

ASSESSMENT OF ANXIETY DISORDERS AND USE OF DRUGS AMONG ACADEMICS OF
MEDICINE AT A UNIVERSITY IN THE SOUTH OF MINAS GERAIS, BRAZILAVALIAÇÃO DOS TRANSTORNOS DE ANSIEDADE E USO DE MEDICAMENTOS ENTRE ACADÊMICOS
DO CURSO DE MEDICINA DE UMA UNIVERSIDADE DO SUL DE MINAS GERAIS, BRASIL

Carolina Kobbaz **Ferraresso**¹, Francine **Neves**¹, Lara Elisa De Freitas **Campos**¹, Luísa
Diniz Marra **Vieira**¹, Maria Paula Mendes **Pereira**¹, Cláudio Daniel **Cerdeira**^{2*}, Gérsika
Bitencourt Santos **Barros**¹

¹ Medical School, José do Rosário Vellano University, Alfenas, Minas Gerais, MG, Brazil.

² Department of Biochemistry - Institute of Biomedical Sciences, Federal University of Alfenas, Alfenas, MG, Brazil.

*daniel.cerdeira.84@gmail.com

ABSTRACT

The levels of anxiety and the use of medication among medical students were evaluated, relating it to sociodemographic data, prescription and medical follow-up, and symptom improvement. Cross-sectional study, in which a semi-structured questionnaire was applied. Among 264 students interviewed, 21% of the total ($n = 56$) use medication to treat anxiety. Most of them are female, almost half between 21 and 25 years old, single, live alone, and have high family income. These students opted for medical school mainly for professional and personal achievement, and the main drug used is fluoxetine. Yet, among drug users ($n = 56$), 39% ($n = 22$) self-medicate, although 64.3% ($n = 36$) are under medical supervision, more than half have side effects and 87.5% ($n = 49$) showed improvements in anxiety symptoms after starting use. The use of medication to treat anxiety was statistically related to monthly income, type of housing and reason for choosing the course ($p < 0.05$), although other variables cannot be ruled out. As noted in the present study, the use of such medications among medical students is considerable and, for the most part, medical follow-up directly influences the improvement of symptoms. In addition, there are risk factors related to the sociodemographic profile, which can lead to anxiety and/or self-medication and the indiscriminate use of medication, so preventive health measures must take these factors into account to guide more effective actions.

Keywords: Academics. Anxiety. Drugs. Medicine.

RESUMO

Avaliou-se os níveis de ansiedade e o uso de medicamentos entre acadêmicos do curso de medicina, relacionando com dados sociodemográficos, prescrição e acompanhamento médico e melhoria dos sintomas. Estudo transversal, no qual aplicou-se um questionário semiestruturado. Entre 264 acadêmicos entrevistados, 21% do total ($n = 56$) fazem uso de medicamentos para tratar ansiedade. Entre estes, a maioria foi do sexo feminino, quase metade apresentavam de 21 a 25 anos, a maioria solteiros, residindo sozinhos, e com alta renda familiar. Esses acadêmicos optaram pelo curso de medicina principalmente, por realização profissional e pessoal, e o principal medicamento utilizado foi a fluoxetina. Ainda, entre os usuários de medicamentos ($n = 56$), 39% ($n = 22$) se automedicam, apesar de 64,3% ($n = 36$) estarem sob acompanhamento médico, mais da metade apresentam efeitos colaterais e 87,5% ($n = 49$) apresentaram melhorias dos sintomas de ansiedade após o início do uso. O uso de medicamentos para tratar ansiedade relacionou-se estatisticamente a renda mensal, tipo de moradia e motivo de escolha do curso ($p < 0,05$), embora outras variáveis não possam ser descartadas. Conforme observado no presente estudo, o uso de tais medicamentos entre os estudantes de medicina é considerável e, em sua maioria, o acompanhamento médico influencia diretamente na melhoria dos sintomas. Além disso, existem fatores considerados de risco, referentes ao perfil sociodemográfico, que podem levar a ansiedade e/ou a automedicação e ao uso indiscriminado de medicamentos, assim as medidas preventivas em saúde devem levar em conta estes fatores para guiar ações mais efetivas.

Palavras-chave: Acadêmicos. Ansiedade. Medicamento. Medicina.

