

Factors associated with the consumption of drugs among the elderly of a basic unit
Fatores associados ao consumo de medicamentos entre idosos de uma unidade básica de saúde

Factores asociados al consumo de medicamentos entre ancianos de una unidad básica de salud

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The aim of the study was to analyze the pattern of drug consumption among the elderly and its associated factors. This was a cross-sectional study with 340 individuals older than 60 year of age, held in 2013. The elderly in this study were mostly women aged, 60-69 years. The prevalence of medication use was 99.7%. Combined drug use (>5 drugs) occurred in 35.3% of cases. The variables that showed statistically significant correlations with the amount of drugs were gender, skin color, marital status, the search for health services in case of illness, the practice of religion and the participation in leisure activities. The drugs used by the elderly belong to the anti-hypertensive category, followed by diuretic and anti-diabetic medicines. The proportion of drug use is high among the elderly, including drugs which are deemed inappropriate for this age group.

Descriptors: Aged; Polypharmacy; Socioeconomic factors.

O objetivo do estudo foi analisar o padrão de consumo de medicamentos entre idosos e fatores associados. Estudo transversal com 340 indivíduos com idade igual ou superior a 60, realizado em 2013. Os idosos que participaram deste estudo eram em sua maioria mulheres na faixa etária de 60 a 69 anos. A prevalência do uso de medicação foi de 99,7%. A polifarmácia (>5 medicamentos) ocorreu em 35,3% dos casos. As variáveis que apresentaram relação estatisticamente significativa com a quantidade de medicamentos foram o sexo, cor da pele, a situação conjugal, busca por serviços de saúde em caso de doença, prática de religião e participação em atividades de lazer. Os medicamentos utilizados pelos idosos pertenciam à classe dos anti-hipertensivos, seguidos pelos medicamentos diuréticos e antidiabéticos. A proporção de uso de medicamentos é elevada entre idosos, inclusive daqueles considerados inapropriados para idosos.

Descritores: Idoso; Polimedicação; Fatores socioeconômicos.

El objetivo del estudio fue analizar el estándar de consumo de medicamentos entre los ancianos y los factores asociados. Estudio transversal con 340 individuos con edad igual o superior a 60 años, realizado en 2013. Los ancianos que participaron de este estudio eran en su mayoría mujeres en el grupo etario de 60 a 69 años. La prevalencia del consumo de medicamentos fue del 99,7%. La polifarmacia (> 5 medicamentos) se produjo en el 35,3% de los casos. Las variables que mostraron una relación estadísticamente significativa con la cantidad de drogas fueron el sexo, color de piel, estado civil, frecuencia a los servicios de salud en caso de enfermedad, la práctica de religión y la participación en actividades de ocio. Los fármacos utilizados por los ancianos pertenecen a la clase de los anti-hipertensivos, seguidos por los medicamentos diuréticos y los antidiabéticos. La proporción del consumo de drogas es alta entre los ancianos, incluidos los considerados no aptos para personas mayores.

Descriptores: Anciano; Polifarmacia; Factores socioeconómicos.

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INTRODUCTION

Populational aging is considered to be a worldwide phenomenon, and it is already one of the greatest challenges for public health. Brazil is no exception¹. Estimates indicate that the elderly population may exceed 30 million people by 2020 - almost 13% of the population².

The morbidity that the elder population presents is characterized by a predominance of chronic and long lasting multiple disease, that demand follow-up, permanent care and periodical exams. The elders use more the health services, hospitalizations are more frequent than among adults and their bed occupancy rate is higher, when compared to other age groups^{3,4}.

Considering the prevalence of multiple diseases in the elders, they constitute the most medicated age group, and are exposed to combined drug therapies. Most elders consume at least one medicine, and approximately one third of them are poly-users, that is, consume five or more simultaneously⁵.

The practice of combining drug therapies, associated to the peculiar physiological and clinical conditions of the elders makes the use of medicines a reason of concern in the health sector. It is important to understand the patterns of drug use by this population, in order to pave the way for their rational use, thus providing the elders with higher quality of life and functional capabilities^{5,6}.

The objective of this study was to analyze the patterns of medicine consumption among the elderly, and its associated factors.

