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Profile of utilization of drug with anticholinergic activity in older adults living in the community and associated factors

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Abstract

Objective: To analyze the anticholinergic burden (AChB) of older people living in the community and determine the associated factors. **Methods:** The design is a cross-sectional study. The older adults were interviewed in the outpatient clinics of two teaching hospitals in Belo Horizonte and at home. Convenience sampling.The dependent variable was the AChB in identified by the Brazilian Anticholinergic Activity Scale and the independent variables were divided into sociodemographic, clinical-functional and pharmacotherapeutic. The factors associated with AChB were analyzed by multiple logistic regression, significance with p-value of <0.05. The study was approved by a research ethics committee. **Results:** Among the 344 participants, the most prevalent self-reported diseases were hypertension (69.8%); other cardiovascular diseases (41.4%) and rheumatic diseases (35.5%). The median number of diseases was 3,0. interquartile range-IQR (2.0.-4,0) Most of the interviewees had multimorbidity; defined as two or more comorbidities. Of the 344 older adults, 178 (51.7%) were using drugs with anticholinergic activity and 49 (14.2%) had a AChB ≥3. The median AChB was 2.0 (IQR 1.0-3,0). In the univariate analysis, the factors that showed a positive association with AChB, considering a significance level of 5%, were: female gender, self-reported health perception, multimorbidity, polypharmacy, rheumatic diseases, neuropsychiatric diseases and neoplasm The variables with a p-value of <0.05 remained in the final model: gender, polypharmacy, neuropsychiatric diseases and neoplasm. **Conclusion:** Older people included in the study showed a high frequency of drugs use, but a percentage of older people with AChB ≥ 3,0 in pharmacotherapy was 14.2%. AChB was positively and independently associated with female gender, polypharmacy, neuropsychiatric diseases and neoplasm.

Keywords: cholinergic antagonists; drug-related side effects and adverse reactions; aged.

Perfil de utilização de medicamentos com atividade anticolinérgica em idosos na comunidade e fatores associados

Resumo

Objetivo: analisar a carga anticolinérgica (Cach) dos idosos vivendo na comunidade e determinar os fatores associados. **Métodos:** O delineamento é um estudo transversal. Os idosos foram entrevistados em ambulatórios de dois hospitais de ensino de Belo Horizonte e no domicílio. Amostragem por conveniência. A variável dependente é a CAch, identificada pela Escala Brasileira de Atividade Anticolinérgica e as variáveis independentes foram divididas em sociodemográficas, clínico-funcionais e farmacoterapêuticas. Os fatores associados com a CAch foram analisados por regressão logística múltipla, com nível de significância p<0,05. O estudo foi aprovado por comitê de ética em pesquisa. **Resultados:** Dentre os 344 participantes, as doenças autorrelatadas mais prevalentes foram hipertensão arterial sistêmica (69,8%); outras doenças cardiovasculares (41,4%) e doenças reumáticas (35,5%). A mediana do número de doenças foi 3,0 intervalo interquartil – IQR (2,0-4,0). A maioria dos entrevistados apresentou multimorbidade; definida como presença de duas ou mais comorbidades. Dentre os 344 idosos 178 (51,7%) faziam uso de medicamentos com atividade anticolinérgica e 49 (14,2%) apresentaram CAch ≥3. A CAch apresentou mediana de 2,0 (IQR 1,0-3,0). Na análise univariada os fatores que apresentaram associação positiva com a CAch, considerando nível de significância de 5%, foram: sexo feminino, percepção de saúde autorreferida, multimorbidade, polifarmácia, doenças reumáticas, doenças neuropsiquiátricas e neoplasia. No modelo final permaneceram as variáveis com valor de p<0,05: sexo feminino, polifarmácia, doenças neuropsiquiátricas e neoplasia. **Conclusão:** Os idosos incluídos no estudo apresentaram frequência elevada na utilização de medicamentos com atividade anticolinérgica, mas a percentagem de idosos com CAch ≥ 3,0 na farmacoterapia foi 14,2%. A CAch foi positiva e independentemente associada com sexo feminino, polifarmácia, doenças neuropsiquiátricas e neoplasia.

Palavras-chave: antagonistas colinérgicos; efeitos colaterais e reações adversas relacionados a medicamentos; idoso

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Introduction

Aging is a continuous, multifactorial, and complex process. During this stage of the life cycle, there is a higher incidence of non-communicable chronic diseases. As a result, there is an increased demand for healthcare services and, consequently, a greater use of multiple medications simultaneously—referred to as polypharmacy[1].

