

Psychoactive drugs in the Brazilian public health system: Use profile and associated factors

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The purpose of this study is to estimate the prevalence of and characterize the use of psychoactive drugs among drug users in a Brazilian municipality, relating the findings to factors associated with the consumption of these substances. Through a cross-sectional design, 1,355 drug users from the public health systems community pharmacies were interviewed. Sociodemographic and health-related data were collected, as well as any other prescribed drugs. The prevalence of psychoactive drug use within the last month was 31.0%, with antidepressants and benzodiazepines being the most prescribed (53.5% and 24.6% respectively). Most psychoactive drug users were female (81.9%), lived with a partner (52.6%), had private health insurance (69.2%) and a monthly per-capita income up to one minimum wage (54.0%). The adjusted Odds Ratio (OR) confirmed the following factors to be positively associated with the use of psychoactive drugs: female gender (OR=2.06; 95% CI 1.44; 2.95), age ≥ 60 years old (OR=1.77; 95% CI 1.26; 2.48), follow-up with a psychologist (OR=4.12; 95% CI 1.84; 5.25), absence of regular physical activity (OR=1.59; 95% CI 1.13; 2.23), and smokers (OR=1.94; 95% CI 1.26; 2.97). Approximately one out of three individuals used at least one psychoactive drug. Health managers should focus the planning and actions aimed at their rational use for these groups, leading to increased overall treatment success.

Keywords: Pharmacoepidemiology. Drug utilisation studies. Psychotropic drugs. Prescribing.

INTRODUCTION

In 2008, neuropsychiatric conditions were considered the highest overall burden among chronic non-communicable morbidities, with DALYs/1000 (Disability Adjusted Life Year) equal to 30.6; ahead of cardiovascular diseases (22.8) (Schramm *et al.*, 2004). The projections for 2030 are even more alarming and estimate that unipolar depressive disorders will become the leading cause of disability worldwide (WHO, 2004). Despite data scarcity, in Brazil, mental disorders (MD) are estimated to account for 20.3% of the global burden of disease (WHO, 2004). Likewise,

it is estimated that the total costs for MD will increase 2.5 times globally between 2010 and 2030, almost tripling in low and middle-income countries, where indirect costs (two-thirds of total) include loss of productivity due to MD-induced disability (Bloom *et al.*, 2011). Following this scenario, the use of psychoactive drugs (PAD) by the general population has continued to increase in the last decades – mostly antidepressants (Gualano *et al.*, 2014), as well as in Brazil (Rodrigues, Facchini, Lima, 2006).

The main risk of some PAD is the development of physical and psychic dependence due to inappropriate use (e.g. increasing dosages, abrupt cessation of treatment, or exposure for longer than recommended). Regarding benzodiazepines, 50% of the users who consume it for more than a year are estimated to present withdrawal syndrome (Bateson, 2002), or to continue using them for

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five to ten years (Podhorna, 2002). Furthermore, female gender and age represent factors associated with the use of PAD; however, these surveys are still limited in Brazil (Almeida, Coutinho, Pepe, 1994; Rodrigues, Facchini, Lima, 2006; Quintana *et al.*, 2013).

Inadequate consumption of these or any other medications significantly increases health care costs. Thus, drug utilization research is an important tool in describing patterns of PAD use for governments and health professionals to guarantee their rational use.

The purpose of this study is to estimate the prevalence of and characterize the use of PAD, relating these findings to associated factors with the consumption of such substances.

METHOD

Setting

This cross-sectional survey was carried out in the public health system of Ribeirão Preto (state of São

Paulo), with approximately 605,000 inhabitants. The Brazilian Public Health System provides the population free access to all care levels, including drugs supply. All the 30 pharmacies linked to public health units constituted the scenario of this study. There, drugs listed in the Municipal List of Essential Drugs are dispensed free of charge to every citizen residing in Ribeirão Preto-SP who presents a valid prescription. Regarding psychoactive drugs (PAD), 25 different active ingredients were available for dispensing, such as antidepressants, antiepileptics, anxiolytics, and antipsychotics, among others.

