



ORIGINAL ARTICLE

Indiscriminate use of psychotropic drugs by health discipline students at a private university in Colatina

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ABSTRACT

Background: Psychotropic drugs are used to treat disorders involving central nervous system. However, several drugs are indiscriminately used by individuals seeking better academic or professional performance or for esthetic or recreational purposes. Indiscriminate utilization of psychotropic drugs is deleterious and can cause insomnia, anxiety, and emotional lability in short term, as well as physical or psychological dependence, cardiovascular, cognitive, and motor alterations in long term, in addition to the risk of overdose.

Aim: This study was designed to characterize the prevalence of indiscriminate use of psychotropic drugs among students in the health disciplines in Colatina, Espírito Santo, to decipher the factors driving this practice. The findings from this study can lend themselves for designing preventive measures, in addition to providing a source of information about the harmful impacts of this habit.

Methods: A descriptive study on a sample of 122 college students from courses in the health disciplines was carried out using online questionnaires. The data were tabulated in GraphPad Prism 9 software, with 95% reliability ($P < 0.05$), and analyzed using Fisher's test.

Results: Half of the college students interviewed claimed to have used psychotropic drugs at some points in their lives, and 21.3% had attempted self-medication. Utilization of psychotropic drugs became a common habit among students after entering academic life (62.3%).

Conclusions: Self-medication is a common practice among the interviewed students and academic life, which has a significant impact on mental health, galvanizes this practice. These findings point to the need for better attention to the mental health of the university students and more education regarding the practice of self-medication in the population as a whole.

Relevance for Patients: The study highlights the need for greater attention by health professionals to this practice of self-medication, and more primary preventive measures focused on educating these users to prevent jeopardizing the health of individuals indiscriminately used psychopharmaceuticals and to consequently reduce health system costs.

1. Introduction

According to the National Health Surveillance Agency (ANVISA), psychotropic drugs are classified as “substances subject to special control” as they can cause physical or psychological dependence, in addition to significant side effects. Therefore, its commercialization requires retention of a controlled prescription (under inspection by ANVISA, issued by an authorized prescriber) [1].

Self-medication, defined as the selection and use of drugs to treat self-recognized symptoms including mental problems without consulting a physician, is recognized as a

global issue [2]. In several international studies, the prevalence of self-medication stands at an average of 12% – 90% [3-6]. During COVID-19 pandemic, the self-medication rate increased exponentially and numerous adverse effects from self-medication have been documented [7,8].

Some individuals self-medicate themselves with psychotropic drugs for better academic and professional performance or esthetic or recreational purposes. The prevalence of psychotropic drug misuse is found to be high among university students, professionals who live under a high level of stress, and businessmen. This practice is deleterious and can cause insomnia, anxiety, and emotional ability in the short term. Moreover, it is associated with long-term physical or psychological dependence, cardiovascular, cognitive, motor alterations, and risk of overdose [9]. Therefore, this study aimed to characterize the prevalence of indiscriminate use of psychotropic drugs among students in the health discipline in Colatina, Espírito Santo, to decipher the factors that spur on this practice. A better understanding of these factors can help with the formulation of preventive measures.

2. Materials and Methods

We evaluated the use of psychotropic drugs and associated factors among students enrolled in health courses at a university center in Colatina, Espírito Santo. For this purpose, we carried out a descriptive study, since the objective was to determine the distribution of health-related conditions (the use of psychotropic drugs), according to time, place, and/or characteristics of individuals, in a single analysis. We chose students of health courses because previous studies have shown a higher prevalence of self-medication among students, which is attributable to higher workload, social pressure, greater access to information, and easy way of obtaining medication due to the lack of more stringent regulations. The institution had approximately 4000 students enrolled during the period in which the questionnaire was applied (between July and August 2020), of which 1743 were from courses in the health discipline. At first, we expected to obtain a sample of 149 students, considering the 12% prevalence of psychotropic use in Brazil [10]; however, due to the COVID-19 pandemic, we obtained a sample smaller than expected. Finally, we included 122 students for the research (confidence level was estimated at 95% and the sampling error with a margin of 5%), excluding students younger than 18 years old. The percentage of students interviewed was proportional to the number of students enrolled in each course. Only students enrolled in any health discipline courses in the institution and aged 18 years old or older were included in this study; students younger than 18 years old were excluded.

