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Stress and psychoactive substance use among university professors

Estresse e uso de drogas psicoativas por docentes universitários

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ABSTRACT | Introduction: University professors are highly susceptible to work-related stress, and psychoactive substance use is often used as a stress alleviation strategy. This issue has attracted the attention of organizations that represent these workers given its potential repercussions on work and personal life. **Objectives:** This study aimed to evaluate the association between work-related stress and psychoactive substance use in university professors. **Methods:** A descriptive and analytical-qualitative study was conducted in a public university in the countryside of the state of Rio Grande do Norte, Brazil. Data were collected from 67 professors using Google Forms and the following instruments: sociodemographic characteristics and occupational activity questionnaire; Alcohol, Smoking and Substance Involvement Screening; and Stress Symptom Inventory. Descriptive methods were used to calculate means and standard deviations. The association between occupational stress, substance use, and the variables studied was investigated using chi-square or Fisher's exact tests. **Results:** Most participants were men, married, with children, and a master's-level education. The mean age of the sample was 42 years. Differences were observed between the prevalence of legal and illegal substance use. Many participants were in the alert, resistance, or exhaustion stages of stress, with the resistance stage being the most frequent. Alcohol was the substance most commonly associated with work-related stress. **Conclusions:** Psychoactive substance use is associated with work-related stress among university professors.

Keywords | faculty; occupational stress; substance users; universities.

RESUMO | Introdução: Os docentes universitários tornaram-se um dos grupos suscetíveis ao estresse relacionado ao trabalho, e o uso de drogas psicoativas tem sido considerado uma das estratégias para alívio das tensões. Essa problemática tem chamado a atenção das entidades que agremiam esses trabalhadores devido às repercussões no trabalho e na vida particular. **Objetivos:** Esta pesquisa objetivou analisar a relação entre o estresse laboral e o consumo de drogas psicoativas entre docentes universitários. **Métodos:** Estudo descritivo e analítico com abordagem quantitativa realizado em uma universidade pública do estado do Rio Grande do Norte, Brasil. Coletaram-se os dados de 67 docentes pelo Google Forms através dos seguintes instrumentos: formulário sobre características sociodemográficas e práticas profissionais; Alcohol, Smoking and Substance Involvement Screening; e Inventário de Sintomas de Stress. Realizaram-se análises descritivas por meio de média e desvio padrão. As associações entre o estresse laboral e o consumo de drogas com as diferentes variáveis estudadas foram testadas por meio do teste de qui-quadrado ou exato de Fisher. **Resultados:** Predominaram indivíduos homens, casados, com filhos, com grau de instrução a nível de mestrado e com média de idade de 42 anos. Identificaram-se diferenças entre o consumo de drogas psicoativas lícitas em relação às ilícitas. Evidenciou-se nível de estresse em fase de alerta, resistência ou exaustão, sendo a fase de resistência a mais frequente. Na associação entre uso de alguma droga e estresse laboral, prevaleceu o consumo de bebida alcoólica. **Conclusões:** Conclui-se que há relação entre o consumo de drogas psicoativas e o estresse no trabalho docente.

Palavras-chave | docentes; estresse ocupacional; usuários de drogas; universidades.

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INTRODUCTION

In the early 1970s, an international crisis of capital accumulation triggered a cascade of changes in the world of work. This period saw a significant decrease in the growth rates of capitalist economies, including "first" and "third" world countries. The decline or stagnation in economic growth affected several sectors of the working world in these countries, including education, which, under the influence of an approach developed and disseminated by the World Bank, gradually ceased to be the exclusive responsibility of the government. This, in turn, prompted several initiatives in public universities at the federal, state, and municipal levels.[1,2]

These changes in education have taken the form of new legislation and curricula, as well as a transformation in the dynamics of teaching.[3] The impact of this policy became clearer in the mid-1990s when enrollment rates for in-person courses offered by private higher education institutions (HEIs) began to increase relative to those of public institutions, a trend that persisted into the 2000s. This consolidated the structure of the higher education system into the previously mentioned framework, reflecting the commercialization of education in Brazil at the cost of significant changes to professors' day-to-day work activities.[4,5]

