



Self-medication among participants of an Open University of the Third Age and associated factors

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Abstract

Objective: to identify the prevalence of self-medication, the therapeutic classes used without medical prescription, the symptoms treated with such medication and associated factors among participants of an Open University of the Third Age (OU3A). *Method:* a cross-sectional, descriptive and analytical study was carried out, the sample of which was composed of 138 OU3A attendees. To estimate the association between the variables, prevalence ratios (PR), confidence intervals (95% CI), the chi-squared test and Fisher's exact test were used. *Results:* the majority were aged 60-69 years (61.6%), were female (75.4%), had a health plan (63%) and claimed to self-medicate (59.4%, 95% CI, 0-64.8). The most frequently mentioned therapeutic classes were analgesics (31.9%), muscle relaxants (13.8%), anti-inflammatories (13.0%) and first-generation antihistamines (7.2%). The most commonly reported self-medication symptoms were muscle and joint pain (21.0%), headaches (10.1%) and colds and flu (8.7%). There was a significant association ($p = 0.049$) among those who self-medicated more frequently and anti-inflammatory use (PR = 1.46, 95% CI = 1.10-1.99). The complaint of muscular and articular pain exhibited a significant association with the diagnosis of arthrosis ($p = 0.003$, RP = 3.75, 95% CI = 2.07-6.76) and hypothyroidism ($p = 0.002$, RP = 2.77 ; 95% CI = 1.50-5.10). *Conclusion:* the most frequently mentioned reasons for self-medicating were previous experience using the drug and the certainty that it is safe. Most of the above medications are potentially inappropriate for the elderly. However, the elderly consider them safe and are unaware of the risks to which they expose them. They may also be unaware that pain treated by self-medication may be related to pre-existing diseases, which require the appropriate professional and treatment.

Keywords: Self Medication. Health of the Elderly. Drug Utilization. Drug-Related Side Effects and Adverse Reactions.

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INTRODUCTION

The practice known as responsible self-medication is recommended by the World Health Organization (WHO) as a way of relieving the public health system. The WHO considers self-medication a responsible practice when individuals, in treating their own symptoms and minor ailments, use approved and prescription medications without a medical prescription. Such drugs are supposedly safe as long as they are taken as directed in the packaging inserts and labels¹.

In the European Union and in countries such as the USA, Canada and Japan, self-medication is a well-established practice, and responsible self-medication is used primarily for the treatment of non-serious symptoms and illnesses, such as colds, flu, common headaches, some types of mycosis, muscle pain and other clinical conditions¹.

In Brazil, self-medication is a very common practice, according to a review published in 2015². This review was based on Brazilian cross-sectional studies of high methodological quality that used population samples to analyze the use of drugs in the 15 days prior to the period of data collection. According to the survey, self-medication is exercised by about one-third of the adult population under the age of 65. For the authors of the study, the fact that Brazilians are living longer causes them to seek ways of avoiding the risks inherent in greater longevity, and medication use is seen as one of these means. The practice of self-medication becomes an important tool in this context.²

Between 2009 and 2015, pharmaceutical care workshops were offered at the Open University of the Third Age (OU3A) of the Universidade de São Paulo (USP). In these workshops, it was observed that the OU3A was predominantly made up of autonomous and socially active citizens with access to health services and who were medication users³. OU3A students, in general, have characteristics of successful and active aging⁴. In the OU3A context, participant health surveys enable the identification of the profile, demands and risk factors for negative outcomes among an elderly population that remains active and participatory. This knowledge favors the planning of actions aimed at maintaining functional capacity, autonomy and active aging.

An approach to self-medication, a practice which exposes the user, especially the elderly, to the risk of adverse events, requires delineable educational interventions that are applicable in the context of an OU3A. Based on the assumption that identifying the target audience is a key strategy for the successful planning of efficient health promotion actions, the objective of this study was to estimate the prevalence of self-medication, the classes of drug used without a prescription, the symptoms treated with the same and associated factors among individuals enrolled at the OU3A. We also sought to identify the reasons for adopting the practice, according to the participants.

METHOD

This cross-sectional, descriptive and analytical study was carried out at the OU3A of the School of Arts and Humanities (SAH) of USP. The survey began in the second half of 2016, when there were 243 students enrolled in the activities of OU3A of the SAH. In order to calculate the sample size needed for this research, a pilot study was conducted with 57 elderly people (the data of which were integrated into this study), of whom 32% reported self-medicating at times. Based on this estimated prevalence, a 95% confidence level and a standard error of 5%, the sample size was defined as 141 individuals.

