Original Article

Alcohol and Medication Use Among Elderly Community-dwelling Brazilians[☆]

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S U M M A R Y

Background: Alcohol consumption among the elderly remains understudied, but alcohol interaction with the great amount of medicines taken by this age group could be a serious health problem. The aim of this study was to evaluate alcohol consumption and medicines used by an elderly sample from Pindamonhangaba, Brazil.
Methods: In a cross-sectional study, a representative sample of 123 elderly individuals (61.0% women) was interviewed by using the Alcohol Use Disorder Identification Test (AUDIT) to verify alcohol consumption. The medicines used by the sample were also surveyed.
Results: It was noted that the vast majority of respondents was classified as "low-risk consumption" (99.2%), followed by "harmful consumption"(0.8%). Alcohol dependency was not found. The average number of medicines used was 2.5 (± 1.3) medications/day. Regarding the distribution of medicines used by the elderly in this sample, the most used was captopril (33.3%), followed by acetylsalicylic acid (AAS) and hydrochlorothiazide (17.1%), and metformin (10.6%). With regard to the pharmacological class of medications used, the most used were antihypertensives (50.4%), diuretics (20.3%), and antidiabetic agents (13.8%). Only 13% of used medicines were considered inappropriate to the elderly, by Beers-Fick criteria.
Conclusion: Harmful consumption of alcohol in the evaluated sample was very low. The average of used medicines (2.5 medicines/day) was similar to those obtained previously in elderly populations in the same region, with relatively low use of inappropriate drugs for the elderly.
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1. Introduction

Population ageing is a worldwide phenomenon. In Brazil, the elderly population will increase by high rates (between 2% and 4% per year), while the youngest group is prone to fall. The elderly will increase from 3.1% of the total population in 1970 to approximately 19% by the year 2050[1].

Elderly individuals usually use large quantities of medicines, mainly due to the high number of chronic illnesses that occur with aging. Thus, the elderly constitute 50% of the users of multiple medicines, and it is common to find inappropriate indications,

inadequate dosage, interactions, inappropriate associations, and redundancy among medicine prescriptions to the elderly[2,3]. In an attempt to avoid the improper use of drugs in the elderly, Beers criteria was introduced and later modified[4]. It lists inappropriate medicines for the elderly, many of which are frequently used in Brazil[5].

The combined use of alcohol and drugs that interact with alcohol is not uncommon[6], and can cause significant adverse effects, hence the importance of checking carefully if the patient is a habitual user of alcohol before prescribing medications that interact with alcohol[7,8]. In elderly patients, who often use multiple medications[3,9], you can assume that adverse effects occurring following ingestion of alcohol may occur with even greater frequency.

The abuse of alcohol use among the elderly was reported as frequent (14% among men and 3% among women) in a recent nationwide survey in the United States[10]. In various population-

based surveys, there is greater prevalence of abusive use of alcohol among men[10–12]. Similar results were observed in New Zealand[13], where 9.9% of those older than 65 years; and in Brazil, with risk-consumption ranging between 4.3% and 10% among people with 60 years or more[14,15]. Thus, it is possible to verify the need to identify the abusive use of alcohol also among the elderly[10,16].

Various tools can be used to identify the abusive consumption of alcohol among elderly patients[16], and the Alcohol Use Disorder Identification Test (AUDIT), which is a questionnaire with 10 items specifically related to alcohol, developed by WHO[17], has been widely used in population samples, including elderly people, showing appropriate sensitivity to diagnose alcohol abuse among the elderly[16,18].

Thus, considering: (1) the increase of the elderly population; (2) consumption of multiple drugs by the elderly; (3) the harmful potential of interaction between drugs and chronic use of alcohol; 4) alcohol consumption by the elderly; and 5) the absence of papers, to the best of our knowledge, which evaluate these factors in the State of São Paulo, the present study assessed the alcohol consumption among the elderly of the municipality of Pindamonhangaba, Brazil using the AUDIT and, secondarily, investigated medicines used by this population and the possible correlations between the use of drugs and alcohol.

2. Materials and methods

2.1. City

The city of Pindamonhangaba-SP (one of the cities of the Paraíba Valley Metropolitan Area) was chosen as it is representative of an urban area of the State of São Paulo (the most populous Brazilian State), in the Southeast region of Brazil. The city has a GDP of US$2.2 billion, the large majority (96.4%) of the population live in the urban area, there is a literacy rate of 97.4%, and an average human development index of 0.815.