The study population consisted of users of any medication (psychoactive or not) attended by these establishments. We included adults who were getting medication for their own use. All the participants signed a consent term of participation for this study.

For better understanding of the study's operation (Figure 1), it consisted of the following steps:



FIGURE 1 - Study operation flowchart, December 2012.

Sample size and data collection

Previous Brazilian surveys showed a prevalence of PAD use between 5.2% (Almeida, Coutinho, Pepe, 1994) and 9.9% (Rodrigues, Facchini, Lima, 2006), but their methodological approach was different from the present study. Therefore, we set the prevalence of the main outcome at 50%, thus maximizing the sample size (Luiz, Magnanini, 2006). The confidence interval ($100-\alpha$) was 95% and the tolerable error (ϵ), 3%. The Sample size was calculated using the Epi Info™ STATCALC software (version 6.04, Centers for Disease Control and Prevention).

The calculated value was increased by 20%, considering eventual losses common to epidemiological surveys, which resulted in a sample of 1,360 individuals. This number was distributed among the 30 aforementioned pharmacies through proportional partition (according to each one's average customer attendance).

Data were collected through a personal form developed by the researchers. It included sociodemographic variables (gender, age, schooling, monthly per capita income, marital status, professional status, housing condition and access to health services) and other health related variables (follow-up with a psychologist, practice of regular physical activity - three days a week for at least 30minutes/day, coffee intake, alcohol consumption and smoking).

In addition, we recorded prescription information for the following analyses: prevalence of PAD use in the last month, PAD classification by the ATC/DDD system, number of PAD per person, and percentage of individuals using five or more drugs (polypharmacy) (Slabaugh *et al.*, 2010).

Further medications reported by the interviewee were also listed. The individuals without a PAD prescription who referred to use it were screened through a local database that registers all dispensed medications by the public health system in Ribeirão Preto-SP, PAD users being considered those who had received any of these medications within 30 days before the interview.

Data was collected from September to December 2012 by two trained interviewers, in a single interview with each volunteer. The interviewers randomly approached individuals while waiting in pharmacy lines

to get medications, and the interviews occurred at the same place. Refusals and those who did not meet the inclusion criteria were replaced by the next in line.

Statistical analysis

All the analyses were performed using the Statistical Package for the Social Sciences® program (SPSS Inc., version 17.1.0). The sample was described based on the use of PAD (yes/no). In order to compare independent variables between PAD users and non-users, independent-sample Student-t tests and chi-square tests were performed.

The univariate analysis identified factors associated with the use of PAD (dependent variable), by calculation of Odds Ratio (OR) and 95% confidence intervals (95% CI). Multivariate analyses were then performed to obtain OR adjusted values, through non-conditional multiple logistic regression (Enter method), by which it is possible to simultaneously adjust for the effect of confounding variables, herein considered as gender and age.

Ethics approval

The study was approved by the Research Ethics Committee of the School of Pharmaceutical Sciences of Ribeirão Preto - University of São Paulo, Brazil (CEP 066/2012).

All the procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards. Written consent was obtained from the participants enrolled in this study. All the information that could lead to the identification of the participants will not be published.

RESULTS

PAD use and associated factors

The final sample represented 1,355 interviews (five excluded due to fill-in errors). Two-thirds of the respondents were female (67.7%), the majority in the

45-59 age group (18—89 years old, A: 52.5, SD: 16.4). The monthly per-capita income ranged from zero to 8.2 minimum wages (A: 1.2, SD: 1.0), which corresponded to approximately US\$365.00 in the year 2012.

The prevalence of PAD use in the last month was 31.0% (n=420) (Table I), of which 147 (35.0%) were using

at least two PAD. The adjusted OR values confirmed the association with PAD use among the following variables: female gender, elderly, follow-up with a psychologist, no regular physical activity, and smokers (Table I). The probability of PAD use among women was twice the one among men. As to age, it was 77% higher for the elderly.