The original justification for the changes to the education sector was based on labor market demands for professionals with a new set of competencies and skills. This led to the mass training of professionals for a market that, in addition to higher education levels, requires a unique set of instrumental competencies to adapt to the demands of a changing system that extend far beyond the traditional teaching-learning processes in higher education. Workers are expected to be flexible with regard to their occupation, versatile in their work, disciplined in the productive environment, and tolerant in the context of contracts and salary arrangements.[6]

Teachers are the first targets of these policies, as they are pressured by society throughout their education, but also in their place of work, which requires maximum productivity and adaptability to working conditions. These include syllabus changes such as the combination and replacement of disciplines to meet the demands of interdisciplinarity, imposed in an attempt to adapt the curricula to the needs of a flexible job market.[3]

These factors have led to the rise of academic productivism, a key manifestation of the precariousness of teaching work and a concrete expression of the capitalist goals of maximizing profit and transforming higher education into a commercial product. This represents the imposition of an industrial model on education, with predictable repercussions on the development of science. These circumstances contribute to the consolidation of the belief that professors must be "more productive," as measured by the quantity (of classes, orientations, publications, projects, patents) rather than the quality of their products and funding, maximizing the reproduction of capital. The culture of productivity is then transmitted to undergraduate and graduate students, who are pressured to be productive at all costs.[2]

As a result of this dynamic, university professors have become increasingly susceptible to occupational stress due to their exposure to the aforementioned issues, including high pressure and a lack of administrative support in their academic activities, as well as the number of students under their care, financial instability, competitive relationships with peers and lack of professional recognition. These factors create a climate of high demand, little control, and devaluation, contributing to occupational overload and the intensification of work.[7]

The high-performance requirements of multiple tasks which must be completed in progressively shorter times, combined with shallow and ultimately meaningless interpersonal work relationships constitute sources of stress and suffering. These conditions give rise to common consequences of work, including manifestations of overload and stress, chronic fatigue, and disorders such as depression, which can sometimes lead to suicide.[8,9]

The ways of coping with psychological suffering vary depending on the extent to which individuals are affected by their circumstances. Psychoactive substances, especially alcohol, are often used as coping strategies to handle stress and tension and minimize the adverse effects of different sources of suffering.[10] Professors have not been immune to this issue. The use

of psychoactive substances by university professors has garnered increasing attention from organizations that represent these workers given its repercussions on work and personal life.[10,11]

The present study focused on the issue of whether the use of psychoactive drugs in these populations is prompted by the desire to relieve tension and overcome the suffering and illness associated with their working conditions. In light of these issues, we pose the following question: what is the relationship between substance use and occupational stress in university professors?

This study aimed to analyze the relationship between occupational stress and substance use in university professors; characterize their stress levels according to socioeconomic factors and occupational activities; and investigate the prevalence and types of substance use in this population. This issue represents a major challenge for public health initiatives aimed at promoting worker health, institutional projects targeting individuals who are struggling with occupational stress, and the creation of spaces to meet the care demands of these individuals.

METHODS

This was a cross-sectional descriptive and analytical study performed in a public university in the countryside of the state of Rio Grande do Norte, Brazil. Participants were recruited from different departments based on the following inclusion criteria: working as full-time teachers with 40-hour or exclusive dedication contracts, at the central campus of the university. Those who were not at work due to illness, vacation, job transfers, or training activities (courses, seminars) were excluded from participation.

The critical value for the detection of an effect with a margin of error of 5% and a 95% confidence level (Z) was calculated at 1.96. Based on these calculations, a sample of 209 professors was recruited. Sixty-seven (37.1%) of them agreed to participate in the study. In addition to refusals to participate, some participants were lost due to failure to return the completed questionnaires.