2.2. Participants

According to a demographic census, the elderly population in the city of Pindamonhangaba is 9562 individuals[19]. We included 123 individuals ($n = 123$), giving 1.28% of the estimated target population, which provided a sample power of 85.5%, with a statistical error of 5% (power and sample size tool, Minitab 5 (Minitab Inc., PA, USA)). After establishing the necessary sample size as described above, the desired sample ($n = 123$) was obtained by simple random sampling among the elderly registered in the elderly groups of the city. Each one of the 658 participants received a number from 01 to 658 and a table of random 123 numbers was generated, without duplicate numbers (http://stattrek.com/statistics/random-number-generator.aspx). Those patients whose numbers were presented in the table were selected to compose the sample of this study. Only 12 recruited individuals refused to participate, and a new table of 12 numbers was generated to achieve the desired sample.

The project of this survey was approved by the Committee of ethics in research from the University of Taubaté, according to the protocol number CEP/UNITAU 229/10, and all participants gave their informed consent by signing a written form.

2.3. Alcohol consumption and medicine use

Alcohol consumption among the elderly was assessed by applying a Brazilian validated version[14] of the AUDIT, by a single interviewer previously calibrated.

The annotation of the medicines used by the elderly was made in a separate form. After collection of data relating to used

medicines, each medicine was assessed (using the medical literature) regarding its active ingredient, pharmacological classification, Beers-Fick criteria classification, oral side effects, and possible interactions with alcohol.

2.4. Data analysis

After collecting the data, the results were characterized with descriptive analysis for quantitative variables and frequency distribution for the qualitative variables. The normality of the data was tested using the Anderson-Darling Test. As there was a normal distribution, parametric tests were used, such as Pearson's Correlation (correlation between quantitative variables) and the ANOVA to compare the results between covariates. The Chi-square test was used to test the association between qualitative variables.

3. Results

The average age was 68.8 ($\pm$ 7.6) years, with a maximum of 89 years and a minimum of 60 years. Women accounted for 61.0% of the sample.

Upon AUDIT application, it was noted that the vast majority (99.2%) of respondents were classified as "low-risk consumption" and 0.8% were classified as "harmful consumption". Alcohol dependency was not found.

The average number of medicines used was 2.5 ($\pm$ 1.3) medications/day (Table 1 presents the sex distribution for age and number of used medicines). Regarding the distribution of medicines used by the elderly in this sample, the most used was captopril (33.3%), followed by acetylsalicylic acid (AAS) and hydrochlorothiazide (17.1), metformin (10.6%), simvastatin (9.8%) and diazepam, losartan, and omeprazole (8.1%). For other medicines, the percentage was < 8.0%.

With regard to the pharmacological class of medications used, the decreasing order of use was antihypertensives (50.4%), diuretics (20.3%), antidiabetic agents (13.8%), nonsteroidal antiinflammatory

Table 1
Sex distribution for age, number of used medicines, and qualitative variables.

		Women		Men	
		n	Average	n	Average
Age		75	69.1	48	68.4
Number of used medicines		75	2.4	48	2.6
AUDIT	Low-risk consumption	182	100%	125	99.2%
	Harmful consumption	0	0%	1	0.8%
Beers-Fick's criterion	Appropriate	157	86.3%	111	88.1%
	Not appropriate	25	13.7%	15	11.9%
Pharmacological class	Antihypertensives	39	52.0%	23	47.9%
	Diuretics	18	24.0%	7	14.6%
	NSAID	8	10.7%	13	27.1%
	Antidiabetic agents	11	14.7%	6	12.5%
	Antiulcerants	4	5.3%	8	16.7%
	Benzodiazepines	8	10.7%	3	6.3%
	Antilipidemics	7	9.3%	4	8.3%
Oral side effects that could appear between most drugs used	Dry mouth	49	65.3%	38	79.2%
	Loss of taste and/or pain in tongue	26	34.7%	15	31.3%
	Angioedema involving lip, tongue or pharynx	6	8.0%	4	8.3%
	Liquen-type reactions	5	6.7%	2	4.2%
Medicines	Captopril	26	34.7%	15	31.3%
	Acetylsalicylic acid	8	10.7%	13	27.1%
	Hydrochlorothiazide	16	21.3%	5	10.4%
	Metformin	9	12.0%	4	8.3%
	Simvastatin	8	10.7%	4	8.3%
	Diazepam	7	9.3%	3	6.3%
	Losartan	6	8.0%	4	8.3%
	Omeprazole	4	5.3%	6	12.5%