

# Self-medication practice trend among the Brazilian elderly between 2006 and 2010: SABE Study

## *Tendência da prática de automedicação entre idosos brasileiros entre 2006 e 2010: Estudo SABE*

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**ABSTRACT:** *Introduction:* Self-medication involves the concept of the spontaneous search by the individual for some drug that he or she considers appropriate to solve a health problem. Self-medication practice is little explored by the elderly according to other studies based in population data. *Objective:* To examine the trends in self-medication practice among the Brazilian elderly between 2006 and 2010. *Methods:* This is a population-based study whose data were obtained from the Health, Well-being and Ageing Study (SABE Study). The sample consisted of 1,257 elderly people in 2006 and 865 in 2010, who used drugs. *Results:* The findings showed self-medication reduction from 42.3% in 2006 to 18.2% in 2010. In both periods, predominant utilized therapeutic classes were those acting on the nervous system (27.9% in 2006, and 29.6% in 2010) and on the alimentary tract and metabolism (25.5% in 2006, and 35.9% in 2010). The most commonly used medicines in 2006 and 2010 were analgesics, anti-inflammatories, and vitamins. There was a tendency to decrease the use of potentially inappropriate medicines between 2006 (26.4%) and 2010 (18.1%). The elderly themselves were the main responsible for the decision about the drug use in 2006 (62.5%) and 2010 (66.5%). *Conclusion:* The extent of self-medication practice among the elderly who participated in the study decreased between 2006 and 2010, but the use of medicines that offer risks to health was still reported. Thus, the findings reinforce the importance of monitoring, evaluating, and continuously educating the elderly about risks and benefits of drug consumption, particularly over-the-counter medicines.

**Keywords:** Self-medication. Aged. Drug utilization. Inappropriate Prescribing. Pharmacoepidemiology. Cohort studies

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**RESUMO:** *Introdução:* Automedicação retrata o princípio do próprio indivíduo buscar espontaneamente por algum medicamento que considere adequado para resolver um problema de saúde. Essa prática é ainda pouco explorada entre idosos de acordo com outros estudos baseados em dados populacionais. *Objetivo:* Examinar as tendências da prática de automedicação dos idosos do Estudo SABE entre 2006 e 2010. *Método:* Estudo de base populacional cujos dados foram obtidos do Estudo Saúde, Bem-Estar e Envelhecimento (SABE). A amostra de 2006 foi constituída de 1.258 idosos e a de 2010, de 865 idosos que utilizaram medicamentos. *Resultados:* Observou-se redução da automedicação de 42,3% em 2006 para 18,2% em 2010. Em ambos os períodos, as classes terapêuticas predominantes foram as dos medicamentos com ação no sistema nervoso (27,9% em 2006 e 29,6% em 2010) e trato alimentar e metabolismo (25,5% em 2006 e 35,9% em 2010). Entre os medicamentos mais usados nos anos de 2006 e 2010 estão os analgésicos/anti-inflamatórios e vitaminas. Houve tendência a declínio da utilização de medicamentos potencialmente inapropriados entre 2006 (26,4%) e 2010 (18,1%). O idoso foi o principal responsável pela indicação da automedicação em 2006 (65,2%) e 2010 (66,5%). *Conclusão:* A extensão da prática de automedicação nos idosos do SABE apresentou redução entre 2006 e 2010, porém o emprego de medicamentos que oferecem risco à saúde ainda foi relatado. Desse modo, os achados reforçam a importância de monitorar, avaliar e educar continuamente os idosos acerca dos riscos e benefícios do consumo de medicamentos, sobretudo daqueles isentos de prescrição. *Palavras-chave:* Automedicação. Idoso. Uso de Medicamentos. Prescrição Inadequada. Farmacoepidemiologia. Estudos de coortes.

## INTRODUCTION

Worldwide, countries experience a significant growth of the elderly population. This demographic aspect has been accompanied by the widespread use of drugs and the harmful effects associated with their misuse<sup>1</sup>. The magnitude of drug consumption in this age group is a public health problem whose occurrence has, as context, the increasing prevalence of chronic diseases and the consequences of aging; the medicalization in the development process of the health professionals; the lack of continuity in elderly's care; the short-term solutions to the health problems; the large arsenal of medicines available in the market, including non-prescription drugs; and the practice of self-medication<sup>2</sup>.