TABLE I - Prevalence and PAD use characterization (n=1,355), December 2012

Variables	PAD use		Univariate analysis OR [95% CI]	Multivariate analysis OR [95% CI] ^a
	Yes n [%]	No n [%]		
Sociodemographic				
Female gender*	344 [81.9]	573 [61.3]	2.86 [2.16; 3.79]	2.06 [1.44; 2.95]
Elderly (≥60 years)	169 [40.2]	353 [37.8]	1.11 [0.87; 1.41]	1.77 [1.26; 2.48]
Own housing*	324 [77.1]	672 [71.9]	1.32 [1.01; 1.73]	1.08 [0.76; 1.54]
No private health insurance	129 [30.8]	261 [27.9]	1.15 [0.89; 1.48]	1.20 [0.86; 1.66]
Schooling 0-8 years*	273 [65.2 ^b]	546 [58.5 ^b]	1.33 [1.05; 1.69]	1.23 [0.88; 1.72]
Per capita income 0-2 MW	353 [85.9 ^c]	755 [82.0 ^c]	1.34 [0.97; 1.85]	1.17 [0.77; 1.77]
Not living with a partner	199 [47.4]	395 [42.2]	1.23 [0.97; 1.55]	1.29 [0.95; 1.74]
Does not have a job*	297 [70.7]	516 [55.2]	1.96 [1.53; 2.51]	1.20 [0.84; 1.70]
Health related				
Follow-up with psychologist*	28 [6.7]	12 [1.3]	5.49 [2.76; 5.92]	4.12 [1.84; 5.25]
No regular physical activity*	329 [78.3]	653 [69.8]	1.56 [1.19; 2.05]	1.59 [1.13; 2.23]
No alcohol consumption*	364 [86.7]	706 [75.5]	2.11 [1.53; 2.89]	1.56 [1.02; 2.38]
Daily coffee consumption	340 [81.0]	712 [76.1]	1.33 [1.00; 1.77]	1.13 [0.77; 1.66]
Smoker*	78 [18.6]	113 [12.1]	1.66 [1.21; 2.27]	1.94 [1.26; 2.97]
Polipharmacy ^{d, *}	158 [37.6]	220 [23.5]	1.96 [1.53; 2.51]	1.19 [0.87; 1.62]
TOTAL	420 [31.0^e]	935 [69.0]		

OR: odds ratio; 95% CI: 95% confidence interval; MW: minimum wage; PAD: psychoactive drugs.

Values in bold: statistically significant results.

a adjusted by gender and age through logistic regression (p=0.002 in the Hosmer and Lemeshow test, R²=0.74)

b sample size = 1,353 (PAD user = 419; non-user = 934)

c sample size = 1,332 (PAD user= 411; non-user = 921)

d individuals taking five medicamentations or more

e Prevalence of PAD use

* p<0.05

Analysis of prescribed PAD

From 805 prescribed drugs, 619 were PAD. Of these, 592 (95.6%) were in the Municipal List of Essential Drugs. The mean number of PAD per user was 1.5 (SD 0.8), ranging from one to six. The most prevalent class corresponded to antidepressants (Figure. 2). Clonazepam accounted for 14.5% of all the PAD. Although classified by the ATC (Anatomical Therapeutic Chemical) system as an antiepileptic drug, its indication is more frequent in several psychiatric conditions: anxiety, bipolar disorder, panic syndrome, insomnia, etc. (Fagan, Nichols, 2008).

Regarding antidepressants, the most common active ingredients were sertraline (34.3%), fluoxetine (28.9%),

and amitriptyline (20.8%). It is noteworthy that tricyclic antidepressants are the first-choice treatment for chronic neuropathic pain (Finnerup *et al.*, 2005). In our sample, 35.6% of the amitriptyline users reported being in use of this PAD for pain management.