For data collection, an online questionnaire adapted from the “TV survey on drug use among the first- and second-grade students in 10 Brazilian capitals” was utilized [11]. The survey took an average of 5 min to complete. The questionnaire was applied only once and included questions about the following variables: gender, age, course, course period, health data, self-assessment of physical and mental health, and pattern of use of psychotropic drugs and observed effects. Only individuals who agreed to the terms set forth in the Informed Consent Form (TCLE) form agreed to

complete the survey. The data were tabulated in GraphPad Prism 9 software (Boston, MA, USA), with 95% reliability ($P < 0.05$). Fisher’s test was used for the analysis of the variables.

The research was approved by the Human Research Ethics Committee of the UNESC, following the ethical principles defined by Resolution 466/12 of the National Health Council for carrying out research involving human beings (Certificate of Presentation for Ethical Appreciation [CAAE] in 33291620.1.0000.5062, opinion no. 4,091,372).

Colatina has 111,788 inhabitants and is a regional indicator of health status in the entire Northwest macro-region of Espírito Santo in Brazil. Colatina is an important medical and hospital care center that provides a series of treatments, ranging from basic care to highly complex examinations. This hub comprises seven hospitals, 54 municipal health units, 15 clinical analysis laboratories, six radiology clinics, two hemodialysis centers, a Regional Specialty Center, a blood center, and a Municipal Health Surveillance Center, among others. The university under study is responsible for training professionals for these institutions.

3. Results

The sample obtained consisted of 122 students who agreed to answer the questionnaire, equivalent to 7% of the total population of 1743 students regularly enrolled in health courses. In Table 1, we present the characteristics of the students evaluated, the

Table 1. Evaluation of characteristics and health of the students ($n=122$)

| Variable | N (%) |
|---|------------|
| Gender | |
| Female | 96 (78.7) |
| Male | 26 (21.3) |
| Age (years) | |
| 18–24 | 91 (74.6) |
| 25–34 | 23 (18.8) |
| 35 or above | 8 (6.6) |
| Course | |
| Nursing | 24 (19.7) |
| Pharmacy | 9 (7.4) |
| Physiotherapy | 20 (16.4) |
| Medicine | 45 (36.9) |
| Nutrition | 17 (13.9) |
| Dentistry | 7 (5.7) |
| Course period | |
| 1–3 semester | 17 (13.9) |
| 4–6 semester | 77 (63.2) |
| 7–12 semester | 28 (22.9) |
| Had used psychotropic drugs at some points in life | |
| Yes | 61 (50.0) |
| No | 61 (50.0) |
| Consider mental health issues is a priority | |
| As a priority and requires medical attention | 116 (95.1) |
| As a priority but does not require medical attention | 3 (2.5) |
| As a phase in life and does not require medical attention | 3 (2.5) |

Colatina, Espírito Santo, Brazil, 2020

statement of use of psychotropic drugs during some period of their lives, and the priority they give to mental health. It was found that the largest population of this sample was female (78.7%; $n = 96$) and that the most prevalent age group was between 18 and 24 years old with (74.6%; $n = 91$). The data showed that 95.1% ($n = 116$) of the interviewees considered that medical follow-up is required for assessing a good mental health state. Regarding the use of psychoactive substances, half of the population (50%; $n = 61$), stated that they use or have used psychotropic drugs at some point in their lives.

Table 2 shows the mental health characteristics of students who admitted to using psychotropic drugs at some point in their lives ($n = 61$). On entering academic life, the use of psychotropic drugs become a common practice in 62.3% ($n = 38$) of the surveyed students. On the other hand, regarding the classification of the assessment of their own health in general terms, 18% ($n = 11$) considered it excellent, 37.7% ($n = 23$) very good, and 37.7% ($n = 23$) good. As for the evaluation of the impact on mental health after entering college, 52.4% ($n = 32$) and 9.9% ($n = 6$) stated that there was a slight and major worsening, respectively, after starting academic life.

Many students, amounting to 82.0% ($n = 50$), reported that the time spent on other activities has reduced due to the high demand of academic activities. With regard to their own emotional self-assessment, about 49.2% ($n = 30$) considered that they felt nervous most of the time. Among these students who use or have used psychotropic drugs, 49.2% ($n = 30$) and 19.7% ($n = 12$) feel exhausted most of the time and all of the time, respectively. As for depression, about 64.4% ($n = 40$) felt depressed some time. Regarding the most used class of psychotropic drugs, antidepressants stand as the most commonly used class of drugs, measuring at 68.8% ($n = 42$) of the surveyed students, followed

by stimulants among 47.5% ($n = 29$) and benzodiazepines among 37.7% ($n = 23$) students. A complete profile of the drugs used is available in Figure 1.