The term self-medication is defined as the initiative of the individual or of the person responsible to obtain or use a product that will bring benefits to the treatment of disease or to the symptom without a prescription that should come from the doctor or dentist<sup>3</sup>. The practice of self-medication may occur by the sharing of drugs with family members, neighbors, or friends; by the use of drugs remaining from previous prescriptions; by the reuse of old prescriptions; by the extension of the treatment prescribed; and by the acquisition of the product without doctor's prescription<sup>4,5</sup>.

Although the consumption of injudicious drug may present more risks to the elderly, the self-medication phenomenon in this age group is still little explored. Research conducted with elderly shows diverse data regarding the prevalence, ranging from 17.7 to 31.2% in developed countries and 8.9 to 80.5% in developing countries<sup>4,6-12</sup>. These differences seem

to be more related to the method (sample, study site, evaluation of self-medication, type of analysis) than to self-medication itself.

Given that no drug is 100% effective and totally safe, self-medication can be considered a potentially harmful practice and a problem associated with drugs, especially in the elderly. Thus, the improper use of drugs without careful evaluation of a qualified professional can cause adverse reactions, the appearance of nonspecific symptoms, and deterioration of health condition.

In Latin American countries, the investment in strategies for monitoring practices related to the use of drugs has been limited to hospitals<sup>13,14</sup>, and there is still little emphasis on the situation of self-medication among the community-dwelling elderly.

In this context, the objective of this study was to examine the trends in the practice of self-medication among the elderly participating on the Health, Well-being and Ageing Study (SABE) between 2006 and 2010.

## **METHODS**

### **SAMPLE AND STUDY DESIGN**

This research is part of the SABE study.<sup>15</sup> The complete methodology is part of the first article of this supplement. In this study, the samples were used in 2006 and 2010. In the latter, elderly aged 60 – 64 years (Cohort C) were not considered in order to allow comparisons between the same populations who participated in the two periods, that is, 1,413 elderly in 2006 and 990 in 2010. Only the elderly who used drugs were considered for the analysis in the two time points of the study. Figure 1 illustrates the flowchart of the sample.

### **DATA EXTRACTION**

Data were collected by means of home interviews conducted by interviewers previously trained<sup>15</sup>. A questionnaire consisting of sections related to the living conditions and health status of the elderly was applied. The following questions were asked to obtain information about the use of drugs:

1. Mr. or Mrs. could please show me the drugs that you are currently using or taking?
2. Mr. or Mrs. could please tell me the names of the medicines you are using or taking?
3. Who did prescribe them?

The dependent variable was the practice of self-medication attributed to the referred use of at least one drug without the prescription of doctor or dentist, indicated by the pharmacist or pharmacy clerk, nurse, the elderly themselves, or others.

The drugs identified in the questionnaire were classified according to the Anatomical Therapeutic Chemical (ATC) classification system, adopted by the World Health Organization (WHO).

The independent variables were sociodemographic as gender, age, education (years of schooling completed), per capita income in minimum wages, and family arrangement; related to health status as self-rated health (categorized as very good/good, regular, and poor/very poor); presence of self-reported chronic disease (hypertension, diabetes, cardiovascular disease, cerebrovascular disease, osteoporosis and osteoarticular disease, and the total number of chronic diseases reported); and self-reported signs and symptoms; related to medicines as quantity and drug name; and related to the access to health services as type of health insurance and medical consultation in the last 12 months.

The Research Ethics Committee of Public Health of the Universidade de São Paulo (USP) approved the SABE study. All participants signed a consent form. There is no conflict of interest.

## STATISTICAL ANALYSIS

The characteristics of the elderly were evaluated according to the practice of self-medication in 2006 and 2010. The differences between groups were estimated by the Wald test