INTRODUCTION

Currently, the lifestyle in society can generate great afflictions and insecurities that reflect on people's quality of life, making them increasingly concerned about following several trends and fads, with living standards that, due to the multiplicity of factors, can lead to a psychopathological multicausality, impacting mental, physical and social well-being. However, in the biopsychosocial context, the most varied adversities imposed on the individual can have deleterious consequences, such as stress, anxiety and depression, which can also lead to the indiscriminate use of medications (RAMOS *et al.*, 2021; SOARES *et al.*, 2021). In this context, the incidence of psychological changes is increasing, affecting people who are unable to identify and/or adapt to current patterns of behavior, which can trigger crises, such as anxiety, with varying degrees of severity. Anxiety manifests with feelings of psychic discomfort, converted into a variety of somatic alterations related to autonomic hyperactivity. As therapeutic choices, with an attractive market for the pharmaceutical industry, there is a huge supply of drugs for the treatment of anxiety (BRAGA *et al.*, 2010; SOUSA *et al.*, 2018).

Physical and mental stresses are important problems in the professional and academic environment, forfeiting people's health (SOARES *et al.*, 2021). Thus, the period that precedes entering university and professional life is recognized as critical in the development of anxiety and even depression. The associated variables are diverse, including pressure to succeed, family interference, and increasing competition. In addition, medical school is one of the most difficult courses requiring dedication, effort, physical and emotional resistance (SANTOS *et al.*, 2017).

Numerous other factors are also aggravating the mental health condition of students and future professionals. Therefore, with important implications for people's health and quality of life and, in this case, it can affect academic and professional performance. In this case, the search for medication, mostly antidepressants or anxiolytics, to treat anxiety is increasingly more and more among students (ANDREATINI *et al.*, 2001; SCHMITT *et al.*, 2005; SANTOS *et al.*, 2017). Under conditions of inappropriate and indiscriminate use of these drugs, other serious health risks may arise. In this context, this study analyzed levels of anxiety, medication use and risk factors in medical students, establishing the associated profile.

MATERIAL AND METHODS

This is a descriptive, cross-sectional study with a quantitative approach, carried out with students from the first to twelfth period of medical school at a private higher education institution in the south of Minas Gerais. Data collection was carried out between February and June, 2017.

The number of selected students was determined by calculating the sample size for a proportion based on the normal approximation. To estimate the sample size, an "experimental sample" was obtained, with 25 students (participants) being initially interviewed. From this "previous sample", it was possible to determine the ideal sample size that allowed this work to be validated.

Then, the importance of the way in which the participants were chosen was observed, in order to guarantee the representativeness of the sample. Considering that the Medicine course has 12 modules, with approximately 80 students in each module, distributed in basic, advanced and internship cycles, the most appropriate sampling technique was adopted. The adopted sampling improves the representativeness of the sample when the elements of the target population are heterogeneous. However, they can be grouped in subpopulations containing homogeneous elements. Therefore, approximately 20 students from each period were invited to participate, totaling 264 students interviewed. This study was approved by the local research ethics committee, under opinion no. 3.736.036, and respondents were informed about the objectives and gave their consent to participate, signing the Informed Consent Form (ICF).

A semi-structured questionnaire was created with 13 questions regarding the identification of the sociodemographic profile related to the use of medication, such as biological sex, age, family income, marital status, religion, use of medication or not, and the reasons that led the student to choose the medical course. The Hospital Anxiety and Depression Scale (HADS), which determines a cutoff point (no anxiety, score 0-8, with anxiety, ≥ 9) for the presence of anxious and depressive behaviors, was used to quantify the degree of anxiety of the participants through indicative scores.

The results obtained were presented in absolute frequencies and the percentage for each question in the questionnaire. In addition, tables were drawn up relating the presence or absence of anxiety in respondents in general and in those who already use some medication to treat anxiety. For data analysis, the chi-square test or Fisher's exact test was used, at a nominal level of 5% significance. Analyses were performed using the R software (R CORE TEAM, 2018).

RESULTS AND DISCUSSION

Sociodemographic data among the 264 interviewees are presented in Table 1, and the frequency of use of some type of medication to treat anxiety during academic life in Table 2, showing the peculiarities of such use. Table 1 also shows the stratification of medication use to treat anxiety according to sociodemographic variables. The general profile of the sample ($n = 264$), predominantly observed, was: young, female, single, Catholic, living alone, and with a high monthly family income (greater than R\$ 6,000-9,000). 34% of respondents have already had an appointment with a mental health professional, and 49% have a family history of anxiety. Even so, among the 264 respondents, the order of priority for choosing the medical course was: professional achievement (22%), personal fulfillment (22%), desire to help people (16%), vocation (12%), family influence (11%), others (17%).