As for the most frequent antiepileptic drugs (carbamazepine accounted for 46.7%, phenobarbital for 22.7%, and valproic acid for 13.3%), carbamazepine and valproic acid are frequently used in the clinical practice as mood stabilizers. However, in our study, 76.9% of these PAD users stated that they were prescribed to control epileptic seizures.

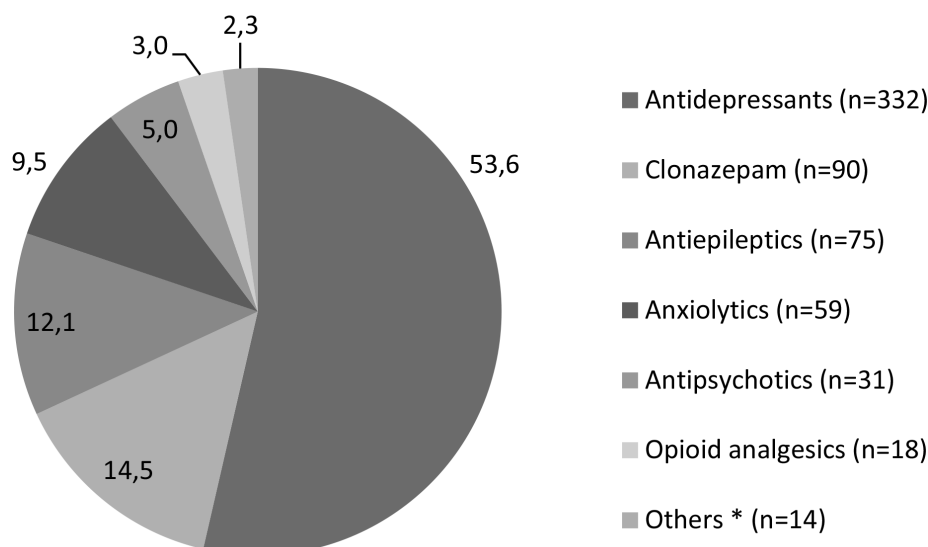


FIGURE 2 - Frequency of prescribed PAD according to ATC classification (n=619), December 2012.

ATC: Anatomical Therapeutic Chemical; PAD: psychoactive drugs; *Hypnotics/sedatives and centrally acting antiobesity products.

DISCUSSION

PAD use and associated factors

The prevalence of the estimated PAD use for the general population ranged from 5.2% to 13.3% in Brazilian studies (Almeida, Coutinho, Pepe, 1994; Rodrigues, Facchini, Lima, 2006; Quintana *et al.*, 2013; Campanha *et al.*, 2015; Quintana *et al.*, 2015) and from 7.2% to 12.9% in other countries (Meng, D'Arcy, Tempier,

2013), values which are lower than those from this study (31.0%). However, while such studies estimated the prevalence of PAD use for the general population, in our case the cohort “drug users” constituted study subjects, as previously detailed.

Despite the established regulation that controls the prescription and dispensing of PAD and other drugs under special control in Brazil, their consumption remains high. This reflects a culture in which the population resorts to drugs as a primary instant relief tool to any suffering

(from pathological conditions to loneliness or financial crises). Furthermore, the paternalistic and assistentialist format of the Brazilian government does not stimulate collective interventions to cope with such emotional states (Ignácio, Nardi, 2007). At the same time, the number of non psychiatric physicians who prescribe PAD is increasing (Lasserre *et al.*, 2010; Meng, D'Arcy, Tempier, 2013). The improvement in the diagnosis of psychiatric disorders, in addition to the greater number of available drugs and new therapeutic indications constitute factors that increase the consumption of PAD (Prado, Francisco, Barros, 2017).