Data were collected using the following tools: a sociodemographic and work characteristics questionnaire developed by the authors; the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST)[12]; and the Lipp Stress Symptom Inventory for adults (LSSI).[13] The ASSIST is a brief instrument that screens for psychoactive substance use. It was developed by the World Health Organization (WHO) in response to the public health problems caused by psychoactive substance use.[12] The LSSI allows for the identification of three stages of stress: alert, resistance, and exhaustion. It also identifies the prevalence of somatic and cognitive symptoms, which can be classified as physical, psychological, or both physical and psychological. The instrument has been validated for use in Brazil.[13]

Participants were invited to complete the instruments using Google Forms, through a link that provided access to the questionnaires once the individual agreed to take part in the study. Invitations for participation were sent to all academic departments, then to the personal e-mail addresses of all teachers in April 2017. Recipients were asked to complete the forms by October 2017.

The material collected during this period was then collated and expressed using frequencies and percentages, as well as means, standard deviations (SD), and minimum and maximum values obtained using SPSS, version 23.0. The association between occupational stress, substance use, and the variables studied was investigated using chi-square or Fisher's exact tests.

This study is part of a larger project titled "Stress, depression, and substance use by university professors," which was approved by a Research Ethics Committee under protocol number 1.981.017, CAAE No. 63091016.0.0000.5294.

RESULTS

Most participants were male (50.7%) and married (55.2%) with children (59.7%). The mean sample age was 42 (SD, 10) years. The highest degree held by 6% of participants was a graduate-level certificate,

while 46.3% of professors had masters' degrees, 38.8% had doctorates and 4.5% were pursuing postdoctoral training. Most participants were involved in research, teaching, and outreach activities, with 40.3% of the sample teaching for over 20 hours a week. Additionally, 49.3% of participants performed administrative duties related to the management of the university (Table 1).

Scores on the ASSIST revealed significant differences between the use of legal and illegal substances. With regard to legal drugs, 82.1% of participants reported consuming alcohol, and 26.9% used tobacco products. As for illegal substances, 14.9% of participants had used cannabis, 4.5% had used crack or cocaine, 4.5% reported using amphetamines or ecstasy, and 7.5% used non-prescribed sedatives or hypnotics (Table 2).

The LSSI showed that 52.2% of participants were in the alert, resistance, or exhaustion stages of stress, with the resistance phase (29.8%) being the most prevalent of the three (Table 3).

Stress was most prevalent in professors who were over 40 years old (57.1%), women (62.9%), married (62.9%), and doctors (51.4%). Among participants who engaged in teaching activities, significant stress levels were reported by 82.9% of those also involved in research (Table 4). The association between psychoactive substance use and occupational stress was

Table 1. Frequencies and percentages of socioeconomic characteristics and occupational activities of university professors (n = 67), state of Rio Grande do Norte, Brazil, 2017

Variables	n	%
Gender		
Male	34	50.7
Female	33	49.3
Age (years)		
40 or less	30	44.8
Over 40	37	55.2
Mean ± standard deviation	42 ± 10	
Minimum-maximum	23-66	
Marital status		
Single	14	20.9
Stable relationship	8	11.9
Married	37	55.2
Separated	6	9.0
Other	2	3.0
Children		
No	19	28.4
Yes, and they live with me	40	59.7
Yes, but they do not live with me	8	11.9
Undergraduate degree		
Yes	6	9.0
No	61	91.0
Graduate-level certificate		
Yes	4	6.0
No	63	94.0
Master's		
Yes	31	46.3
No	36	53.7

Variables	n	%
Doctorate		
Yes	26	38.8
No	41	61.2
PhD		
Yes	3	4.5
No	64	95.5
Engages in teaching activities		
Yes	65	97.0
No	2	3.0
Engages in research activities		
Yes	51	76.1
No	16	23.9
Engages in outreach activities		
Yes	34	50.7
No	33	49.3
Engages in administrative activities		
Yes	33	49.3
No	34	50.7
Teaching workload (weekly hours)		
20 or less	40	59.7
Over 20	27	40.3
Mean ± standard deviation	22.7 ± 10.7	
Minimum-maximum	0-40	
Minimum-maximum	0-6	

most evident among individuals who consumed alcohol (85.7%) (Table 5).