The number of female medical students has increased significantly over the past few decades. This academic feminization may be a consequence of women's achievement of professional fulfillment (SCHEFFER; CASSINOTE, 2013). Actually, a greater number of female students and users of medication to treat anxiety reinforces these data and the fact of greater susceptibility to anxiety disorders, as also seen in this study.

According to the study carried out by Eckschmidt *et al.* (2013), young people between 18 and 25 years old have the highest rates of drug use since they need special attention, as studies have shown their vulnerability to drug use initiation. In this study, a greater use was observed in this age group. It was also found a relation between income and the use of medications to treat anxiety ($p = 0.0004$), with a trend towards an increase in use, 3 percentage points, among those with a monthly income of BRL R\$1,000.00 to BRL R\$3,000.00; 14 percentage points, with income from BRL R\$3,001.00 to BRL R\$6,000.00, and 20 percentage points from BRL R\$6,001.00 to BRL R\$9,000.00. It should be noted that among those who do not use these substances, the most frequent monthly income was between BRL R\$6,001.00 and BRL R\$9,000.00.

There are several studies that approach the relation between religiosity/spirituality and health. In a national survey, among 2,346 adults, 5% said they had no religion (AGUIAR *et al.*, 2017), whereas in this study it was 12.10%, including those who declared themselves atheists, agnostics and those who did not have any religious denomination.

In the present study, it was noted that most students live alone. Directly influencing the increase in the use of medications, as observed in the present study ($p = 0.0001$), is the fact that many students live alone and far from home, besides the long and full-time period of the courses, the relationship between professor and student, and the direct influence of academic activity on leisure and social relationships. Even after graduation, other future professional challenges, such as medical residency, or the job market, are aggravating the continuation of anxiety problems and the associated pharmacotherapy (AGUIAR *et al.*, 2017).

Table 1 – Frequency of medication use to treat anxiety among medical students, stratified according to sociodemographic data, n = 264.

Variables		Total	Use of medication		Use of medication	
		(n)	(n)		(%)	
		264	Yes	No	Yes	No
Biological sex	Male	81	12	69	15	85
	Female	183	44	139	24	76
Age	18 – 20 years old	104	20	84	19	81
	21 – 25 years old	130	27	103	21	79
	26 – 30 years old	17	4	13	24	76
	30 or over	13	5	8	38	62
Religion	Catholic	184	16	168	9	91
	Evangelical	23	6	17	26	74
	Spiritualist	20	10	10	50	50
	Other religion	5	0	5	0	100
	No religion	32	24	8	75	25
Marital Status	Married	18	4	14	22	78
	Single	244	52	192	21	79
	Divorced	1	0	1	0	100
	Widow	0	0	0	---	---
	Other	1	0	1	0	100
Live with	Alone	171	39	132	23	77
	Parents/Family	93	17	76	18	82
Monthly Income (R\$)	1,000-3,000	28	5	23	18	82
	3,001-6,000	41	12	29	29	71
	6,001-9,000	84	14	70	17	83
	9,001 or over	111	25	86	23	77

Source: The Authors, data of research, 2017.

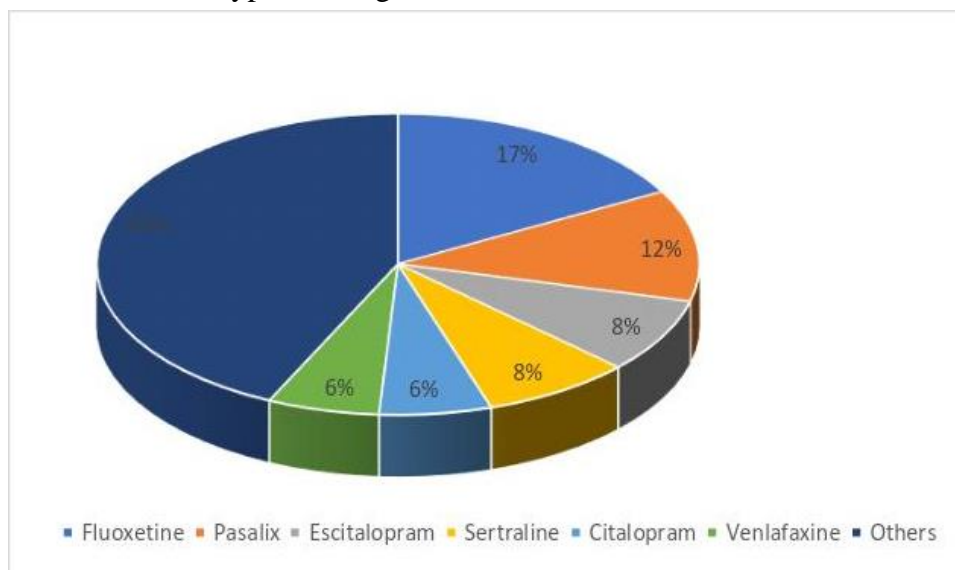
According to Vasconcelos *et al.* (2015), university students, especially those who need to move away from the family nucleus, are more exposed to general emotional changes and anxiety. Thus, most start treatment for anxiety in order to improve their symptoms and quality of life. Ribeiro *et al.* (2014) found that 11.4% of the medical students interviewed used or had already used antidepressant medication, with fluoxetine being the most prescribed medication, with 33.30%. Schmitt *et al.* (2005) found the effectiveness of some antidepressants, including venlafaxine, to treat anxiety.