Data were collected between August 2016 and October 2017. During recruitment, OU3A students were approached at the SAH and invited to participate in the survey, constituting a convenience sample. The inclusion criteria included students of both genders properly enrolled at the SAH OU3A. After the selection of those that fit the inclusion criteria, a total of 138 individuals were obtained.

A previously structured questionnaire was applied for data collection, in which the participants reported their age, gender, frequency of self-medication, reasons for self-medication, health problems, medicines used without a prescription and if they had a health plan.

For the question about the frequency of self-medication, four response options were provided: "always", "almost always", "sometimes", "almost never" (or "rarely") and "never". This categorization allowed us to estimate the frequency of self-medication. In

order to estimate the prevalence of self-medication, those who said they self-medicated "always," "almost always" or "sometimes" were considered practitioners of self-medication, irrespective of frequency, as well as those who reported that they "rarely" or "almost never" used medication without a prescription.

The questionnaire provided categories of motives for self-medication which could be selected by the participants and space to include other reasons. The pre-existing categories on the form were: "previous experience with the medicine or the health problem"; "have no health plan"; "advice from friends, family and neighbors"; "was sure about the safety of the drug"; "availability in pharmacies"; "money saving"; "time saving"; "lack of trust in doctors"; "lack of time to go to the surgery"; "delay in access to consultation or care"; "the health problem was not serious"; "recommendation of pharmacist or pharmacy assistant"; "recommendation of relatives or friends"; "advertising of medication".

The descriptive analysis of the data was performed by determining the measures of central tendency (mean) and dispersion (standard deviation) for the quantitative variables and the distribution of frequency and percentages (absolute and relative frequencies) for the categorical variables.

The prevalence rate was calculated according to the following formula:

$$\text{Prevalence} = \frac{\text{N}^\circ \text{ of cases in a given location and period}}{\text{population of same location and period}} \times 100$$

In addition to the prevalence, the association between variables was estimated by bivariate analysis. To estimate the strength of the association, the prevalence ratio (PR) and its confidence intervals (95% CI) were used as an effect measure. In inferential analysis, this association was also evaluated through the following hypothesis tests: Pearson's chi-squared test and Fisher's exact test. The latter was used in cases in which the expected frequency was less than five. Associations with a significance level of 5% ($p < 0.05$) were considered statistically significant. Data analysis was performed in the IBM SPSS Statistics package.

This research was approved by the Ethics Committee of EACH/USP, under approval number 1,354,768. All participants signed a Free and Informed Consent Form (FICF).

RESULTS

The sample consisted of 138 OU3A attendees. The mean age was 68.2 years (SD=6.4) and ranged from 56 to 84 years. Only three participants were aged between 56 and 59 years old. The majority were between 60 and 69 years old ($n=85$, 61.6%), were female ($n=104$, 75.4%), had a health plan ($n=87$, 63.0%) and said they practiced self-medication ($n=82$, 59.4%, 95% CI 54.0-64.8).

Table 1 shows the prevalence of self-medication according to frequency, the prevalence of the classes of drug used and the symptoms treated with self-medication. Individuals were considered practitioners of self-medication irrespective of whether they said they self-medicated "sometimes", "almost always" or "always" and also included those who reported that "rarely" or "almost never" used non-prescription medicines. One of the participants who self-medicated did not describe the frequency.

Of the medications consumed without medical prescription, the most frequently mentioned class was analgesics. Dipyron was reported by 40 participants (29.0%). Among muscle relaxants, nonsteroidal anti-inflammatory drugs (NSAIDs) and antihistamines, the most commonly reported were Orphenadrine ($n=15$, 10.9%), Diclofenac ($n=8$, 5.8%) and Chlorpheniramine = ($n=6$, 4.4%).

The symptoms most frequently used to justify self-medication were muscle and joint pain, headache and colds and flu, reported by 55 participants (67.1%). The least frequent causes were heartburn, abdominal cramps, diarrhea, and an obstructed bowel.

Table 2 shows the association between self-medication, regardless of frequency, and the variables age, gender, reported diseases and presence or not of a health plan. There was no statistically significant association ($p < 0.05$) between these variables and the practice of self-medication, irrespective of frequency,

although this practice was more common among patients with osteoarthritis and hypothyroidism. No significant association was found ($p < 0.05$) when these variables were analyzed in relation to the frequency of self-medication.

When the frequency of self-medication was compared with the drug classes used without a prescription, the use of NSAIDs was significantly associated with a higher frequency of self-medication ($p = 0.049$, PR = 1.46, 95% CI = 1.10-1.99) (Table 3).