DISCUSSION

Most university professors are male. The mean age of participants in the present study was similar to the national average of 36 (SD, 10) years, which may be due to the length of time required to obtain their academic degrees. National data has also demonstrated that professors with higher education levels are more numerous in public universities and tend to work full-time.[14] According to Article 66 of the Law of National Education (*Lei de Diretrizes e Bases da Educação Nacional*) (LDB/1996), university professors must hold masters or doctoral degrees; however, individuals with graduate-level certificates or undergraduate degrees can apply for these positions if justified and approved by a HEI.[15,16]

The present findings were similar to those obtained in professors of a public university in the Amazon region, where 51.9% of participants were male, 48.1% were married, 51.9% had children, and 55.8% had masters-level education. These professors identified their work environment at the university as a major contributor to their poor health status.[17]

In the present study, the most prevalent stage of stress was resistance. In a previous investigation in a public university in the state of Minas Gerais, 24% of professors were found to be in the resistance stage of stress, while the percentage of professors in the exhaustion (8%) and alert (3%) stages was much lower. Individuals in the resistance stage have experienced prolonged or intense exposure to stress, prompting them to seek strategies to maintain their well-being.[18]

Although most university professors are male, married women with children are the most affected by occupational stress. This situation has major implications for their health. In addition to their work outside the home, women tend to be responsible for family and household maintenance. This results in increased responsibilities and constitutes a gender inequality that reflects historic and social issues relating to the perceived role of women in society.[19]

The present findings revealed that 40.3% of participants taught for at least 20 hours a week, and

Table 2. Frequencies and percentages of psychoactive substance use and related variables among university professors (n = 67), state of Rio Grande do Norte, Brazil, 2017

Variables	n	%
Alcoholic beverages		
Yes	55	82.1
No	12	17.9
Tobacco products		
Yes	18	26.9
No	49	73.1
Crack or cocaine		
Yes	3	4.5
No	64	95.5
Amphetamines or ecstasy		
Yes	3	4.5
No	64	95.5
Inhalants		
Yes	6	9.0
No	61	91.0
Hallucinogens		
Yes	1	1.5
No	66	98.5
Opioids/opiates		
Yes	3	4.5
No	64	95.5
Sedative/hypnotics		
Yes	5	7.5
No	62	92.5
Cannabis		
Yes	10	14.9
No	57	85.1

Table 3. Frequencies and percentages of stress-related variables in university professors (n = 67), state of Rio Grande do Norte, Brazil, 2017

Variables	n	%
Alert	3	4.5
Resistance	20	29.8
Exhaustion	12	17.9
No stress	32	47.8

Table 4. Frequencies and percentages of stress-related variables as a function of the sociodemographic characteristics and occupational activities of university professors (n = 67), state of Rio Grande do Norte, Brazil, 2017

Variables	Stress level		p-value
	Alert, resistance, or exhaustion n (%)	No stress n (%)	
Gender			
Male	13 (37.1)	21 (65.6)	0.037
Female	22 (62.9)	11 (34.4)	
Age (years)			
40 or less	15 (42.9)	15 (46.9)	0.933
Over 40	20 (57.1)	17 (53.1)	
Marital status			
Stable relationship	5 (14.3)	3 (9.4)	0.325
Married	22 (62.9)	15 (46.9)	
Separated	2 (5.7)	4 (12.5)	
Other	0 (0.0)	2 (6.3)	
Children			
No	14 (40.0)	5 (15.6)	0.081
Yes, and they live with me	17 (48.6)	23 (71.9)	
Yes, but they do not live with me	4 (11.4)	4 (12.5)	
Undergraduate degree			
Yes	2 (5.7)	4 (12.5)	0.414
No	33 (94.3)	28 (87.5)	
Graduate-level certificate			
Yes	1 (2.9)	3 (9.4)	0.342
No	34 (97.1)	29 (90.6)	
Master's			
Yes	17 (48.6)	14 (43.8)	0.881
No	18 (51.4)	18 (56.3)	
Doctorate			
Yes	18 (51.4)	8 (25.0)	0.049
No	17 (48.6)	24 (75.0)	
PhD			
Yes	0 (0.0)	3 (9.4)	0.104
No	35 (100.0)	29 (90.6)	
Engages in teaching activities			
Yes	35 (100.0)	30 (93.8)	0.434
No	0 (0.0)	2 (6.3)	
Engages in research activities			
Yes	29 (82.9)	22 (68.8)	0.286
No	6 (17.1)	10 (31.3)	
Engages in outreach activities			
Yes	19 (54.3)	15 (46.9)	0.718
No	16 (45.7)	17 (53.1)	
Engages in administrative activities			
Yes	17 (48.6)	16 (50.0)	1.000
No	18 (51.4)	16 (50.0)	
Teaching workload (weekly hours)			
20 or less	18 (51.4)	22 (68.8)	0.232
Over 20	17 (48.6)	10 (31.3)	