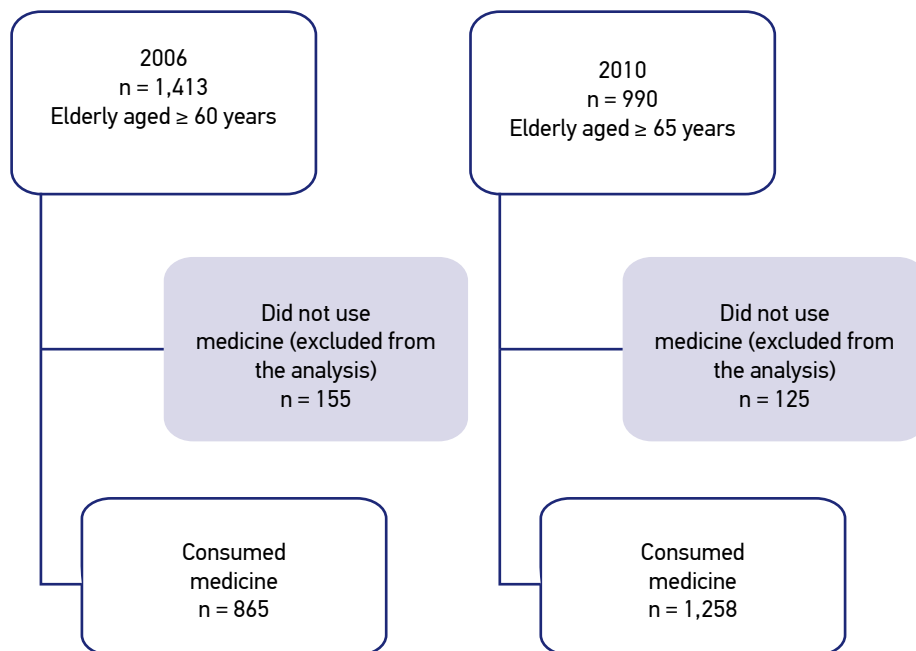


Figure 1. Flowchart of the sample. SABE study, São Paulo (2006 and 2010).

of mean equality and Rao–Scott test, which consider sample weights in population estimates with population weights.

The analyses were conducted by means of the Stata<sup>®</sup> version 11 (ST module), taking into account the sample weights and inferences considering the design effect.

## RESULTS

The trend of self-medication shows a significant reduction in the practice between 2006 and 2010. In 2006, the estimated prevalence was 42.3% (n = 525), and in 2010 18.2% (n = 172) of the elderly used at least one drug without prescription.

The profile of the elderly who practiced self-medication is presented in Table 1. In 2006, there were significant differences in relation to elderly who did not self-medicated in the variables related to gender, age, schooling, health-care, polypharmacy, and lung disease. In 2010, there was a significant difference regarding the group that only used drugs with prescription in the variables related to age, polypharmacy, doctor visits in the last year, and health symptoms (shortness of breath, fatigue, dizziness, nausea, and persistent vomiting), although chronic diseases were not significant to the practice of self-medication (Table 1). The average number of drugs used in self-medication revealed a tendency to increase — from 4.2 in 2006 to 6.1 in 2010.

Among elderly who reported self-medication in 2006, 17.3% (n = 61) continued to report the practice in 2010. Among the group who consumed only drugs with prescription, 83% (n = 381) of the participants remained consuming only prescribed drugs in 2010 and 17% (n = 84) started consuming at least one nonprescription drug.

In 2006 and 2010, 333 and 287 different medicines belonging to 12 ATC groups were identified, respectively. Chart 1 illustrates these drugs, according to the affected anatomical main group (ATC – level 1). The pattern of highlighted consumption of drugs in the action groups of alimentary tract and metabolism (Group A), and nervous system (Group N) was maintained in the years analyzed. A trend of increasing the use of such drugs, including also the agents acting in genitourinary and dermatologic systems, was observed. A trend of reducing the consumption of most ATC groups (58.4%) was observed.

Table 2 shows that drug consumption pattern (level 1) was similar in 2006 and 2010, highlighting dipyrrone, multivitamins, diclofenac, and acetylsalicylic acid (ASA). In the analysis of drugs, potentially inappropriate medications (PIM) were identified, observing downward trend between 2006 (26.4%) and 2010 (18.1%). The PIM present in both periods were dexchlorfeniramine, bisacodyl, scopolamine, carisoprodol, diazepam, naproxen, piroxicam and ferrous sulfate. In 2006, other PIM such as orphenadrine, ticlopidine, mineral oil, diphenhydramine, cimetidine, and estrogens have been used in self-medication. In 2010, the PIM group was smaller and included amitriptyline and chlorpropamide. Among the 20 prevalent drugs in both investigated periods, a trend of increasing the use of multivitamins, bisacodyl, paracetamol, and carisoprodol (Graph 2) was observed.