METHOD

This is a cross-sectional study with 340 60 or more year-old elders. The participants are not institutionalized, from both genders, capable of communicating, responsible for their own medication, and inhabit an area in the scope of the Family Health Strategy (FHS) in São Paulo, SP, from January to March, 2013. The research was conducted in the Southeast Coordination area - in the Vila

Mariana/Jabaquara region, whose Family Health Unit has 4930 elders registered. A sample by convenience was used, that is, all elders who met the inclusion criteria were consecutively included.

The study was conducted in the Basic Health Unit Santa Catarina, located in the South of the city of São Paulo, that belongs to the Vila Mariana/Jabaquara Health Coordination. This unit has four Family Health Strategy Teams integrated with the Center for the Support of the Family Health Team (CSFH), beyond the medical specialties: general medicine, gynecology, pediatrics, and psychiatry. A territory with approximately 25 thousand people is within its scope. Data were collected through structured questionnaires with pre-codified questions, after what a pilot study was conducted.

To account for the objective of the analysis, a Multiple Linear Regression model was proposed, in which the answer variable was the amount of medicines used by the elders, and the socioeconomic, demographic and lifestyle information were the predictor variables. The significance level considered in the model was 10%, that is, a variable will have an effect considered to be meaningful in the amount of medicines when its p-value is 0.10 or lower.

The project was approved by the Research Ethics Committee of the Federal University of São Paulo (Protocol 2012/11) and the Municipal Health Secretariat of the municipality of São Paulo (Protocol 378/11).

RESULTS

Most elders, 211 (62.0%), were female. Their age varied from 60 to 85 years old, with an average of 69 years and a standard deviation of 7.25. Brown skin was predominant, with 143 (42.0%) elders. 115 (38.8%), less than half, were widowers. A low educational level was frequent, and the sample was constituted mostly of elders with an incomplete elementary school education. The family income of most elders, 264 (77.6%), was from one to three minimum wages. The majority of them, 280 (82.0%) did not have any type of medical insurance. In case of illness, 154 (44.4%) of the participants

sought reference hospitals. Most elders, 325 (96.0%) practiced some religion. The majority of them had access to some type of leisure - 234 (65.9%). Regarding the practice

of physical activities, 273 (80.0%) of the elders were sedentary. 152 (45.0%) were ex-smokers (Table 1).

Table 1. Factors associated to the consumption of medicines by elders according to sociodemographic, economic, and lifestyle variables. São Paulo. 2013.

Variable	N	%	P-value
Gender			
Female	211	62.0	0.00
Male	129	38.0	
Age (years)			0.365
60-69	210	61.7	
70-79	94	26.4	
80 or more	40	11.9	
Skin color			<0.001
Brown	143	42.0	
White	108	32.0	
Black	89	26.0	
Marital status			0.007
Widow	115	33.8	
Married	103	30.3	
Single	83	24.4	
Divorced	39	11.5	
Educational level			0.079
Incomplete elementary school	177	52.0	
Illiterate	163	48.0	
Family income			0.018
1 to 3 minimum wages	264	77.6	
4 to 6 minimum wages	76	22.4	
Health insurance			0.478
No	280	82.0	
Yes	60	18.0	
Combined drug therapy			0.075
No	220	64.7	
Yes	120	35.3	
In the event of an illness the user seeks			<0.001
Hospital	154	45.4	
Pharmacy	93	27.3	
Primary Health Care Unit	93	27.3	
Religious practice			<0.001
Yes	325	96.0	
No	15	04.0	
Participation in leisure activities			0.01
No	234	69.0	
Yes	106	31.0	
Practice of physical activity			0.906
No	273	80.0	
Yes	67	20.0	
Smoking			<0.001
Current smoker	65	19.0	
Ex-smoker	152	45.0	
Never smoked	123	36.0	
Use of alcoholic beverages			0.375
Yes	89	26.0	
No	251	74.0	

The elders that participated in this study used, on average, 4.29 medicines, with

a minimum of zero and a maximum of 9, with a standard deviation of 1.47. Half the elders,

170 (50.0%) used between 4 and 5 medicines, and most of them, 293 (86.0%), used between 3 and 6.

After the variables were selected, a significant model was obtained (p -value<0.0001) and R^2 equal to 89%. All normality suppositions, homoscedasticity and independence of residue were satisfied, thus validating the adjusted model.

The variables that presented a statistically meaningful relationship (10% of significance) with the amount of medicines were gender, skin color, marital status, the search for health services in case of disease, religious practice and the participation in leisure activities.