49.3% of participants also performed administrative duties related to the management of the university. This may explain the high prevalence of stress among individuals who engage in teaching and research activities (82.9%). The intensification of work at university requires professors to spend more time in the workplace, depriving them of family time, leisure and rest.[11]

An association was also observed between stress and education level, with 64.8% of participants with doctoral degrees reporting significant stress. This may be attributable to a devaluing of their qualifications and the inherent demands of the teaching career. Scientific production and outreach activities are not sufficiently encouraged by universities, although they are still required in institutional evaluations. These demands intensify the pace of work and overwhelm teaching activities, increasing the likelihood of illness, since they promote a focus on increased productivity with no regard for working conditions or teacher fatigue.[11,20]

Public universities have been losing their social identity and adopting an increasing number of pedagogical and administrative requirements with

Table 5. Frequencies and percentages of stress and psychoactive substance use in university professors (n = 67), state of Rio Grande do Norte, Brazil, 2017

Variables	Stress level		p-value
	Alert, resistance, or exhaustion n (%)	No stress n (%)	
Alcoholic beverages			
Yes	30 (85.7)	25 (78.1)	0.624
No	5 (14.3)	7 (21.9)	
Tobacco products			
Yes	10 (28.6)	8 (25.0)	0.957
No	25 (71.4)	24 (75.0)	
Crack or cocaine			
Yes	1 (2.9)	2 (6.3)	0.603
No	34 (97.1)	30 (93.8)	
Amphetamines or ecstasy			
Yes	1 (2.9)	2 (6.3)	0.603
No	34 (97.1)	30 (93.8)	
Inhalants			
Yes	4 (11.4)	2 (6.3)	0.675
No	31 (88.6)	30 (93.8)	
Hallucinogens			
Yes	0 (0.0)	1 (3.1)	0.478
No	35 (100.0)	31 (96.9)	
Opioids/opiates			
Yes	1 (2.9)	2 (6.3)	0.603
No	34 (97.1)	30 (93.8)	
Sedative/hypnotics			
Yes	3 (8.6)	2 (6.3)	1.000
No	32 (91.4)	30 (93.8)	
Cannabis			
Yes	7 (20.0)	3 (9.4)	0.310
No	28 (80.0)	29 (90.6)	

measurable and quantifiable parameters that professors are forced to achieve. Though they recognize the importance of these factors, professors also feel insecure and helpless given the high number of requirements and the need to meet them despite inadequate and precarious working conditions.[21] The intensity of institutional demands imposed on professors contributes to feelings of exhaustion and a competitive environment. Over time, this can compromise quality of life, since workers exposed to these conditions can feel increasingly pressured by the complex demands of their organizations. Previous studies of public university professors have demonstrated that the imbalance between occupational demands, needs, and personal expectations contributes to dissatisfaction, unhappiness, and illness.[7,11,19,21]

The characteristics of teaching work identified in this study raise additional questions regarding the meanings attributed to occupational illnesses. This includes the importance given to manifestations of illness displayed by professors within and outside the work environment; if neglected and unknown, the illness will continue to develop in the form of somatic symptoms, as well as alterations in psychological functioning.[22,23]