Table 1. Proportional distribution of the elderly who practiced self-medication, according to the period, sociodemographic variables, and health status. SABE study, São Paulo (2006 and 2010).

Sociodemographic variables and health status	2006 % (95%CI)	2010 % (95%CI)
<b>Gender*</b>		
Male	37.7 (31.5 – 44.4)	17.8 (12.9 – 24.2)
Female	45.0 (40.2 – 49.9)	18.5 (15.2 – 22.3)
<b>Age (years)**</b>		
60 – 74	44.0 (38.9 – 49.3)	15.8 (12.0 – 20.3)
75 or more	37.3 (31.7 – 43.2)	21.8 (17.5 – 26.8)
<b>Schooling (years)*</b>		
8 or more	34.7 (28.1 – 41.9)	18.2 (12.0 – 26.7)
4 – 7	39.5 (33.8 – 45.6)	18.0 (13.1 – 24.1)
1 – 3	46.6 (40.3 – 53.0)	17.6 (13.7 – 22.4)
None	47.5 (39.3 – 55.8]	19.8 (14.7 – 26.2)
<b>Income (MW)</b>		
None	37.4 (25.6 – 50.9]	15.6 (6.9 – 31.8)
Less than one	44.2 (36.9 – 51.8]	15.9 (11.3 – 21.9)
1.0 – 2.99	45.3 (39.3 – 51.4]	17.5 (12.5 – 24.0)
3.0 – 4.99	40.2 (32.6 – 48.3]	14.9 (9.3 – 22.9)
5.0 or more	36.6 (28.1 – 46.0]	20.8 (12.8 – 32.1)
<b>Family Arrangement</b>		
Living alone	43.2 (34.7 – 52.1]	19.4 (13.6 – 27.0)
Accompanied	42.3 (37.7 – 46.9]	18.0 (14.5 – 22.0)
<b>Health Insurance*</b>		
Public	46.2 (40.6 – 51.8]	17.3 (13.4 – 22.1)
Private	37.7 (32.7 – 43.1]	19.2 (15.2 – 23.9)
<b>Medical Consultation#</b>		
No	50.8 (38.7 – 62.8]	27.0 (18.6 – 37.6)
Yes	41.7 (37.3 – 46.2]	17.3 (14.3 – 20.9)
<b>Number of drugs**</b>		
1 – 4	39.3 (33.9 – 45.0]	14.6 (10.5 – 19.9)
5 or more	48.4 (43.4 – 53.4]	21.5 (17.8 – 25.6)
<b>Self-assessment of health</b>		
Very good / good	40.0 (33.8 – 46.7]	16.5 (12.5 – 21.5)
Regular	44.6 (38.9 – 50.3]	19.3 (15.7 – 23.4)
Poor / Very poor	42.1 (33.0 – 51.8]	23.5 (14.0 – 36.6)

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Table 1. Continuation.

Sociodemographic variables and health status	2006 % (95%CI)	2010 % (95%CI)
Number of diseases		
None	50.7 (40.0 – 61.3]	18.1 (10.6 – 29.2)
1	38.5 (31.4 – 46.1]	19.2 (13.4 – 26.8)
2 or more	42.3 (37.4 – 47.4]	17.9 (14.4 – 21.9)
Hypertension		
No	42.4 (36.3 – 48.8]	16.3 (11.6 – 22.5)
Yes	42.3 (37.3 – 47.3]	18.9 (15.4 – 23.0)
Diabetes		
No	42.8 (37.7 – 48.2]	18.5 (14.7 – 22.9)
Yes	41.2 (35.5 – 47.1]	17.5 (12.7 – 23.6)
Lung disease*		
No	41.2 (36.6 – 46.0]	18.1 (14.9 – 21.8)
Yes	51.2 (42.3 – 59.9]	19.3 (11.5 – 30.6)
Cardiovascular disease		
No	42.5 (37.3 – 47.8]	19.7 (15.7 – 24.4)
Yes	42.3 (35.2 – 49.7]	14.4 (10.0 – 20.3)
Cerebrovascular disease		
No	43.0 (38.7 – 47.4]	17.9 (14.7 – 21.6)
Yes	34.8 (24.5 – 46.7]	21.9 (13.8 – 32.8)
Osteoarticular disease		
No	42.7 (37.5 – 48.0]	16.8 (13.4 – 20.8)
Yes	41.8 (36.7 – 46.9]	20.5 (16.6 – 25.1)
Shortness of breath <sup>#</sup>		
No	41.8 (37.4 – 46.3]	17.2 (13.9 – 21.1)
Yes	46.4 (36.9 – 56.1]	24.1 (18.6 – 30.7)
Dizziness or persistent dizziness <sup>#</sup>		
No	42.5 (37.8 – 47.3]	16.7 (13.4 – 20.6)
Yes	45.4 (36.8 – 54.4]	23.1 (17.9 – 29.3)
Fatigue or severe fatigue <sup>#</sup>		
No	42.0 (36.8 – 47.3]	15.4 (12.3 – 19.2)
Yes	47.2 (38.5 – 56.0]	25.1 (19.8 – 31.2)
Nausea or persistent vomiting <sup>#</sup>		
No	41.4 (36.9 – 46.1]	17.7 (14.7 – 21.2)
Yes	52.7 (41.7 – 63.5]	27.5 (18.9 – 38.2)