Table 1. Prevalence of self-medication, classes of drugs used and symptoms attributed to the practice among participants of an OU3A. São Paulo, 2017.

Variables ^a	n (%)	CI95% ^b
Practice self-medication		
Sometimes, almost always or always	50 (36.2)	30.9; 45.5
Almost never	31 (22.5)	17.9; 27.1
Never	56 (40.6)	35.2; 46.0
Classes of medications		
Analgesics	44 (31.9)	26.8; 37.0
Muscle relaxants	19 (13.8)	10.0; 17.6
NSAIDs ^c	18 (13.0)	9.3; 16.7
Antihistamines	10 (7.3)	4.4; 10.0
Symptoms		
Muscle and joint pain	29 (21.0)	16.5; 25.5
Headache	14 (10.2)	6.8; 13.4
Gripes and colds	12 (8.7)	5.6; 11.8

^aExcluded in cases in which the question related to the variable was not answered; ^bConfidence interval; ^cNon-steroidal anti-inflammatory drugs.

Table 2. Association between self-medication, irrespective of frequency, and variables studied among OU3A participants. São Paulo, 2017.

Variables	n (%)	PR ^a (CI95% ^b)	p-value ^c
Gender			
Male	20 (58.8)	1.00	0.935
Female	62 (59.6)	1.01 (0.73; 1.40)	
Age range ^d			
60-69	51 (60.0)	1.07 (0.79; 1.45)	0.649
≥70	28 (56.0)	1.00	
Health Plan			
Yes	54 (62.1)	1.07 (0.80; 1.42)	0.670
No	28 (58.3)	1.00	
Diseases			
SAH ^e	56 (60.2)	1.04 (0.77; 1.41)	0.785
Diabetes	20 (54.1)	0.88 (0.63; 1.23)	0.437
Hypothyroidism	18 (72.0)	1.27 (0.95; 1.70)	0.157
Arthrosis	7 (77.8)	1.34 (0.92; 1.96)	0.213
Cardiac insufficiency	6 (42.9)	0.70 (0.38; 1.30)	0.183

^aPrevalence Ratio; ^bConfidence Interval; ^cPearson's chi-squared test or Fisher's exact test; ^dExcluding three participants who were under 60 years of age (between 56 and 59 years); ^eSystemic Arterial Hypertension.

Table 3. Association between drug classes used without medical prescription, attributed symptoms and frequency of self-medication among participants of the OU3A. São Paulo, 2017.

Variable	Practices self-medication				<i>p</i> -value ^c
	Sometimes. almost always. always		Almost never		
	n (%)	PR ^a (CI95% ^b)	n (%)	PR (CI95%)	
Drugs classes					
Analgesics	25 (61.0)	0.98 (0.69;1.38)	16 (39.0)	1.04 (0.60;1.81)	0.888
NSAIDs ^e	14 (82.4)	1.46 (1.10;1.99)	3 (17.6)	0.40 (0.14;1.17)	0.049
Muscle relaxants	13 (68.4)	1.15 (0.79;1.66)	6 (31.6)	0.78 (0.38;1.62)	0.493
Antihistamines	5 (50.0)	0.79 (0.41;1.50)	5 (50.0)	1.37 (0.68;2.73)	0.415
Symptoms					
Muscle and joint pain	19 (67.9)	1.16 (0.83;1.63)	9 (32.1)	0.77 (0.41;1.45)	0.409
Headache	9 (64.3)	1.05 (0.68;1.62)	5 (35.7)	0.62 (0.43;2.00)	0.829
Cold and flu	7 (58.3)	0.94 (0.56;1.56)	5 (41.7)	1.11 (0.53-2.31)	0.793

^aPrevalence Ratio; ^bConfidence Interval; ^cPearson's chi-squared test or Fisher's exact test; ^d Excluded in cases in which the question related to the variable was not answered; ^eNon-steroidal anti-inflammatory drugs.

As muscle/joint pain and headaches were the most prevalent complaints among those who self-medicated, the association between these complaints and the diseases mentioned was investigated (Table 4). The diagnosis of arthrosis ($p=0.003$, PR = 3.75, CI95%=2.07-6.76) and hypothyroidism ($p=0.002$, PR=2.77, CI95% =1.50-5.10) exhibited a significant association with the complaint of muscle and joint pain. The presence of hypothyroidism

and osteoarthritis also had a significant association ($p=0.010$, PR=3.59, 95% CI=1.76-7.29).