In recent studies, the use of at least two PAD ranged between 32.9% and 47.2% (Lasserre *et al.*, 2010; Quintana *et al.*, 2013; Quintana *et al.*, 2015), similarly to the findings of this study. But in a previous survey, this proportion was lower (11.4%) (Almeida, Coutinho, Pepe, 1994), and another study showed an increasing use of at least two PAD (Meng, D'Arcy, Tempier, 2013). These findings reflect that the prescription of combinations (two or more PAD) has become more popular in the last 20 years, which, on the one hand, is sustained by advances in research involving the efficacy/safety binomial of combined pharmacotherapy, particularly with regard to more complex MD (e.g. schizophrenia, drug-resistant epilepsy) (Mojtabai, Olfson, 2010); but, on the other hand, the still high cost of modern PAD (e.g. escitalopram), potential substitutes for the classic - and sometimes misleading - benzodiazepine-antidepressant association (Brunoni *et al.*, 2013), is an obstacle to their insertion into the list of essential drugs, favoring the indication of the available combined therapy.

Regarding gender, other studies showed a predominance of female PAD users, ranging from 61.6% to 73.8% (Brunoni *et al.*, 2013; Rocha, Werlang, 2013), lower than in this research. This reveals that when it comes to Primary Health Care (PHC), there may be a smaller proportion of women using PAD. From this, three conjectures emerge about the use of PAD among women: the nosological profile of the MD is distinct within PHC; the nosological profile of the MD is similar, but psychosocial support measures in this context reduce the need for treatment with PAD; or part of the demand for treatment with PAD in PHC is repressed, due to the general practitioner's unawareness regarding the need to

refer such cases to a psychiatrist. McLean *et al.* (2011) reported that although women were more likely to seek health care treatment in PHC than men, they were less likely to receive specialized health care services, because primary care physicians may be more willing to care for women MD than men's, so they refer men to a mental health specialist.

When comparing the adjusted OR values for PAD use among women, our study found results close to another three population-based studies (OR=2.12 / 95% CI 1.17; 3.85) (Almeida, Coutinho, Pepe, 1994), (OR=2.4 / 95% CI 1.7; 3.5) (Quintana *et al.*, 2015), and (OR=2.1 / 95% CI 1.9; 2.4) (Alonso *et al.*, 2004), suggesting a significant association between PAD use and the female gender. Concerning other studies, our adjusted OR value was higher than that recently estimated for Rio de Janeiro-RJ (OR=1.82 / 95% CI 1.05, 3.17) (Quintana *et al.*, 2013) and for Taiwan (OR=1.62 / 95% CI 1.58, 1.67) (Chien *et al.*, 2007).

The major proportion of women in use of PAD in our cohort, compared with non-users, may be justified by the prescribers' perception that women are emotionally more vulnerable than men and therefore, require drug treatment more often (Moreno Luna *et al.*, 2000). It is also related to the fact that the most common MD in the population (mood and anxiety) are more diagnosed in women than in men (Brunoni *et al.*, 2013). Such epidemiological profile relates in part to biological aspects (Andrade, Viana, Silveira, 2006), but psychosocial determinants like increased exposure to violence, sexual abuse, and worse socioeconomic status exert an undoubted influence on women's MD rates (Stewart, Ashraf, Munce, 2006).

Additionally, these findings elucidate the need to focus on key features of the female gender in the mental health field. According to Stewart (2007), women's mental health can only be understood when taking their biological, social, cultural, economic, and personal context into account. Given the important role that women represent in all aspects of life (as progenitor, family caregiver, and in society), the mental health approach in this group deserves special consideration (Stewart, Ashraf, Munce, 2006).

The mean age among PAD users was similar to that found in another study (53.1 years old; SD 18.6) and the

increase in the prevalence of PAD use with age was also observed in this work (Rocha, Werlang, 2013). Through logistic regression, it was observed that the advanced age groups presented greater probability of PAD use, as well as in other studies (Almeida, Coutinho, Pepe, 1994; Chien *et al.*, 2007). Although the strength of these associations has varied, this finding suggests that age affects PAD use regardless of the individual circumstances. Such trend reveals some natural consequences of aging and its relation to PAD use, such as existing chronic diseases that increase the risk of developing MD (Bloom *et al.*, 2011).