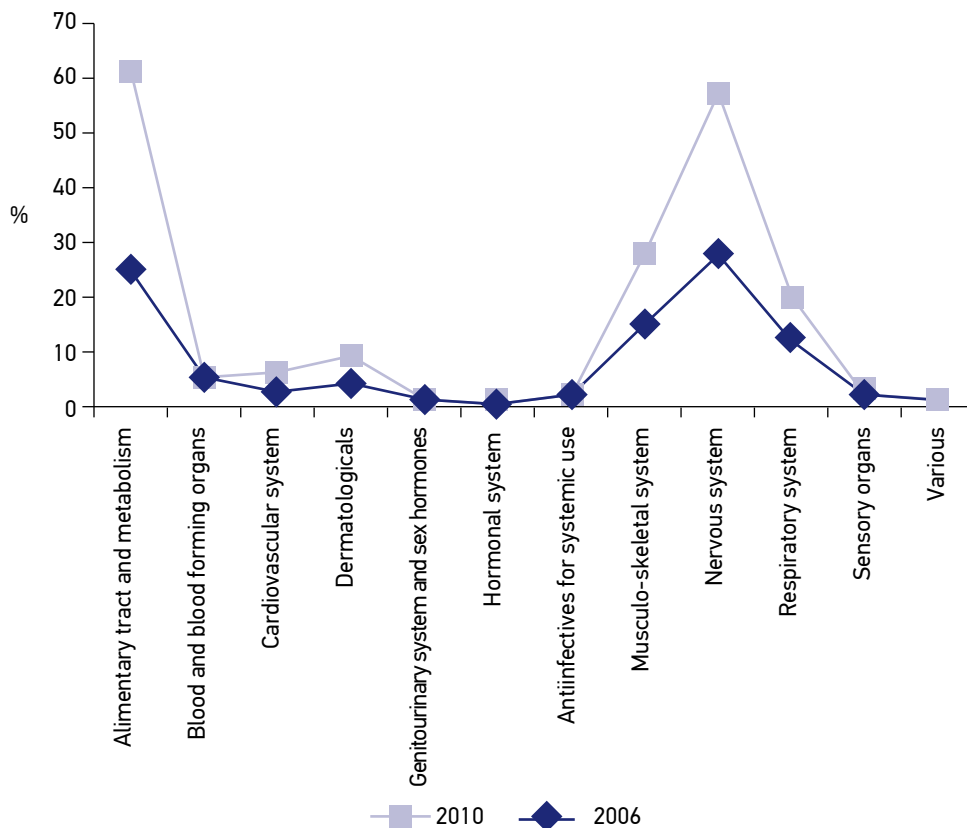
\*p < 0.05 in comparison to the group of elderly who did not self-medicated in 2006; #p < 0.05 in comparison to the group of elderly who did not self-medicated in 2010; MW: Minimum Wage.

The elderly was primarily responsible for the choice of medication used in self-medication in 2006 (65.2%) and 2010 (66.5%). The category other, which included neighbors, friends, and relatives, was ranked in the second position: 24.2% (2006) and 20.2% (2010).

## DISCUSSION

This study shows a declining trend of self-medication practice among the elderly of the SABE study, in 2006 and 2010. The therapeutic classes involved in this practice were predominantly the agents that acted in alimentary tract and metabolism and nervous system, emphasizing the multivitamins and analgesics such as dipyrene and diclofenac.