The gender of the participant presented a statistically significant relationship to the amount of medicines (p -value=0.00), and it was positive for the

female gender, indicating that women tend to consume more medicines than men. The same was true for elders whose skin was black (p -value=0.02), also with a positive parameter.

In the case of illnesses, there was a statistically meaningful relationship to those who looked for hospitals (p -value=0.00) or Primary Health Care Units (p -value=0.01). Both parameters are positive, that is, elders who look for a hospital or for a Primary Health Care Unit when sick, tend to consume more drugs than those who just go to the neighborhood pharmacy. Looking for a hospital in the case of illness is the second strongest variable in the model and when it comes to the strongest statistical significant relationships, it comes second only to religion.

Table 2. Bivariate analysis of the variables that present a statistically meaningful relationship to the amount of drugs consumed. São Paulo, 2013.

Variables	N	Average	(IC 95%)	(IC 95%)
Gender				
Female	211	4.39	4.19	4.58
Male	129	4.13	3.87	4.40
Skin color				
Brown	143	4.13	3.87	4.40
White	108	4.34	4.08	4.61
Black	89	4.48	4.21	4.76
Marital status				
Widow	115	4.26	3.90	4.62
Married	103	4.38	4.09	4.67
Single	83	4.14	3.76	4.52
Divorced	39	4.32	4.05	4.60
In the event of an illness the user seeks				
Hospital	154	4.45	4.22	4.69
Pharmacy	93	4.13	3.81	4.44
Primary Health Care Unit	93	4.18	3.90	4.46
Religious practice				
Yes	325	4.3	2.6	4.2
No	15	3.4	4.2	4.5
Participation in leisure activities				
No	234	4.36	4.11	4.61
Yes	106	4.26	4.06	4.46

The practice of religion was the most statistically meaningful variable in the model. Its estimated parameter was 3.13, and its p -value, below 0.0001. When analyzing the average amount of drugs consumed by those who practice and those who did not practice

religion (Table 3), it was noted that the difference is among the highest of the variables. Those who do not have a religion use on average 3.4 medicines, while the statistic for those who do is 4.3 medicines (27% more).

The medicines used by the elders belong to the antihypertensive category, followed by diuretic and antidiabetic medications (Table 4).

Table 3. Multiple linear regression model associated to the consumption of medications among the elderly. São Paulo, 2013.

Variable	Estimated parameter	Standard error	T-statistic	p-value
Female	0.54	0.17	3.18	0.00
Skin color Black	0.44	0.19	2.35	0.02
Marital status Married	0.34	0.19	3.60	0.07
In case of illness Seeks hospital	0.70	0.19	3.60	0.00
Religious practice Yes	3.13	0.20	15.56	<0.001
Participation in leisure activities Yes	0.48	0.18	2.70	<0.01

Table 4. Drugs used by the elders according to therapeutic category. São Paulo, 2013.

Category	n	%
Antihypertensives	255	75.0
Analgesic/anti-inflammatory	204	60.0
Diuretic medications	181	53.2
Antidiabetic	131	38.5
Lipid-lowering agents	116	34.1

DISCUSSION

The elevated prevalence of the use of medications among the elderly (99.7%) concurs with the literature, and is within the expected average. The number is, however, superior to that found in Campinas, SP (80.4%)⁴ and Belo Horizonte, MG (86.2%)⁷.

Gender, age, and access to health care are not seen as predictors to the use of drugs among elders^{8,9}. In this research, women used, on average, more medicines than men, there being a statistically meaningful difference among the genders. Generally women seek health services more often, and are better at reporting their diseases⁴; therefore, they are more likely to use drugs.

In this study, the elder whose skin was brown tended to use more medicines. In spite of the rarity of studies that associate skin color to the use of medications, other researches^{10,11} highlight the tendency of hypertension among African descendants (people with black and brown skin), generating a tendency of consuming more drugs.

The marital status of the participants show that there is a high percentage of elders who do not have a partner - grouping the single, widowed, and divorced ones - specially among the females. Such a high percentage coincide with the data about the elder population provided by the National Research by Sample Residences (PNAD)¹²,

conducted in 2011, which indicated that approximately 9.1 million elders lived with no partners.