Of the surveyed college students, 21.3% ($n = 26$) reported self-medication with psychotropic drugs. Evaluating this portion, 69.2% ($n = 18$) declared that they have health insurance; 30.8% ($n = 8$) have regular medical appointments; 53.8% ($n = 14$) have regular medical appointments only when necessary; 15.4% ($n = 4$) do not have regular medical appointments. As for mental health, 92.4% ($n = 24$) consider it a priority problem, which requires medical follow-up; 3.8% ($n = 1$) consider it a priority problem, which does not require medical follow-up; 3.8% ($n = 1$) consider it a temporary problem that does not require medical attention. Regarding the perception of the risk of psychotropic drug use: 61.6% ($n = 16$) of the students rated it as high risk, 34.6% ($n = 9$) as moderate risk, and 3.8% ($n = 1$) as low risk.

Table 3 depicts the relationship between self-medication, admission into college, and students' mental health. However, there is no statistically significant association between self-medication, student's admission into college, and their mental health changes. Interestingly, there is discrepancy between the ones that think mental health needs treatment prescribed by a specialist and the ones that regularly go to a doctor.

4. Discussion

The results of this study revealed that self-medication was practiced by 50% of the surveyed students, who admitted to using psychotropic drugs during some points of their lives. Current findings are in concordance with other studies on students in the health courses [12-14]. Half of the drugs named by the students in this survey can only be dispensed with a prescription, and

Table 2. Self-assessment of mental health of students who used psychotropic drugs according to the characteristics of students ($n=61$)

| Variable | n (%) | p | Odds ratio |
|---|-----------|------|------------------|
| The beginning of the use of psychotropic drugs was... | | | |
| Before graduation | 23 (37.7) | 0.4 | 0.5 (0.2–1.6) |
| After graduation | 38 (62.3) | | |
| What do you think about your health after entering college? | | | |
| The same or better | 23 (37.7) | 0.2 | 0.49 (0.17–1.37) |
| Worse | 38 (62.3) | | |
| Did you reduce the time for other activities after college? | | | |
| Yes | 50 (82.0) | 0.3 | 2.27 (0.5–8.5) |
| No | 11 (18.0) | | |
| Have you ever felt nervous during your academic life? | | | |
| All the time or most of the time | 41 (67.2) | >0.9 | 1.1 (0.4–3.3) |
| Some time or never | 20 (32.8) | | |
| Have you ever felt depressed during your academic life? | | | |
| All the time or most of the time | 11 (19.4) | 0.7 | 1.4 (0.4–5.0) |
| Some time or never | 50 (80.6) | | |
| Have you ever felt drained out during your academic life? | | | |
| All the time or most of the time | 42 (68.9) | 0.2 | 1.9 (0.6–6.6) |
| Some time or never | 19 (31.1) | | |

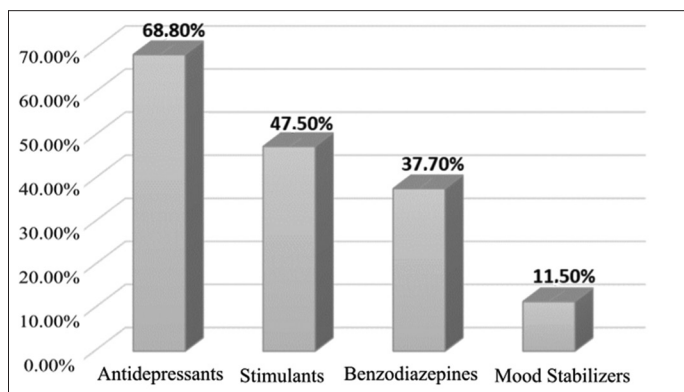


Figure 1. Profile of drugs used without medical prescription (*n* = 122). Colatina, Espírito Santo, Brazil, 2020.

Table 3. Relationship between self-medication and characteristics of academics among students who had used psychotropic drugs (*n* = 61)

| Variable | <i>n</i> (%) |
|---|--------------|
| Do you have a health plan? | |
| Yes | 18 (69.2) |
| No | 8 (30.8) |
| Do you have regular medical appointments? | |
| Yes | 8 (30.8) |
| No | 4 (15.4) |
| Only when needed | 14 (53.8) |
| Do you think mental health issue is a priority? | |
| As a priority and requires medical follow-up | 24 (92.4) |
| As a priority, but does not require medical supervision | 1 (3.8) |
| As a phase in life and does not require medical supervision | 1 (3.8) |
| How do you consider the risk of using psychotropic drugs? | |
| High risk | 16 (61.6) |
| Moderate risk | 9 (34.6) |
| Low risk | 1 (3.8) |