Self-medication observed in 42.3% of the elderly in 2006 was very close to that found in other studies, regardless of the country. In Spain and the United States, it was observed that self-medication occurred in 46 and 50% of elderly living in urban areas, respectively<sup>16,17</sup>. In Mexico, there was a prevalence of 53.5% in elderly<sup>18</sup>.



Graph 1. Distribution of drugs, according to the therapeutic group and period. SABE study, São Paulo (2006 and 2010).

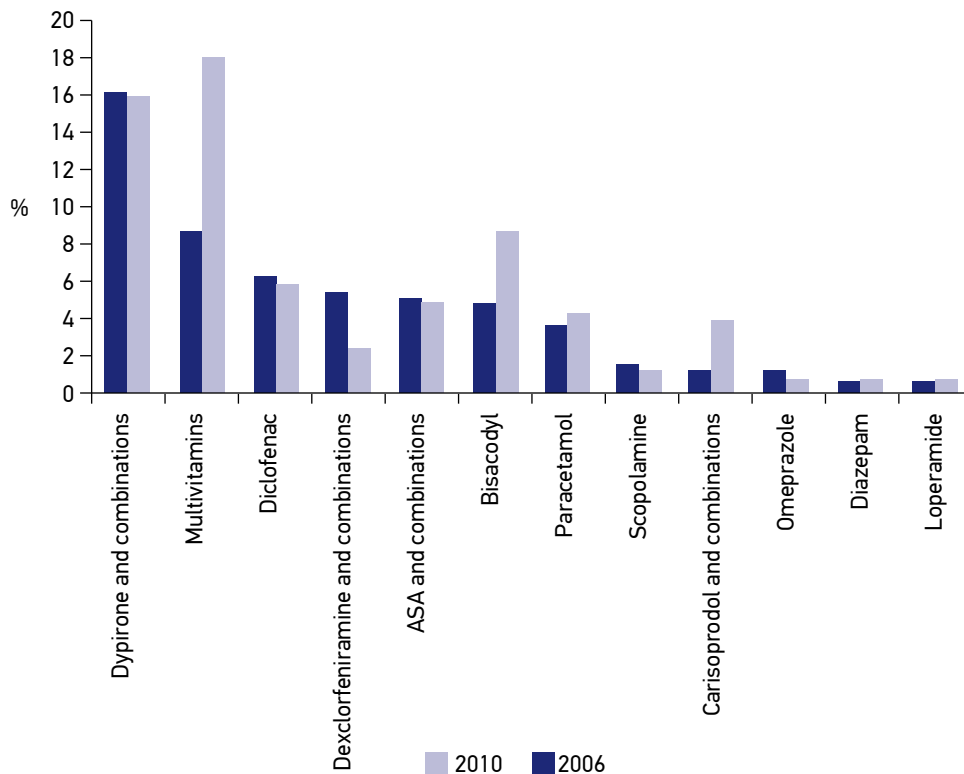


Consumption of over-the-counter (OTC) drugs, especially in large cities, may be motivated by values that predominate in modern society. Immediate solutions to health problems, ease of access to OTC products, unrestricted advertising in the media, and the absence of Brazilian regulation in 2006 that could limit the purchase of drugs may have partly contributed to this practice<sup>19,20</sup>.

In this study, a possible explanation for the reduction in the pattern of self-medication in 2010 may have been the Collegiate Board Resolution (RDC) No 44/2009 of the National Health Surveillance Agency (Anvisa), which prohibited drug exposure in free access shelves in drugstores. Thus, analgesics such as paracetamol and dipyrrone, which were among the

Table 2. Distribution of 20 drugs (level 5) most consumed in self-medication. SABE study, São Paulo (2006 and 2010).