The educational level of the elders in this study was low. This is a negative social condition, as it influences in the access of the people to health services, their opportunities of social participation, and the comprehension of their treatment and self-care, among other factors. There have been advances in the educational levels from 2000 to 2010, however, among people in this age group in Brazil, the Northeast still detains the higher rate of illiteracy among elders¹³.

Socioeconomic disadvantages were found to be combined to low educational levels. In spite of the limitations of this study regarding the generalization of results, other studies report elders in similar conditions. In a study conducted in Belém (PA), 74.1% of the elders in the sample had similar financial conditions to those of the elders in this study¹⁴. In Goiânia, GO, 71.2% of the elders had a family income of two minimum wages¹⁵.

In this study, socioeconomic disadvantages were found, as there were 264 elders with a family income of 1 to 3 minimum wages, that is, 77.6% of them. Family income is a determinant factor in the health situation of the elders. Possibly, in this stage of life, there is a higher need of medication, specific types of food, and other costs that the process of physical limitations brings on its wake.

In addition, due to the several changes that recently happened in familial structures, the elders may find themselves in a position where they need to support unemployed or ill family members. In this context, there has been a growth in the number of studies that show the relevance of the figure of the retired elder, pointing them out as family providers^{16,17}.

The elderly population has many needs that last for long periods and demand constant medical care. Elders use health services more frequently, increasing the expenses with medical and hospital treatments. These characteristics are a challenge for authorities, regarding planning,

managing and providing health services, which makes any knowledge about the needs and life conditions of this age group extremely important¹². The search for health services¹⁸ may increase the consumption of both prescribed and non-prescribed medications, leading to the risk of iatrogenic diseases among elders¹⁹.

The bivariate analysis has shown a strong association between the consumption of medicine and the religious practice of the elders, indicating that elders who practice religion tend to consume more medicine. A study conducted by the SABE project (Health, Well-Being and Aging)²⁰, with the elder population of the city of São Paulo, has not found any meaningful correlation between the use of drugs and religion. No other study associating medicines and religion was found²¹.

In this study, more than half of the elders were found to have or to have had contact with smoking, and were smokers or ex-smokers. This variable was statistically meaningful. Smoking compromises not only life expectancy, but also the quality of life.

Non-smokers have a much higher life expectancy than that of smokers, and even among elders, abandoning the habit of smoking generates an increase in the overall survival time, due to the reduction of the biological damages caused by tobacco²².

The prevalence of antihypertensive medication, among hypertensive elders, was high (75.0%), highlighting the importance of studying these products, which are among the most consumed by elders^{4,5,9,10}.

It was also noted that drugs for the central nervous system, analgesic and anti-inflammatory ones, are widely used, demonstrating how uncomfortable "being anxious" and the sharp pains cause in the elders. It is noteworthy that the simultaneous use of these therapeutic classes can lead to dangerous drug interactions²³.

The prevalence in the use of analgesic/anti-inflammatory drugs was high, when compared to previous studies (28.8%). A cross-sectional study conducted in Goiânia-GO has identified the prevalence of the consumption of analgesics in 0.8% of the

elders¹⁷. Another study conducted in the city of Sorocaba-SP²³ has identified a prevalence of 37% in its consumption.

In this study, there were no losses or dropouts, which is a positive factor that helps diminishing the possibility of selection bias and contributes to the internal validity of the research.

The study has some limitations that must be considered during the interpretation of the results. First, it is a cross-sectional study, that is, although it has found factors related to combined drug therapy, it cannot show cause-and-effect relationships.

On the other hand, although the study was conducted with elders who live within a community, its results might reflect only the reality in some regions of the municipality of São Paulo, while others may be different.

CONCLUSION

The data of the present study indicates a high proportion of drug use among the elderly, including medications found to be inappropriate for this age group. Most elders were females between 60 and 69 years of age, low educational levels, insufficient family income, and depended on the Unified Health System. They practiced a religion, did not frequently take part in leisure activities, and were mostly sedentary.

The high prevalence in the use of medications, especially from the category of cardiovascular diseases, show the necessity for the adoption of measures capable of encouraging physical activities and healthy eating habits. Furthermore, it is paramount to offer continuous orientation to the elders and their caretakers, regarding the use of medicines and the adoption of measures in the scope of pharmaceutical assistance.

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CONTRIBUTIONS

All authors contributed equally in the design of the study, its analysis, and in the final writing of the article.

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