In the pharmacotherapy of older adults, the prescription of anticholinergic medications—such as atropine and scopolamine butylbromide—may be necessary. These drugs act by blocking muscarinic receptors. There are also medications from other pharmacological classes, such as amitriptyline, cyclobenzaprine, and carisoprodol, whose anticholinergic activity is not related to their therapeutic indication. These drugs exhibit indirect anticholinergic effects that are unrelated to their mechanism of action[2].

Central anticholinergic effects—such as delirium, cognitive decline, hallucinations, and dizziness—can negatively impact the functionality of older adults and contribute to poor health outcomes. Likewise, peripheral effects—such as blurred vision, constipation, urinary retention, and xerostomia—can also contribute to adverse outcomes[2–4]. Due to polypharmacy, older adults are more likely to use medications with either direct or indirect anticholinergic activity. Consequently, the use of such medications can lead to reduced functionality, cognitive impairment, and has been associated with severe outcomes such as hospitalization and mortality[4–5].

Therefore, assessing the impact of medications with anticholinergic activity (MAACh) is essential. One strategy for this assessment is the evaluation of anticholinergic burden (AChB), which is the result of the cumulative anticholinergic load from all medications used by a patient. To determine individual AChB, anticholinergic activity scales are used; these were developed to estimate the potential for adverse effects. In 2019, a Brazilian scale of medications with anticholinergic activity was developed, encompassing drugs commonly used in the country[3–4].

Accordingly, the present study aimed to analyze the anticholinergic burden in the pharmacotherapy of community-dwelling older adults and to determine its associated factors.

Methods

Study Design

This is a cross-sectional study with a quantitative approach. The data were obtained from the research project entitled "Development and validation of a medication literacy measurement test for older adults."

Data Collection

Older adults were interviewed at the outpatient clinics of two teaching hospitals and within the community in Belo Horizonte and the metropolitan region, between November 2021 and June 2022. The outpatient clinics were specialized in areas related to older adults healthcare, anticoagulation therapy, and women's health services. Data were collected through interviews conducted by previously trained pharmacy students, using a printed questionnaire developed specifically for research purposes. The data were then entered into a database created using EpiInfo software version 7.2.5.0 (Centers for Disease Control and Prevention, Atlanta, United States).

Participants were selected through convenience sampling and invited to participate. Inclusion criteria were: being 60 years of age or older, self-reported ability to read, and no hearing, visual, or cognitive impairments that could hinder communication with the interviewer. Invitations were extended during the time the older adults were in the waiting rooms of outpatient clinics or during home visits arranged through referrals by other older adults.

Participants who did not complete the Medication Literacy Test or who refused to sign the informed consent form were excluded from the study.

Dependent Variable

The dependent variable was the use of MAACh among community-dwelling older adults. MAACh were identified using the Brazilian Anticholinergic Activity Scale (Escala Brasileira de Atividade Anticolinérgica – EBAAch) [6]. The anticholinergic burden (AChB) was calculated as the sum of the scores assigned by the EBAAch to the medications listed in each participant's pharmacotherapy. AChB was categorized as high (≥ 3) or low (< 3), based on the clinical significance reported in the literature[7].

Independent Variables

Sociodemographic variables: sex, marital status, employment status (retired or not), age (≥70 or <70), years of education, and monthly family income in minimum wages.

Clinical-functional variables: i. Self-perceived health was measured using a Likert scale and categorized as either positive (excellent, very good, or good) or negative (fair or poor); ii. Self-reported diseases, classified as: hypertension, diabetes mellitus, other cardiovascular diseases (myocardial infarction, stroke, arrhythmia, thrombosis, angina, and congestive heart disease), rheumatic diseases (rheumatoid arthritis, osteoarthritis, psoriatic arthritis), osteoporosis, neuropsychiatric disorders (nervous or psychiatric problems), chronic kidney disease, and cancer; iii. Multimorbidity, defined as the presence of two or more chronic conditions[8]; iv. Cognition; v. Medication literacy.

Measurement of Cognition and Medication Literacy: Cognitive status was assessed using the validated instrument *Cognitive Abilities Screening Instrument – Short Form (CASI-S)*, developed by Teng et al.[9] and adapted to Brazilian Portuguese by Damasceno et al.[10]. According to CASI-S criteria, preserved cognition was defined as a score of ≥23, or ≥20 for individuals older than 70 years[10].

Medication literacy was assessed using data from the development phase of the *Test of Medication Literacy in Older Adults (TELUMI)*, which is currently undergoing psychometric validation within the *Medication Literacy* project.

