-adherence to pharmacotherapy has the potential to contribute in the field of public health and pharmaceutical care to a continuous search for quality of care in PHC and the effective implementation of public health policies for the older person[22,45-47].

CONCLUSION

The results point to difficulties in accessing medications, multimorbidities, polypharmacy, the use of potentially inappropriate medications for older people, the degree of trust in the health professional, beliefs, negative self-perceived health, and functional disability as the main factors associated with non-adherence to pharmacotherapy.

Note that these factors are subject to interventions as long as intersectoral policies focusing on individuals during their whole life are adopted, as well as strategic actions implying a new model of health care centered on the person, on the development of bonds, on the co-responsibility of care, and on the subjects' autonomy. Said model inversion becomes central from the strengthening of the PHC.

The high prevalence of non-adherence to pharmacotherapy in the Brazilian older population in the context of PHC is a reality. This situation imposes the need for health interventions based on comprehensive care, health promotion in its broadest sense, encouraging the rational use of medication, and adherence to pharmacotherapy to contribute to the quality of life of the older person and to guarantee active and healthy aging.

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