Colatina, Espírito Santo, Brazil, 2020

drugs such as benzodiazepines, stimulants, and antidepressants were among the most cited drugs in this study. Indiscriminate use of these drugs can cause mild symptoms such as intestinal dysfunction, medium symptoms such as tachycardia, nervousness, and excessive excitement, and even, under rare circumstances, hepatitis, leukopenia, Parkinsonian syndrome, mental confusion, hypomania, restlessness, myoclonus, hyperreflexia, chills, tremors, diarrhea, and incoordination [12]. Some symptoms require immediate medical attention because negligence in delivering appropriate treatments can result in sequelae, such as anorexia, disturbed sleep, sexual dysfunction, increased appetite and weight, and muscle twitching [15].

Among the interviewees, those who report issues in carrying out their daily activities are more inclined to practicing self-medication. Among the reasons that may be related to this finding is the attempt to overcome symptoms that hinder adaptation to the demands of university life [16]. The difficulty in carrying out activities may also be related to changes in mental health among students after entering college: 49.2% felt nervous most of the

time, 64.4% felt depressed some time, and 49.2% and 19.7% felt exhausted most of the time or all the time, respectively. In this scenario, psychotherapy can be a solution, which, in addition to being safe, is effective as an alternative form of pharmacological treatment depending on the condition, bringing a range of benefits. However, they also have limitations which are worthy of discussion. The administration of pharmacological treatment leads to more rapid symptom remission but at the risk of adverse side effects, whereas psychotherapy requiring weekly follow-up with the patients can be conducted in a completely safe manner, with therapeutic progress becoming more noticeable over time [17].

Another factor related to self-medication is that students who did not have a private health plan were the dominant group of individuals self-medicating themselves with psychotropic drugs (69.2%). However, students who could afford specialized care, such as psychotherapeutic assistance, also reported the practice of self-medication and substance abuse. This number is within normal limits, since many treatments such as psychotherapy are not offered free of charge, and they are beyond the economic reach of many university students [15]. Thus, the irregular use of medicines is more common among those who seek a quick and low-cost solution, especially the group without a good medical insurance. Self-medication can be defined as a practice of treating health problems with approved and available medications, without prescription and monitoring by a qualified professional, thus reducing the effectiveness and safety of the drug in question [18]. At present, a standardization instrument, such as clinical follow-up protocols established and prescribed by qualified professionals is not available for the identification of treatments and their diagnoses [15]. In addition, many cases of anxiety and major depressive disorder would have a better prognosis if non-drug therapeutic measures were associated with pharmacological treatment, which in certain cases are sufficient for remission of symptoms in milder cases [19].

Of those who stated that they had self-medicated at some point in their lives, 66.6% had some type of problem related to this practice. Although other studies did not portray the prevalence of this phenomenon, some outlined the risks of practicing self-medication, such as serious adverse reactions or poisoning that can lead to death. One of the hypotheses raised by the researchers carrying out this study was that having training in the health discipline could influence the prevalence of self-medication practice, but this remains to be validated.

Despite some limitations inherent to the design of the present study, as the analysis is based on the self-reported responses, our findings corroborate the literature, evidencing the need for professional support for students due to their extensive academic curriculum and pressures, which serve as a trigger for mental disorders such as anxiety, depression, and psychoactive substance abuse. It should be noted that some students have attempted inappropriate self-medication that put their health in hazard; a plausible explanation for this phenomenon is that they have incomplete knowledge about medical practice and limited experience, but the same justification cannot be applied to the already trained and qualified professionals, who have attempted self-medication and face the same problems [20-22].