TELUMI is in the process of psychometric analysis and consists of eight fictional scenarios involving medication use (package inserts, prescriptions, advertisements, and packaging), and 33 questions

about prescriptions for subcutaneous medication, syrups, tablets for daily and alternate-day use. It also covers the divisibility of oral tablets and over-the-counter medications. TELUMI items aim to assess the four domains and respective subdomains of Medication Literacy (ML), based on the conceptual model proposed by Pantuzza et al.[11]: functional (comprehension), communicative (access and communication), critical (evaluation), and numeracy (calculation). The TELUMI score can range from 0 to 33 points, and in this study, individuals with a score below 21 will be considered to have low medication literacy, while those with a score equal to or greater than 21 will be considered to have high medication literacy. This classification was determined through the calculation of the 75th percentile (P75), given that these are preliminary data.

Pharmacotherapeutic variables: Polypharmacy was defined as the use of five or more medications[12]. The medications were self-reported by the older adults, without the need to specify concentration or dosage. The interviewer recorded the medications using the data collection instrument. When the brand name was reported, the active ingredient was verified on the website of the Brazilian Health Regulatory Agency (Agência Nacional de Vigilância Sanitária – ANVISA). The chronic-use medications (MAAch) were classified according to level 3 (pharmacological subgroup) of the Anatomical Therapeutic Chemical (ATC) Classification System of the World Health Organization (https://atcddd.fhi.no).

Statistical analysis

Descriptive analysis included determining the frequency and proportion for categorical variables, as well as measures of central tendency and dispersion for numerical variables. Normality was assessed using the Shapiro-Wilk test.

Univariate analysis was performed using Pearson's Chi-square test or Fisher's exact test, depending on the assumptions of each test, to determine the association between chronic medication use (CAch) and the independent variables.

In the multivariate analysis, variables with $p<0.20$ were included. The Backward selection strategy was adopted to build the model. In the final model, only variables with $p<0.05$ were retained. The model's goodness-of-fit was assessed using the Hosmer-Lemeshow test. The database was created using EpiInfo software. Statistical analyses were performed using SPSS version 25.0, with a significance level set at 5%.

Ethical aspects

The study was duly approved by the Research Ethics Committee (CEP) of the Federal University of Minas Gerais – UFMG (CAAE: 19835219.4.0000.5149).

Results

The study included 344 older adults, with a median age of 68.0 years and an interquartile range – IQR (63.0–72.0). The majority were female (n = 229; 66.6%), and 207 (60.2%) had up to eight years of schooling. Most participants had a monthly household income of up to two minimum wages (n = 180; 55.2%), were retired (n = 204; 59.5%), and lived alone (n = 175; 51.3%) (Table 1). The clinical-functional characteristics of the older adults are shown in Table 1.

Table 1. Sociodemographic, clinical-functional, and pharmacotherapeutic characteristics of the older adults included in the study

Characteristic	Value*
Sociodemographic	
Age in years [median (interquartile range – IQR)]	68.0 (63.0-72.0)
Age ≥ 70 years [n (%)]	137 (39.8)
Sex: Female [n (%)]	229 (66.6)
Marital status: Without a partner [n (%)]	175 (51.3)
Occupation: Retired [n (%)]	204 (59.5)
Education: 0–8 years [n (%)]	207 (60.2)
Income**: ≤ R$ 2,200.00 [n (%)]	180 (55.2)
Clinical-functional	
Multimorbidity [n (%)]	176 (51.2)
Number of diseases [median (IQR)]	3 (2.0-4.0)
Hypertension [n (%)]	236 (69.8)
Other cardiovascular diseases [n (%)]	140 (41.4)
Rheumatic diseases [n (%)]	120 (35.5)
Diabetes mellitus [n (%)]	97 (28.7)
Neuropsychiatric disorders [n (%)]	80 (23.7)
Osteoporosis [n (%)]	48 (14.2)
Neoplasia [n (%)]	44 (13.0)
Chronic kidney disease [n (%)]	44 (13.0)
Cognition: Preserved [n (%)]	278 (80.8)
Self-reported health perception: Negative [n (%)]	117 (34.4)
Pharmacotherapeutic	
Number of medications [median (IQR)]	5 (4-7)
Polypharmacy [n (%)]	147 (42.7)
Anticholinergic burden [median (IQR)]	2.0 (2.0)
High anticholinergic burden [n (%)]	49 (14.2)
Medication literacy: Low [n (%)]	250 (72.7)

* Total varies depending on unanswered questions (N ≠ 344)
** Minimum wage value in effect during the year of the survey: R$ 1.100,00

The most prevalent self-reported diseases were: hypertension (69.8%), other cardiovascular diseases (41.4%), and rheumatic diseases (35.5%). The median number of diseases was 3.0 (IQR 2.0–4.0). Most participants presented multimorbidity (n = 176; 51.2%), preserved cognition (n = 278; 80.8%), and low medication literacy (n = 250; 72.7%).