Among the 264 respondents, 56 have already used some type of medication to treat anxiety during their academic life, a frequency of 21% (Table 2), with predominant use among women, younger, single and those who live alone (Table 1). Also, according to Figure 1, the most used drug by students is Fluoxetine. Other drugs that stood out in this study were Escitalopram/Citalopram, Sertraline and Venlafaxine. A widely used medicine was the herbal medicine based on *Passiflora incarnata*, *Salix alba* and *Crataegus oxyacantha* (Pasalix®).

Table 2 - Clinical characteristics among medical students interviewed (n = 264).

	Yes (n)	No (n)
Frequency of use of medications to treat anxiety	56 (21%)	208 (79%)
Follow-up with a mental health professional	91 (34%)	173 (66%)
Family history of anxiety	131 (49%)	133 (51%)
Use of other substances (stimulants)	46 (17%)	218 (83%)
Type:		
Caffeine, Guarana powder, energy drinks with Taurine	30	
Methylphenidate	8	
Ritalin	7	

Source: The Authors, data of research, 2017.

Chart 1 - Main types of drugs used.

Source: The Authors, data of research, 2017.

As for the most used drugs, as found in the present study, fluoxetine is highlighted. Mochcovitch *et al.* (2010) demonstrated that both fluoxetine and sertraline and citalopram are equally effective in reducing the frequency of panic attacks and anticipatory anxiety, which is confirmed by numerous controlled, double-blind, randomized studies. Anvisa (2012) reports that despite the existence of adverse effects, the class of selective serotonin reuptake inhibitors is the best tolerated, as it has a better safety profile.

The use of herbal medication has increased in recent years. Thus, the orientation regarding the proper use of it is extreme important, promoting an optimization and effectiveness regarding the active principles contained in the plants and minimizing the risks of poisoning. In this study, it was reported a wide use of herbal medicine by academics, based on *Passiflora incarnata*, *Salix alba* and *Crataegus oxyacantha* (Pasalix®).

Among students who use medication ($n = 56$, Table 3), in relation to medical prescription for the purchase of medication, it was observed that most students (61%) receive medical assistance, that is, they obtain the medication under prescription. However, it is remarkable that there is a considerable portion of students (39%) who self-medicate. More than half of these students (64%, $n = 36$) undergo medical follow-up after using the medication. This finding may be related as the result of the use of medical prescription, since the percentages are similar (Table 3).

In addition, in the current study, the adapted Hospital Anxiety and Depression Scale (HADS) was applied to all research participants, and according to the sum of points, indicative scores of high anxiety were observed in 29.5% of respondents (78 academics) (Table 4). Among medication users, only 51.8% were above the indicative cut-off point of the presence of anxiety (Table 5).

Also related to the safety of the class of drugs used, an alarming fact from the current study refers to the number of students who got the drugs without a prescription, which justifies the fact that 48.2% of users were not above the cut-off point in which the presence of anxiety is considered, according to the scale used, and they do not have medical follow-up. Regarding the most used ways to purchase prescription drugs, it could be noted the contact with friends, family, and the units of practice of the medical course.

Table 3 - Clinical characteristics among users of medications to treat anxiety (n = 56).

	Yes (n)	No (n)
Medical Prescription	34 (61%)	22 (39%)
Specialty:		
Psychiatrist	19	
Neurologist	7	
General Practitioner	4	
Other	4	
Medical Follow-up	36 (64%)	20 (36%)
Frequency:		
Monthly	6	
Every 2 months	3	
Every 3 months	1	
Every 6 months	16	
Yearly	10	
Improvement after using the medication	49 (87%)	7 (13%)
Side Effects	24 (43%)	32 (57%)
Type:		
Drowsiness	4	
Headache	4	
Nausea	3	
Others.	13	

Source: The Authors, data of research, 2017.