Table 5 presents the reasons for self-medication, according to the participants. The most frequent reasons were the fact that the medication had been prescribed before, previous experience with the medicine, being sure that the medicine is safe, advice of relatives or friends, and the non-serious nature of the health or illness problem.

Table 4. Association between reports of pain treated with self-medication and reported diseases among participants of the OU3A, São Paulo, 2017.

Variable ^a	Muscle and joint pain			Headache		
	n (%)	PR ^b (CI95% ^c)	<i>p</i> -value ^d	n (%)	PR (CI95%)	<i>p</i> -value
Diseases						
SAH ^e	20 (21.5)	1.10 (0.53;2.17)	0.839	9 (9.7)	0.87 (0.31;2.45)	0.504
Diabetes	9 (24.3)	1.23 (0.62;2.45)	0.594	1 (2.7)	0.21 (0.28;1.55)	0.670
Hypothyroidism	11 (44.0)	2.77 (1.50;5.10)	0.002	3 (12.0)	1.24 (0.37;4.10)	0.484
Arthrosis	6 (66.7)	3.75 (2.07;6.76)	0.003	1 (11.1)	1.10 (0.16;7.51)	0.630
Cardiac insufficiency	3 (21.4)	1.02 (0.35;2.95)	0.599	3 (21.4)	2.416 (0.76;7.64)	0.154

^aExcluded in cases in which the question related to the variable was not answered ^bPrevalence of Ratio; ^cConfidence Interval; ^dPearson's Chi-squared test or Fisher's exact test; ^eSystemic arterial hypertension.

Table 5. Reasons for self-medication, according to the participants of the OU3A. São Paulo, São Paulo, 2017.

Reasons for self-medication	n (%)
Medication had already been prescribed before. on another occasion	33 (40.2)
Had used the medication before	28 (34.2)
Was sure that the medicine is safe	21 (25.6)
Advice of relatives or friends	20 (24.4)
The health or illness problem was not serious	17 (20.7)
Previous experience with the health or illness problem	15 (18.3)
Recommendation of pharmacist or pharmacy assistant	11 (13.4)
Availability in pharmacies	10 (12.2)
Do not have medical insurance	7 (8.5)
Advertising of medication	7 (8.5)
Problem would have gone by time medical care was obtained	6 (7.3)
Lack of trust in doctors for diagnosis and treatment	6 (7.3)
Save money	4 (4.9)
Save time	2 (2.4)
Lack of doctors in health centers	1 (1.2)
Know what doctors will prescribe	1 (1.2)
Could not wait for appointment to relieve discomfort	1 (1.2)
In great pain	1 (1.2)
Because pain will pass	1 (1.2)
Takes too long to get appointment	1 (1.2)
Doctor did not resolve problem when last occurred	1 (1.2)
Information given by doctors on TV	1 (1.2)
Prevention	1 (1.2)

DISCUSSION

Self-medication is widespread among the elderly. A survey of 934 elderly residents in Goiânia (GO) found that almost 36% practiced self-medication, similar to other Brazilian studies⁵. However, in some studies, the practice is even more common. In a study with 344 elderly people conducted in Salgueiro (Pernambuco), 60% self-medicated. Individuals who do not practice physical activity used more medications on their own, which, for the authors, suggested that people who maintain healthier lifestyles resort less to medicines⁶.

In the present study, most participants were practitioners of self-medication. The most prevalent therapeutic classes were analgesics, muscle relaxants, NSAIDs and first-generation antihistamines. The prevalence of analgesic and non-prescription

NSAID use was similar to that found in other studies^{5,7}.

It was also found that one of the main reasons for self-medication, according to the participants, was being sure of the safety of using these drugs. This was the main reason for self-medication in a recent study conducted with elderly people in Iran⁸. However, muscle relaxants, NSAIDs and first-generation antihistamines are for the most part potentially inappropriate for the elderly. Muscle relaxants and first-generation antihistamines have anticholinergic effects and consequently increase the risk of falls and fractures. NSAIDs increase the risk of ulcer and gastrointestinal bleeding⁹.

In a cross-sectional population-based study of 1,451 elderly in Pelotas, Rio Grande do Sul, in 2014, the association of the practice of self-medication with

the use of drugs that were potentially inappropriate for the elderly remained even after adjusting for the other variables studied. For the authors, this indicates the need to raise awareness among the elderly to avoid the consumption of over-the-counter medications¹⁰.