Among the 344 older adults, 178 (51.7%) were using chronic-use medications (MAAch), and 49 (14.2%) had a high anticholinergic cognitive burden (CAch ≥ 3). The median CAch was 2.0 (IQR 1–3).

The pharmacotherapeutic profile of MAAch is presented in Table 2. The most frequently used MAAch were warfarin (n = 72; 23%), atenolol (n = 44; 14%), and furosemide (n = 40; 13%). The pharmacological groups acting on the nervous system (N06A: antidepressants; N03A: antiepileptics; N05A: antipsychotics; N02A: opioids) had the highest number of drugs with anticholinergic activity.

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Table 2. Medications with anticholinergic activity used by older adults (N = 344)

ATC Level 3	Drug	N(%)
B01A – Antithrombotic agents	Warfarin	72(20.9)
C07A – Beta-blocking agents	Atenolol, Metoprolol	54(15.7)
N06A – Antidepressants	Sertraline, Fluoxetine, Escitalopram, Venlafaxine, Citalopram, Nortriptyline, Amitriptyline, Bupropion, Trazodone, Imipramine, Paroxetine	53(15.4)
C03C – High-ceiling diuretics	Furosemide	40(11.6)
N03A – Antiepileptics	Clonazepam, Carbamazepine, Valproic acid, Phenobarbital	11(3.2)
N05A – Antipsychotics	Haloperidol, Quetiapine, Risperidone, Chlorpromazine, Lithium carbonate	11(3.2)
N05B – Anxiolytics	Alprazolan, Diazepam	9(2.6)
C02D – Agents acting on arteriolar smooth muscle	Hydralazine	8(2.3)
C03B – Low-ceiling diuretics, excluding thiazides	Chlorthalidone	8(2.3)
C01D – Vasodilators used in cardiac diseases	Isosorbide	6(1.7)
R06A – Antihistamines for systemic use	Dexchlorpheniramine, Diphenhydramine, Promethazine, Loratadine	6(1.7)
C09A – Angiotensin-converting enzyme inhibitors	Captopril	5(1.5)
H02A – Corticosteroids for systemic use	Prednisone	5(1.5)
N02A – Opioids	Codeine, Morphine, Tramadol	5(1.5)
C01A – Cardiac glycosides	Digoxin	3(0.9)
C08C – Selective calcium channel blockers with mainly vascular effects	Nifedipine	3(0.9)
M03B – Centrally acting muscle relaxants	Cyclobenzaprine, Carisoprodol, Orphenadrine	3(0.9)
R03B – Other inhalants for obstructive airway disease	Ipratropium, Tiotropium	3(0.9)
A01A – Stomatological preparations	Dexamethasone	2(0.6)
A03B – Belladonna and derivatives	Butylscopolamine	2(0.6)
C08D – Selective calcium channel blockers with direct cardiac effects	Diltiazem	2(0.6)
A03F – Propulsives	Domperidone	1(0.3)
A07D – Antipropulsive	Loperamide	1(0.3)
M04A – Antigout preparations	Colchicine	1(0.3)
N04A – Anticholinergic agents	Biperiden	1(0.3)
N04B – Dopaminergic agents	Pramipexole	1(0.3)

Table 3 presents the univariate and multivariate analyses of factors associated with CAch. In the univariate analysis, the factors that showed a positive association with CAch, considering a 5% significance level, were: female sex (odds ratio – OR: 2.49 [95% Confidence Interval – CI: 1.16–5.34]; p = 0.016), self-reported negative health perception (OR: 2.25 [95% CI: 1.22–4.16]; p = 0.008), multimorbidity (OR: 4.16 [95% CI: 1.25–13.83]; p = 0.012), polypharmacy (OR: 10.86 [95% CI: 4.71–25.02]; p < 0.001), rheumatic diseases (OR: 1.93 [95% CI: 1.05–3.56]; p = 0.033), neuropsychiatric disorders (OR: 3.99 [95% CI: 2.12–7.51]; p < 0.001), and neoplasia (OR: 4.50 [95% CI: 1.05–4.81]; p = 0.034).

