

Occupational environment and psychoactive substance consumption among nurses

Ambiente ocupacional e o consumo de substâncias psicoativas entre enfermeiros

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Descritores

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Abstract

Objective: To analyze the relation between the work environment and psychoactive substance consumption among hospital nurses.

Methods: Cross-sectional and descriptive study, involving nurses from three public hospitals in a city in the South of Brazil, being two medium-complexity and one high-complexity institution. The study population consisted of 221 nurses. Based on this figure, the stratified sample size was calculated, considering a 50% proportion, 95% confidence level and 5% maximum error, resulting in a minimum number of 175 participants. Through proportional stratification per institution, a minimum of 103 high-complexity nurses was defined, as well as 36 nurses from each medium-complexity institution. The following inclusion criteria were adopted: having worked at the institution for at least one year and not being on leave. The data were collected between October 2015 and April 2016. In the data collection, sociodemographic and occupational information, the Nursing Work Index - Revised and the Alcohol, Smoking and Substance Involvement Screening Test. The data were analyzed in the software Statistical Package for Social Sciences, version 20.0. Initially, the normality was verified by means of the Kolmogorov-Smirnov test. Descriptive analyses were developed by absolute and relative frequencies for the categorical variables; and medians and dispersion measures for the numerical variables.

Results: Alcohol, tobacco and sedatives were the most consumed substances. The monthly income was positively correlated with alcohol consumption among nurses at the medium-complexity hospitals ($p=0.01$). At the high-complexity hospital, alcohol consumption was negatively correlated with the physician-nurse index ($p=0.03$). Autonomy, physician-nurse index and organizational support were negatively correlated with the use of sedatives ($p<0.01$; $p<0.01$; $p=0.02$, respectively).

Conclusion: The more negative the nurse's work environment, mainly in the relation with physicians, organizational support and autonomy, the greater the consumption of psychoactive substances.

Resumo

Objetivo: Analisar a relação entre o ambiente de trabalho e o consumo de substâncias psicoativas entre enfermeiros hospitalares.

Métodos: Estudo transversal e descritivo, realizado com enfermeiros de três instituições hospitalares públicas localizados em um município da Região Sul do Brasil, sendo duas de média complexidade e uma de alta complexidade. A população deste estudo foi composta por 221 enfermeiros. Com base nesse número, calculou-se o tamanho amostral por estratos, considerando-se a proporção de 50%, nível de confiança de 95% e erro máximo de 5%, o que resultou no número mínimo de 175 participantes. Mediante a estratificação proporcional por instituição definiu-se o mínimo de 103 enfermeiros da alta complexidade e 36 de cada instituição de média complexidade. Adotou-se como critérios de inclusão: trabalhar na instituição há pelo menos um ano e não estar afastado por licença. A coleta de dados foi realizada entre outubro de 2015 e abril de 2016. Na coleta de dados utilizaram-se informações sociodemográficas e ocupacionais, o *Nursing Work Index - Revised* e o *Alcohol, Smoking and Substance Involvement Screening Test*. Os dados foram analisados no programa *Statistical Package for Social Sciences*, versão 20.0. Inicialmente, verificou-se a normalidade pelo teste de *Kolmogorov-Smirnov*. Foram realizadas análises descritivas, por frequências absoluta e relativa para as variáveis categóricas; e medianas e medidas de dispersão para as numéricas.

Resultados: Alcool, tabaco e sedativos foram as substâncias mais consumidas. Renda mensal apresentou correlação positiva com o consumo de álcool entre enfermeiros dos hospitais de média complexidade ($p=0,01$). No hospital de alta complexidade, o consumo de álcool relacionou-se negativamente a relação médico-enfermeiro ($p=0,03$). Autonomia, relação médico-enfermeiro e suporte organizacional estiveram correlacionados negativamente ao uso de sedativos ($p<0,01$; $p<0,01$; $p=0,02$, respectivamente).

Conclusão: Quanto mais desfavorável o ambiente de trabalho do enfermeiro, sobretudo na relação com médicos, suporte organizacional e autonomia, maior foi o consumo de substâncias psicoativas.