Potentially inappropriate drugs for the elderly are those that should be avoided or used with caution in this age group. Therefore, the prescription of these drugs requires consideration of the risk-benefit relationship, the availability of alternative agents and non-pharmacological resources, the choice of the lowest required dose, the potential drug interactions and the monitoring of the effects on the patient¹¹. However, in Brazil, self-medication is stimulated by the misconception that the drug in question is a simple, risk-free commodity. In part, this is due to exposure to abusive advertising of drugs, which are made available to the consumer (through self-service) and also because the user often does not ask the pharmacist for advice when going to the pharmacy or drugstore¹. This situation is particularly worrying when the user is elderly and the "merchandise" is inappropriate for the age group, especially when the individuals in question are not aware of the risks.

It is also noted that the practice of self-medication is not restricted to prescription-only, over-the-counter (OTC) medicines. In every case, the dispensation of medicines, exempt or not from prescription, should be understood as a process of health care. Even the dispensing of non-prescription drugs is not free of instruction¹. When accompanied by appropriate guidance, the risks related to the use of medicines are reduced. This care is especially important when the dispensed medications are anticholinergic.

Free access to these drugs, especially when unprotected, raises the risk of adverse reactions. This happens for several reasons. First, unrestricted selling and advertising create the illusion that these products are innocuous and harmless, which no medication can be. This image, however, can increase consumption and excessive and irresponsible use. Secondly, these drugs are better known by their trade names than by their active principles. There are several trade names for the same drug, raising the possibility of overdose. In addition, the associated use of these drugs by the same individual increases the anticholinergic load - a cumulative effect of the

simultaneous use of more than one anticholinergic drug - and therefore, the risk of adverse reactions.

Such reactions may also be mistaken for symptoms of disease or clinical conditions and result in the prescription of another drug without the "symptom" being recognized as an adverse reaction. This situation characterizes what we know as the iatrogenic cascade. Cognitive decline, confusion, delirium, urinary retention, constipation, and visual disturbances are common adverse effects that may be - and are - confounded with symptoms of illness.

In the older age group, self-medication is mainly carried out to mitigate suffering such as pain⁴. In fact, in the present study, muscle and joint pain was prevalent among the symptoms treated with self-medication. On the other hand, this symptom has been associated with the presence of arthrosis and hypothyroidism, conditions that require appropriate professional treatment. The pain possibly associated with preexisting diseases may indicate that they are not being treated properly. Appropriate medical treatment can promote control of symptoms and thus reduce self-medication.

In short, the practice of self-medication exposes the individual, especially the elderly, to the risk of adverse events and iatrogenesis, subjecting them to functional impairments that may impair their autonomy and their capacity to participate. Tackling this practice through educational actions can reduce the associated risks.

In addition, it is important to explain to the individual the basis for the guidelines and instructions they receive. In USP OU3A pharmaceutical care workshops, participants begin to adhere to and follow the instructions when they know the reasons on which they are based. The patient is autonomous in decision making and may disregard the guidelines if they consider them irrelevant¹².

This type of educational approach is fully delineated and applicable in the context of the OU3A. Actions of this kind are consistent with collective health, which is a social practice that is transformative in nature, involving the studies of health conditions that seek to protect and promote health, quality of life and the social well-being of individuals and

the community¹³. This approach can be practiced in different organizations and institutions and by different agents, within and outside the spaces conventionally recognized as the health sector¹⁴.

In fact, it is fundamental that such guidelines and educational actions on self-medication are carried out, developed and expanded in the most varied contexts of attention and care for the elderly. Likewise, further studies on the characterization and factors associated with self-medication by the elderly, especially follow-up, case-control and qualitative studies, are needed to provide more detailed, precise and accurate information about these relationships. In the present study, the findings were limited by several aspects, such as sample size, which made a more profound analysis of the potential associations between variables difficult. Also, due to the cross-sectional design of the study, it was not possible to determine the direction of the associations identified, which can be achieved in follow-up studies. In addition, the information obtained is subject to memory bias, as it is self-reported, that is, based only on the reports of the participants.

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CONCLUSION

There was a predominance of practitioners of self-medication among participants from the Open University of the Third Age and most of the medications described were potentially inappropriate for the elderly persons involved, although they considered them safe. Muscle and joint pain, which stood out among the symptoms treated with self-medication, was associated with the presence of arthrosis and hypothyroidism, which require professional and appropriate treatment. Pain potentially associated with preexisting diseases may indicate that they are not being treated properly.

The practice of self-medication exposes the individual, especially the elderly, to the risk of adverse events, iatrogenesis, and the masking and aggravation of diseases, subjecting them to functional impairments that may compromise their autonomy and capacity for participation. Tackling this practice requires delineable and applicable educational actions in the context of Open Universities of the Third Age.

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