In the final model, the variables with p-values < 0.05 that remained were: female sex (OR: 2.63 [95% CI: 1.16–5.97]; p = 0.021), polypharmacy (OR: 10.09 [95% CI: 4.26–23.85]; p < 0.001), neuropsychiatric disorders (OR: 3.32 [95% CI: 1.63–6.77]; p = 0.001), and neoplasia (OR: 2.96 [95% CI: 1.21–7.27]; p = 0.018).

Discussion

The frequency of MAAch use among the 344 older adults studied was high; however, the percentage of individuals with a high anticholinergic cognitive burden (CAch ≥ 3) was low. High CAch was independently and positively associated with female sex, polypharmacy, neuropsychiatric disorders, and cancer.

Other studies have reported data on the prevalence of medications with anticholinergic burden. A retrospective cross-sectional study conducted in Slovenia found that 43.1% of older adults used MAAch, and 56% of the total patients exposed to these medications were women, with antipsychotics and antidepressants being the most commonly used classes[13]. A Brazilian cross-sectional study identified the prevalence of anticholinergic medication use in 31% of participants, associated with polypharmacy, recent hospitalization, and occasional medication use, with a predominance of antidepressants, antiepileptics, muscle relaxants, loop diuretics, and antihistamines[14].

Medications with anticholinergic activity are frequently prescribed for older patients. Considering the presence of multimorbidity in this age group, the prevalence of hypertension, other cardiovascular diseases, and the setting of the study in an anticoagulation clinic, the high use of warfarin, furosemide, and atenolol is justified, especially since these conditions are generally associated with polypharmacy. These MAAch are indicated and effective for the patients' clinical conditions. Therefore, it is recommended that prescriptions be guided by a risk-benefit assessment, and that potential adverse effects of MAAch use be carefully evaluated[15].

The impact of exposure to anticholinergic medications in community-dwelling older adults was demonstrated in a cohort study conducted at a university hospital in Switzerland. It was found that older adults with a high anticholinergic burden at hospital admission had a positive association with mortality compared to those with no or low anticholinergic burden in their pharmacotherapy[5].

Female patients showed higher odds of using MAAch, a finding that may be explained by the higher rates of medication use among women, which increases the likelihood of MAAch usage. This greater propensity for medication use may be related to women's increased attention to health, which leads to more frequent use of healthcare services[16]. It is worth noting that the present study collected data in a women's health outpatient clinic, which may have contributed to this finding.

Table 3. Univariate and multivariate analysis

Variables	Anticholinergic Burden		Univariate Analysis*		Multivariate Analysis**	
	≥3	<3	OR	p-value	OR	p-value
	N (%)	N (%)	(IC 95%)		(IC 95%)	
Sexo						
Female	40 (17.5)	189 (82.5)	2.49 (1.16-5.34)	0.016	2.63 (1.16-5.97)	0.021
Male	9 (7.8)	106 (92.2)	1		1	
Age						
≥70	19 (13.9)	118 (86.1)	0.95 (0.51-1.77)	0.871		
<70	30 (14.5)	117 (85.5)	1			
Income***						
Up to R$2.200,00	27 (15.0)	153 (85.0)	1.34 (0.69-2.56)	0.378		
Above R$2.200,00	17 (11.6)	129 (88.4)	1			
Medication literacy						
Low	41 (16.4)	209 (83.6)	2.11 (0.95-4.68)	0.062		
High	8 (8.5)	86 (91.5)	1			
Self-reported health perception						
Negative	25 (21.4)	92 (78.6)	2.25 (1.22-4.16)	0.008		
Positive	24 (10.8)	199 (89.2)	1			
Cognition						
Cognitive deficit	8 (12.1)	51 (87.9)	0.79 (0.35-1.79)	0.583		
Preserved cognition	41 (14.7)	237 (85.3)	1			
Multimorbidity						
Yes	46 (16.5)	232 (83.5)	4.16 (1.25-13.83)	0.012		
No	3 (4.5)	63 (95.5)	1			
Polypharmacy						
Yes	42 (28.6)	105 (71.4)	10.86 (4.71-25.02)	0.000	10.09 (4.26-23.85)	0.000
No	7 (3.6)	190 (96.4)	1		1	
Hypertension						
Yes	38 (16.1)	198 (83.9)	1.59 (0.77-3.25)	0.202		
No	11 (10.8)	91 (89.2)	1			
Diabetes mellitus						
Yes	17 (17.5)	80 (82.5)	1.39 (0.73-2.64)	0.316		
No	32 (13.3)	209 (86.7)	1			
Other cardiovascular diseases						
Yes	25 (17.9)	115 (82.1)	1.58 (0.86-2.89)	0.140		
No	24 (12.1)	174 (87.9)	1			
Rheumatic diseases						
Yes	24 (20)	96 (80)	1.93 (1.047-3.557)	0.033		
No	25 (11.5)	193 (88.5)	1			
Osteoporosis						
Yes	6 (12.5)	42 (87.5)	0.82 (0.329-2.048)	0.671		
No	43 (14.8)	247 (85.2)	1			
Neuropsychiatric disorders						
Yes	24 (30)	56 (70)	3.99 (2.12-7.51)	0.000	3.32 (1.63-6.77)	0.001
No	25 (9.7)	233 (90.3)	1		1	
Neoplasia						
Yes	11 (25)	33 (75)	4.50 (1.05-4.81)	0.034	2.96 (1.21-7.27)	0.018
No	38 (12.9)	256 (87.1)	1		1	
Chronic kidney disease						
Yes	7 (15.9)	37 (84.1)	1.14 (0.47-2.71)	0.775		
No	42 (14.3)	252 (85.7)	1			