Medicine	2006 Total n = 333	2010 Total n = 287
Dipyrrone and combinations	54 (16.2%)	46 (16.0%)
Multivitamins	29 (8.7%)	32 (11.1%)
Diclofenac	21 (6.3%)	17 (5.9%)
Dexclorfeniramine and combinations	18 (5.4%)	07 (2.4%)
Orphenadrine	18 (5.4%)	–
ASA and combinations	17 (5.1%)	14 (4.9%)
Bisacodyl	16 (4.8%)	25 (8.7%)
Ticlopidine	13 (3.9%)	–
Paracetamol	12 (3.6%)	12 (4.2%)
Magnesium Hydroxide	–	08 (2.8%)
Paracetamol + chlorphenamine + phenylephrine	–	06 (2.1%)
Simethicone	06 (1.8%)	–
Cough suppressants	06 (1.8%)	–
Scopolamine	05 (1.5%)	03 (1.0%)
Antinauseants	04 (1.2%)	–
Carisoprodol and combinations	04 (1.2%)	11 (3.8%)
Nimesulide	–	05 (1.7%)
Clomipramine and combinations	–	04 (1.4%)
Omeprazole	04 (1.2%)	02 (0.7%)
Diazepam	02 (0.6%)	02 (0.7%)
Loperamide	02 (0.6%)	02 (0.7%)



Graph 2. Distribution of ten drugs most consumed in both analyzed period. SABE study. São Paulo (2006 and 2010).

ten most consumed drugs, were not easily accessible to the consumer, remaining inside the counter. This fact may have contributed to some extent in the reduction of self-medication.

In the analyzed periods, the pattern of this practice varied according to age. In 2006, the elderly aged 60–74 years were the main practitioners of self-medication, in contrast to 2010, in which the age was 75 years or above.

The literature is quite divergent regarding the influence of age on self-medication<sup>21,22</sup>; however, this finding combined with the fact that the elderly themselves are the main responsible for the appointment of self-medication, is suggestive of the search for self-care in order to establish and maintain elderly's own health. One aspect that favors self-medication is elderly living alone. Often, he or she is the one responsible for own care and sometimes consider him or herself capable of selecting the appropriate drug for the solution of health problems they evaluate as small.

To these individuals, the search for treatment, especially for those of frequent symptoms such as pain, fatigue, and poor digestion, may be influenced by the media and by prior experiences, leading to the use of old prescriptions. The advertisements are an incentive to

self-medication, because information about the medications is incomplete, exploiting the unfamiliarity of consumers with drugs' adverse reactions<sup>19</sup>.

In this context, the risk of the problems related to self-medication can derive from two aspects. First, by not being formally monitored, the elderly are unaware of their clinical condition and the existence of any disease (potential or actual). Therefore, they choose the medicine they deem appropriate. Second, reduced visual acuity may occur, leading the elderly to present difficulties to understand and read the information contained in the medicine label, possibly taking the medicine in an incorrect manner. A study showed that 19% of the elderly people who practiced self-medication with OTC drugs had difficulty in understanding the label information and 12% were not able to read them<sup>16</sup>.

Similar to previous studies<sup>4,12,23</sup>, the item others appeared among those responsible for indication of self-medication, which may include family, friends, and neighbors. Factors that seem to favor the influence of third parties in the individual's decision are social interaction, exchange of experiences, and degree of dependence of the elderly. Regardless of the person involved in the indication of self-medication, the use of drugs without proper clinical assessment represents a risk.

In 2006, the practice of self-medication occurred in elderly people with low education (zero and one to three years of schooling), a finding consistent with other Brazilian<sup>12,23,24</sup> and Mexican research<sup>18</sup>. Elderly people with low education may present subjacent elements such as lower income and less access to health services, with exclusive dependence on the public health service. The precarious public health services and the low purchasing power of the elderly contrast with the ease of access to obtaining drugs without the payment for consulting a doctor and without a prescription. In SABE study, similar to that by Bambuí<sup>25</sup>, the search for self-medication seemed to replace medical attention in individual with low education.

In 2006 and 2010, polypharmacy showed a significant difference compared to the group that only used prescription drugs. Among the elderly, polypharmacy and self-medication are phenomena that tend to coexist. The care of the elderly by multiple prescribers, inadequate treatment generated by the lack of systematic follow-up, and ease of access to pharmacies are elements that may contribute to greater use of medicines. In the resolution of frequent health problems such as joint pain, poor digestion, and constipation, it is often more convenient to use medicine available at home than seek medical care, especially when the elderly is dependent on third parties or has low income. Often the elderly present two to six prescriptions and self-medicate with two or more medicines<sup>26</sup>.