These factors must be considered when evaluating manifestations of stress in university professors, since these extend beyond the symptoms of illness, and result from the conditions under which individuals live, act, organize themselves, work, and view society based on their own unique characteristics and those of the group to which they belong. Stressors may lead individuals to experience negative feelings such as anguish, sadness, anxiety, irritability, abandonment, alienation, demotivation, insensitivity, and dehumanization, all of which interfere with quality of life and occupational performance.[17,24]. The literature shows that professors under stress may turn to psychoactive substances, although little systematic data have been collected on the possible association between these factors. This demonstrates the need for further studies on this topic.[10,11]

According to a previous study, psychoactive substance use among university professors is justified as a way to relax, boost energy, work longer hours, or relieve pain. Whatever the reason, the frequent use of these substances increases the likelihood of dependence.[10,11] In the present study, the use of legal substances was significantly more prevalent than that of illegal drugs. A similarly concerning scenario was observed in a study of 338 professors at the University of Medellín, in Colombia, in which 92.3% of the sample consumed alcohol; 45.9% used tobacco products; and 26.3% used other substances, with cannabis identified as the most frequently used illegal substance.[25] In another study which aimed to evaluate the patterns of alcohol and tobacco use in professors at universities in midwestern Brazil, a total of 79.1% of these individuals were found to consume alcohol while 19.7% used tobacco.[26] These figures are similar to those observed in the present study.

Our investigation showed that the association between occupational stress and psychoactive substance use was most prevalent in individuals who consumed alcoholic beverages. Alcohol intake and related psychosocial variables were also examined in a previous study of 360 professors at a university in Ecuador. A total of 13.1% of participants in the aforementioned study consumed alcohol, although this was more frequent in men (19.1%) than in women (6.8%). Male professors with a higher stress level were five times more likely to consume alcohol than those with lower levels of stress.[27]

An investigation conducted in Spain found that alcohol intake was associated with four aspects of occupational stress: harmful factors of the work environment (heat, cold, smells, noise, and/or uncomfortable positions), long hours, future job insecurity, and feeling inadequately trained for their job.[28]

On this note, we offer further considerations on the use of psychoactive substances and its relationship to the work environment. Though substance use may offer an escape from exhausting work schedules, it is associated with a series of family, social and occupational problems, as well as physical and psychological harms. Stress may contribute to excessive alcohol intake throughout the week as well as on single occasions. As noted in a previous study of university professors in Pakistan, alcohol may be used as a coping strategy to mitigate occupational stress.[29]

The present findings corroborate previous research and underscore the need for preventive actions targeting the use of psychoactive substances by university professors. These initiatives must consider the patterns of drug use in this population, as well as its risks and consequences. According to the International Labor Organization (ILO), these preventive actions could include changing institutional regulations on working hours to avoid overwork; preventing excessive demands on workers; setting achievable deadlines; providing clear definitions of worker responsibilities; not under-utilizing the capacities of workers; and encouraging socialization and leisure activities.[30] These factors should be the focus of interventions developed by university administrators, who should also seek to establish a support system for workers in the form of a multiprofessional team to help reduce stress levels and the risk of illness.

CONCLUSION

The association between occupational stress and psychoactive substance use in university professors is a complex topic and cannot be adequately covered in a single study. This investigation aimed to provide preliminary evidence of this association and was able to show that it was present in the professors studied. Our discussion focused on the social determinants of work and included relevant issues that apply to changes in the education system and their effects on the work of university professors. Professors have had to carry out their academic and life activities in a "new context," whose drastic implementation had a significant impact on their individual circumstances.

Associations between occupational stress and substance use in university professors (especially the use of alcohol, tobacco products, and cannabis) were most prevalent among those who reported some degree of stress, which is a cause for concern given the role of these substances as risk factors or triggers of several health conditions. We encourage universities to increase their investment in the health of their human capital by implementing interventions on healthy stress management, especially in more vulnerable populations (women, doctors, professors who exceed their planned teaching hours, researchers, and teachers who report using psychoactive substances).

One limitation of this study was its narrow focus on the central campus of the university, which has other campuses in the state. We must also consider the possibility of underreporting since this issue is permeated by taboos, discrimination, and the fear of revealing the true nature of the conditions within the HEI.

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