Table 4 - Frequency of anxiety, according to the Hospital Anxiety and Depression Scale answered by all respondents (n = 264).

H^A D	
No Anxiety (0-8)	Anxiety (≥9)
70.5%	29.5%

Source: The Authors, data of research, 2017.

Table 5 - Frequency of anxiety, according to the Hospital Anxiety and Depression Scale answered by respondents who use medications to treat anxiety (n = 56).

H^A D	
No Anxiety (0-8)	Anxiety (≥9)
48.2%	51.8%

Source: The Authors, data of research, 2017.

Albuquerque *et al.* (2015) showed that among the reasons why students do not seek for medical advice, it is highly noticed the fact that they “do not consider it such a necessary search”, reasons of convenience, lack of time and difficulty in accessing it. Also, the study made by Andreatinia *et al.* (2001) showed that there are several factors related to the active ingredient of some drugs used to treat anxiety, and its pharmacokinetics and therapeutic rate, showing the importance of medical follow-up to evaluate the need for maintenance or dose changes, aiming at safe use. In the current study, it can be highlighted that, despite being medicated, there is still a high incidence of students with signs of anxiety.

Until the end of the 1980's, psychotropic medications were available directly to customers with easy access, and addiction was frequent. From the recognition of the seriousness of such indiscriminate use, the Ministry of Health regulated the control of these drugs, being mandatory since then, the submission and retention of prescription, as well as notification through the National

Controlled Products Management System (AZEVEDO, 2014). In addition to prescription, medical follow-up is also essential.

Although anxiety is primarily a physiological manifestation, at altered levels and for extended periods, it can bring unsatisfactory results, especially to the student's academic and personal life, as well as significantly undermining health (SOARES *et al.*, 2017). Hereditary predisposition is strongly related to psychiatric disorders such as anxiety disorder. In the current study, we observed that more than half of the interviewees had a family member suffering from an anxiety disorder (Table 2). We also noted in this study that, among respondents who use medications to treat anxiety, only 51.8% of them had an anxiety disorder (Table 5), which may suggest that most individuals who use medications do not necessarily have disorders and need them, as previously reported (FÁVERO *et al.*, 2017). Even so, as highlighted above, part of the medicated students still shows signs of anxiety.

Concerning to statistical correlations (Table 6), the results show that the variables monthly income, type of housing and reason for choosing the course are related to the use of medication to treat anxiety ($p < 0.05$). The association between the use of these medications and these variables, as well as their influence on the development of anxiety, has been related both in students (SANTOS *et al.*, 2017; LEÃO *et al.*, 2018) and in general population in the face of most wide adversities (RAMOS *et al.*, 2021).

Table 6 - P-values resulting from the independence test(s)

Variables	Value-p
Biological sex vs uses medications	0.1988 ns
Age group vs use medications	0.5574 ns
Marital status vs use medications	0.7308 ns
Monthly income vs use medications	0.0004**
Live with family vs use medications	0.4985 ns
Type of housing vs use medications	0.0001**
Reason for choosing the course vs use medications	0.0364*

Not: ^{ns}Not significant at the nominal level of 5% significance ($p > 0.05$); *Significant at the nominal level of 5% significance ($p < 0.05$); **Significant at the nominal level of 1% significance ($p < 0.01$)

Source: The Authors, data of research, 2017.

CONCLUSION

The sample was predominantly characterized by young medical students, single, female, Catholic, living alone and with high monthly income. There was a predominance of medication use to treat anxiety in these groups as well, with the exception of the variable religiosity. Most students who use medications to treat anxiety keep medical monitoring, which reflects the large percentage of those who reported improvement after using. However, a considerable number of students use medication without prescription and/or medical monitoring, which increases concern and interest in public health. Also, it was noticed that fluoxetine is the most used medicine. It is noteworthy that there was a statistically significant relevance between the use of medication by students and the variables: monthly income, type of housing and reason for choosing the course.

As a result of these findings, it is important to emphasize the adoption of measures aimed at risk factors, related to the sociodemographic profile, for anxiety in students, who were surveyed here, such as type of residence, monthly income and reason for choosing the medical course, besides the confirmation of the clinical diagnosis of anxiety before prescribing medication to ensure rational use.

However, other studies should thoroughly analyze these and other associations that were not analyzed in this study, since individual and family history of anxiety disorders, family background

and the presence of stressors throughout life may also be related to the development of anxiety, as well as boosting the use of medications.

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