Among several factors, chronic morbidities may predispose the development of MD because of emotional load in response to the stress faced by these individuals (Bloom, *et al.* 2011). Since these morbidities predominantly affect older people, they may be more susceptible to PAD use. Furthermore, the presence of a chronic organic disease strengthens the bond between patient and physician, which increases the likelihood of receiving a PAD prescription (Ohayon, Lader, 2002).

From another perspective, the São Paulo Megacity study showed that the mood and anxiety MD were associated with younger age groups (Andrade *et al.*, 2012). In this case, considering the chronic nature of some MD such as depression, PAD could last for many years (Hirschfeld, 2001).

Other aspects, such as presence of cognitive deficits and sleep habit changes, may also influence PAD use at more advanced ages, as found by an earlier study conducted in the Western district of Ribeirão Preto-SP, where 12.2% reported suffering from insomnia (Baldoni *et al.*, 2013).

Furthermore, a number of studies show that approximately 30 to 63% of the elderly require medical contact or hospitalization due to adverse drug reactions (Rudolph *et al.*, 2008). The high use of PAD in the elderly in this research should be alarming, since most of these drugs cause anticholinergic effects that may cause significant harm to the health of these individuals (e.g. delirium, reduction in gastrointestinal motility, constipation, dry mouth, urinary retention). Therefore, monitoring the safety of these drugs in this age group should be of extreme concern to the health team (Rudolph *et al.*, 2008). In this sense, some tools such as the Beers criteria have been developed to identify

potentially inappropriate medications for the elderly and to prevent their use, reducing drug-related problems as well as health-related costs (American Geriatrics Society Beers Criteria, 2019).

In this sense, international guidelines have been implemented in order to deprescribe benzodiazepines for patients aged 65 years old or more, regardless the duration of use. For those between 18 and 64 years old, deprescription should occur when benzodiazepine has been used for more than four weeks (Pottie *et al.*, 2018). There is also another guideline which focus on the deprescription of PAD for adults with behavioral and psychological symptoms of dementia treated for at least three months, once symptoms are stabilized (Bjerre *et al.*, 2018).

The proportion of PAD users undergoing follow-up with a psychologist both in this and in another Brazilian study (Campanha *et al.*, 2015) show that few individuals have access to this professional, fostering discussions about the Brazilian Public Health System still being driven by a biomedical model that invests on medication as the primary health technology, to the detriment of preventive and psychosocial non-pharmacological interventions - proposed by this same institution in the integral health care model.

Also due to the subjectivity of most of the MD diagnoses, the indication of a PAD treatment relates intimately to the physician's interpretation of the situation. Thus, it is assumed that not all PAD users benefit from a pharmacological approach (Brunoni *et al.*, 2013), while potential beneficiaries remain neglected (Brunoni *et al.*, 2013; Quintana *et al.*, 2013). The drugs operate solely biochemically, while psychosocial support strategies, with emphasis on cognitive-behavioral therapy, show effectiveness in the management of several MD (Baldwin *et al.*, 2014). Empowering the individuals to deal with the adversities of their health problems, therefore, leads to a positive impact on their quality of life, which in turn reduces the disability associated with these disorders.

Some life habits directly influence physical and mental health, being widely explored by the scientific literature (Atlantis *et al.*, 2004). In the present study, the higher proportion of regular physical activity practitioners among PAD non-users suggests that this variable relates

to preventing the consumption of these substances, as evidenced by a Finnish longitudinal study (Lahti *et al.*, 2013). On the other hand, the symptomatological profile of some MD includes loss of vitality, leading to a reduction of physical activity, as it occurs in depression (Studer, Weicker, 2001).