Currently, polypharmacy and inappropriate self-medication are recognized as problems related to drugs that can lead to negative outcomes, such as adverse reactions, dangerous drug interactions, medication errors, and increased morbidity and mortality of the elderly<sup>2,27,28</sup>. A study revealed that in nursing homes for every US dollar spent on medicines, 1.33 USD was necessary to treat adverse events to medicines<sup>29</sup>. Self-medication, particularly, may mask symptoms or diseases and delay diagnosis of serious diseases<sup>2,16,21</sup>.

In the periods analyzed, the predominant therapeutic classes in self-medication consisted of drugs acting on the nervous system (Group N) and on the alimentary tract and metabolism (Group A), which is similar to the findings of other studies<sup>6,26</sup>. Many of these drugs are included in therapeutic classes that constitute PIM.

The high prevalence of drugs in the Group N is mainly because analgesics such as dipyrrone, aspirin, and paracetamol are included in this group, according to the ATC classification system. Due to the comprehensive pharmacological actions (reduction of fever, pain relief, and reduction of inflammation), these agents are useful in the treatment of acute and chronic conditions found in the elderly<sup>30</sup>. Similar to the SABE study, these drugs were the most consumed by the elderly in urban areas of different countries<sup>8,10,18,20,23,30</sup>.

In agreement with the research conducted in several countries, vitamins were the most utilized drugs acting on the alimentary tract and metabolism<sup>20,22,26,30</sup>. Worldwide, the consumption of vitamins has grown, especially in the 1970s, due to the popular belief that these products would be able to provide long and healthy life. Thus, nowadays the consumption of vitamins is higher among the elderly compared to other age groups. This behavior seems to be reinforced by the media and relatives. However, similar to any other medication, the effects are not innocuous and their indiscriminate use may cause intoxication. In addition, many elderly use vitamin complexes that are formulated with a fixed dose of the active ingredient. This may represent a problem as the individual's needs of specific components may vary according to the health condition of each individual. Thus, the use of these complexes may lead to unnecessary consumption of certain vitamins and insufficient intake of those that are essential.

The trend of self-medication with regard to the most consumed therapeutic classes was similar in 2006 and 2010. However, in a more detailed analysis, it was found that there was a tendency to decline the use of PIM, according to Fick et al.<sup>31</sup>. In 2006, one in four drugs (26.4%) was inappropriate. In 2010, the percentage was 18.1. Despite this reduction, PIM as dexclorfeniramine, bisacodyl, scopolamine, carisoprodol, diazepam, naproxen, piroxicam, and ferrous sulfate were present in both periods. One possible explanation for this pattern is that there were leftovers of these PIM that were previously prescribed, especially of those that are controlled.

In this topic, particularly, it is important to point out that more technical aspects related to medicines may influence the inappropriate consumption. The sale of these products in larger quantities than those of the prescription leads to medication leftover at the end of the treatment. This may induce the reuse of drugs in situations where the symptoms seem to be the same, as is the case of allergy, constipation, and abdominal cramps.

## CONCLUSION

In the scope of the geriatric pharmacoepidemiology, this study brings important contributions. This is the first study that demonstrates, by means of a population-based investigation,

the reduction of self-medication practice in 4 years, despite the maintenance of therapeutic classes of consumption that act on the nervous system and alimentary tract. We studied two cohorts of the elderly, and the tool applied to evaluate the dependent variable was the same. The question on self-medication was individualized to each drug referred to by the elderly, which allowed identifying among the set of drugs reported which in fact was used in the group of interest. In the analysis of the drugs, the PIM were also identified, according to the criteria of Fick et al.<sup>31</sup>. This fact demonstrates that the periodic review by the health professionals of the benefits and risks of all drugs used by the elderly is fundamental.

The study has limitations that should be considered in relation to the implications of the findings. Medicinal plants were not analyzed in self-medication, although the problems related to them are recognized. Data collection did not identify the reason for the elderly's self-medication, the dose or duration of the drug's use. Thus, drugs such as aspirin could not be examined in relation to the indication of the use (dose dependent). With regard to the responsible for the indication of the drug, the category other did not allow identifying who was the person responsible, limiting the comparison of the SABE study with other studies.

Finally, despite the declining trend in the practice of self-medication among the elderly included in the SABE study between 2006 and 2010, the findings reinforce the importance of monitoring, evaluating, and continuously educating the elderly about the risks and benefits of consuming drugs, especially nonprescription drugs.

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