*Fisher's Exact Test. **Hosmer and Lemeshow Test: Chi-square = 3.73, degrees of freedom = 6, p-value = 0.713. ***Monthly household income measured in minimum wages. OR: odds ratio; 95% CI: 95% confidence interval.

The positive and independent association between CAch, neuropsychiatric disorders, and cancer can be explained by the study setting and the pharmacodynamic characteristics of the treatments. This association, found in the current investigation, is supported by the following aspects: (i) in supportive care for oncology patients, opioids and other central nervous system agents may be prescribed; (ii) antidepressants and antipsychotics, commonly included in the pharmacotherapy of psychiatric patients, inhibit muscarinic receptors and are often prescribed in combination therapy. Furthermore, among the outpatient clinics where participants were selected, there is a women's health unit that provides care for breast cancer patients, which may explain the high frequency of cancer among the older women included in this study[17-19].

Study limitations include potential recall bias, since medication use was reported without requiring prescription proof, which may have underestimated the frequency of MAAch use. Additionally, participants were not specifically asked about self-medication, which could also have led to underreporting of medication use. The study was conducted in only two outpatient clinics in the city of Belo Horizonte and with community-dwelling older adults from a single metropolitan area of the country, which limits the generalizability of the findings. Medication literacy was measured using a scale that is still in the validation phase, representing another limitation.

It is also important to highlight the use of the CASI-S in assessing patient cognition, as it is a cognitive screening tool and not intended for diagnosing cognitive impairment. In general, investigations involving cognition and anticholinergic burden employ more complex neuropsychological tests that assess memory, executive function, and figure-copying tasks[20-22]. The results of this study indicate a need to expand research on factors associated with high CAch through cohort studies.

Among the strengths of this study, the following can be cited: (i) the use of a scale adapted to the Brazilian context for calculating CAch; (ii) a sample with a significant number of participants; (iii) an up-to-date theoretical framework that supports the study findings; and (iv) insights into factors associated with anticholinergic burden in a real-world setting.

Conclusion

The community-dwelling older adults included in this study had a high frequency (51.7%) of chronic-use anticholinergic medication (MAAch) use, but the percentage of older adults with a high anticholinergic cognitive burden (CAch ≥ 3) was low (14.2%). High CAch was independently and positively associated with female sex, polypharmacy, neuropsychiatric disorders, and neoplasia.

Understanding the anticholinergic burden is an important strategy to guide pharmacotherapy optimization by the elderly care team. Interventions aimed at optimizing pharmacotherapy should take into account the factors associated with high CAch and the specific characteristics of older adults.

Authors' Contributions

GWM: conceived the study, analyzed and interpreted the data, drafted the manuscript, critically revised the article, and approved the final version.

LLP: conceived the study, collected the data, analyzed and interpreted the data, critically revised the article, and approved the final version.

AMR: conceived the study, analyzed and interpreted the data, drafted the manuscript, critically revised the article, and approved the final version.

Conflict of Interest

The authors declare no conflicts of interest.

Ethical Approval

The study was approved by the Research Ethics Committees via Plataforma Brasil (CAAE: 19835219.4.000.5149) and complies with Resolution 466/12, which regulates research involving human subjects.

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