The same thought applies to smoking, which confirmed a positive association with PAD use both in this and in several other studies. In these cases, the pleasure felt when smoking, exceeded that related to other activities that produce the same effect in individuals without any MD diagnosis, such as eating candies or watching an exciting movie (Spring, Pingitore, McChargue, 2003).

Analysis of prescribed PAD

Antidepressants were the most prescribed PAD both in this and in other surveys around the world (Meng, D'Arcy, Tempier, 2013; Quintana *et al.*, 2013; Rocha, Werlang, 2013; Quintana *et al.*, 2015), differing from past studies in which benzodiazepines predominated (Almeida, Coutinho, Pepe, 1994; Rodrigues, Facchini, Lima, 2006; Meng, D'Arcy, Tempier, 2013). This transition in PAD prescribing patterns denotes the popularization of antidepressants in the world over the last ten years (especially second generation) as first-choice medications in several MD instead of benzodiazepines (Baldwin *et al.*, 2014). Aspects such as the increase in the number of depressive disorder diagnoses (Marcus *et al.*, 2012), the greater number of conditions which can be treated with these drugs (Baldwin *et al.*, 2014), and in the case of Brazil, the higher access to medications due to the growing development of generics and to the funding of the Brazilian government have notably contributed to these findings.

Considering clonazepam, its proportion in our study corresponded to more than twice that found in Porto Alegre-RS (Rocha, Werlang, 2013). However, this included only PAD prescribed in one PHC unit, which reinforces the existence of peculiarities in this environment as previously discussed. Other studies evaluating all types of PAD did not discriminate the contribution of each one to the total, further limiting discussions regarding clonazepam (Almeida, Coutinho, Pepe, 1994; Rodrigues, Facchini, Lima, 2006; Quintana *et al.*, 2013).

Similarly to this research, antiepileptics and anxiolytics represented the second and third most prescribed groups respectively in Rocha, Werlang (2013) study. Other researchers have not detected such results possibly because of differences in the classification criteria adopted (Quintana *et al.*, 2013), since some antiepileptics are commonly used as mood stabilizers (e.g. carbamazepine and valproic acid). The most prevalent active ingredients among the antiepileptics (except for clonazepam) and the anxiolytics in the present study coincided with other studies (Quintana *et al.*, 2013; Rocha, Werlang MC, 2013) as with the most prevalent antipsychotics (Rocha, Werlang MC, 2013).

The aforementioned data reflect the consolidation of the list of essential drugs, given the similarity of the PAD prescription profile in different periods and regions of the Brazilian territory and, even more, in different contexts of the public health care system, which also points out that our sample may represent PAD use all over the city.

Nevertheless, considering the wide range of therapeutic indications for PAD, nothing can be consistently stated regarding the clinical purpose in using these substances, since such diagnoses have not been evaluated in this or in other cited studies.

Although our study sample was not random, we enrolled participants from all 30 public pharmacies of Ribeirão Preto-SP. Moreover, the participants' sociodemographic profile reached the municipality's profile, which suggests it represented the entire city. Still, results generalization should be made with caution, since institutionalized/bedridden individuals were not included, nor those younger than 18 years old.

Despite the worldwide popularity of the theme, available and updated data remain concentrated in developed countries. Thus, this study contributed to broadly and consistently characterize PAD use among drug users in a developing country. We also consider that these results should represent Brazilian localities with similar socioeconomic and urbanization profiles, as well as other Western developing countries.

One out of three individuals attended by pharmacies at health facilities in Ribeirão Preto-SP was a PAD user, with antidepressants and benzodiazepines being the most prescribed. Elderly, women, and smokers were more

likely to use these medications, as well as individuals undergoing follow-up with a psychologist, and who did not perform regular physical activity. These findings provide a general overview of the current consumption of PAD, indicating the most susceptible groups in which the health managers should focus the planning and actions aimed at their rational use, leading to increased overall treatment success with safety.

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COMPETING INTERESTS

The authors declare no competing interests.

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