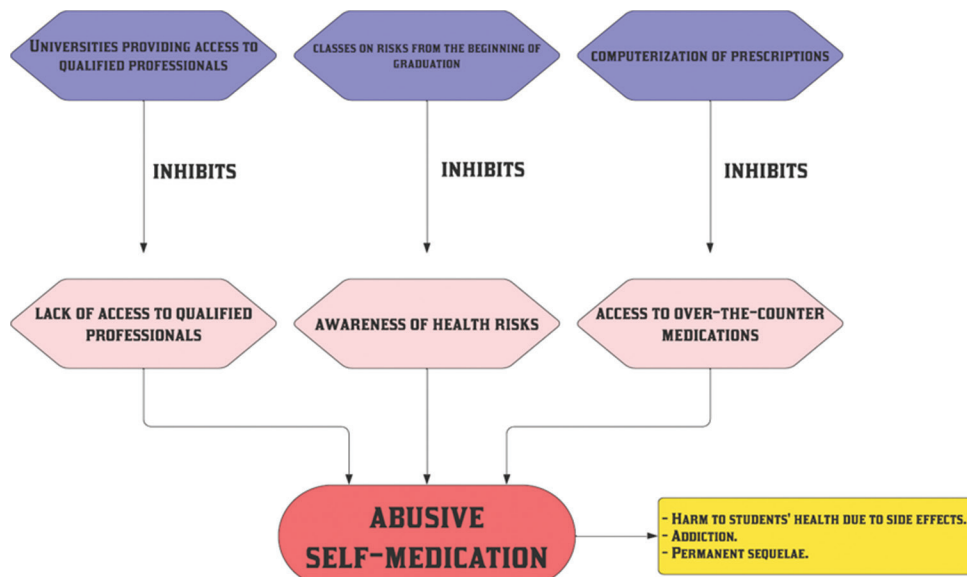


Figure 2. Abusive self-medication: Causes, consequences and proposed solution. Colatina, Espírito Santo, Brazil, 2020.

This survey also highlighted the lack of information regarding the adverse effects caused by self-medication. In Brazil, the population's low perception of risk also has its roots in the lack of social debate on the issue in the media, which only focus on illicit drugs as the significant problem in the country. In addition, drugs such as antidepressants appear to have a reasonable margin of safety and undeniable efficacy, justifying their popularity among doctors and the lay population. In the researched group, 18% and 37.7% consider their own mental health excellent and very good, respectively, while 37.7% consider it just good; 52.4% observed a slight deterioration in mental health after entering academic life, and 9.9% observed a major deterioration. Among the academics who assumed they had self-medicated with psychotropic drugs, 92.4% consider mental health a priority problem that requires medical follow-up. For the group that self-medicated with psychotropic drugs, only 61.6% considered using psychotropic drugs a highly risky practice. These findings point to the need for better attention to the mental health of the university students and more education regarding the practice of self-medication for the population as a whole.

The survey period, especially during which data collection was ongoing, coincided with the COVID-19 pandemic, which significantly stymied the data collection process because of the discontinuation of face-to-face academic activities and the enforcement of preventive measures against infection. To surmount the communication challenges, we used a digital communication platform, *Whatsapp*, to get in touch with the respondents during the study. Therefore, the lack of face-to-face survey is a limitation to data collection. The fact that this survey focuses on students of only one university significantly limits the generalizability of the current findings to other populations. In addition, given the anonymity requirements, respondents might omit their actual personal experiences during the survey, providing inaccurate responses that contribute to the reduced veracity of the current findings.

5. Conclusion

Students in the health discipline, despite their training, use psychotropic drugs for self-medication, a practice that can cause serious intestinal, cardiac, neurological, and psychiatric problems, and may cause permanent sequelae. The declining mental health after entering college and the difficulty in seeking medical care is among the possible causes justifying the misuse of psychotropic drugs. Therefore, the universities, once aware of the problem, should expand their support to students by offering professional help from psychologists and psychiatrists, if deemed necessary, so that they do not resort to self-medication.

In the same vein, to better prevent attempted self-medication, a brief orientation or lecture on the consequences and side effects of self-medication, as well as ethical problems in dealing with health professionals should be included in the first lesson of every course. Thus, having a better understanding of the risks of indiscriminate use of medications could serve as a disincentive to the practice, from the moment they enter university.

It is also necessary to intensify supervision over the dispensing of prescription drugs, with an emphasis on combating illegal supply, which is responsible for drug access without a prescription and consequent indiscriminate use of the drugs in question. A pivotal step in intensifying supervision entails the integration of the controlled prescriptions within a computerized system, which enables the trace mapping of a particular medication, facilitating inspection by the National Health Surveillance Agency. The supervision begins from the drug prescriptions by a medical professional to the user only, reducing incidence of possible fraud, transfer, and misappropriations. All the conclusions are summarized in [Figure 2](#).

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Conflicts of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Ethics Approval and Consent to Participate

The research was approved by the Human Research Ethics Committee of the UNESC, following the ethical principles defined by Resolution 466/12 of the National Health Council for carrying out research involving human beings (CAAE in 33291620.1.0000.5062, opinion no. 4,091,372). Only individuals who agreed to the TCLE form agreed to complete the survey.

Consent for Publication

All participants agreed to the terms set forth in the Informed Consent Form.

Availability of Data

Data are available from the corresponding author on reasonable request.

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