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Introduction

Psychoactive substance consumption has significantly increased around the world, mainly in developing countries, and has turned into a great public health problem. It is estimated that one in ten psychoactive substance users develops some consumption-related problem, whether a mental disorder or a chemical addiction.⁽¹⁾

The factors that influence people to consume these substances include the situations of tension and stress experienced in the work environment. They are used as a defense or protection strategy, to facilitate coping with the daily reality and bring down the wear in the workplace.⁽²⁾

Nursing is one of the professions that work in an occupational environment that exposes it daily to exhausting situations: contact with death, pain, conflicts, burdens, lack of human and material resources, improper physical structures, among others;⁽³⁾ these conditions can drive the professional towards psychoactive substance consumption.

The consumption of these substances makes the professionals vulnerable to physical, psychological and social health problems, making them susceptible to indirect risks, including traffic accidents and violence.⁽⁴⁾ In addition, psychoactive substance use interferes in the work environment because it reduces the cerebral activity, leading to the professionals' low output, slowness and lack of reasoning, predisposing to the occurrence of adverse events and occupational accidents.^(5,6)

Few studies^(2,6,7) have investigated psychoactive substance use among health professionals, mainly nurses, nor has this consumption been related with the work environment. In view of the importance of this theme, it is relevant to clarify the aspects of psychoactive substance consumption to allow the hospital managers and workers themselves to develop prevention and remedial strategies.

In this study, we aimed to analyze the relation between the work environment and psychoactive substance consumption among nurses.

Methods

Cross-sectional and descriptive study, involving nurses from three public hospitals located in a city in the South of Brazil, being two medium-complexity and one high-complexity hospital.

The study population consisted of 221 nurses. Based on this figure, the stratified sample size was calculated, considering a 50% proportion, 95% confidence level and 5% maximum error, which resulted in a minimum of 175 participants. Through proportional stratification per institution, the minimum sample size was set at 103 nurses from the high-complexity and 36 from each medium-complexity institution.

The following inclusion criteria were adopted: having worked at the institution for at least one year and not being on leave of absence.

The data were collected between October 2015 and April 2016. The nurses were invited after the researcher had provided information about the research. Next, the professionals went to a private room at the workplace to answer the questions, where they received a sealed envelope with the Free and Informed Consent Form and the research instrument. After completing the tools, the nurses placed the envelope in a sealed box to preserve their confidentiality. All nurses who complied with the eligibility criteria (n=215) were invited to participate in the study, 86.0% (n=185) of whom agreed and 14.0% (n=30) refused.

The data collection instrument consisted of three self-applied questionnaires, previously tested in a pilot study involving 20 nurses from a hospital with characteristics similar to the places of study. The first questionnaire contained sociodemographic and occupational characteristics (age, sex, marital status, physical exercise, education level and monthly income; type/number of professional bonds, weekly work journey, period and work sector).

The second questionnaire was the *Nursing Work Index - Revised* (NWI-R), translated and validated for use in Brazil in 2011, used to assess the nurse's work environment.⁽⁸⁾ It contains 57 items, but only 15 make up the four subscales: autonomy, control over the professional practice environment, profes-

sional relationship between nurse and physician and organizational support. The NWI-R is answered on a Likert scale, with scores ranging between one (I completely agree) and four (I completely disagree). Hence, the higher the participant's score, the more favorable the work environment will be.

And, finally, the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST), validated for use in Brazil in 2004.⁽⁹⁾ The scale consists of eight questions on the use of nine psychoactive substances: tobacco, alcohol, marijuana, cocaine, stimulants, sedatives, inhalants, hallucinogenic and opioid drugs. The questionnaire includes questions on the usage frequency in life; consumption in the past three months; strong desire/urge to consume in the past three months; refrain from doing some activity in the past three months due to substance consumption; usage-related problems, such as: health, financial, social, concern with consumption by people close to the user; and attempts to control/reduce/quit the use. The answers are provided on a Likert scale with individual scores.

The data were analyzed in the software Statistical Package for Social Sciences, version 20.0. Initially, the normality was test by means of the Kolmogorov-Smirnov test. Descriptive analyses were developed using absolute and relative frequencies for the categorical variables and medians and dispersion measures for the numerical variables. To analyze the relation between the consumption score of each psychoactive substance and the sociodemographic, occupational and occupational environment-related variables, Spearman's correlation coefficient was used. Significance was set at $p < 0,05$.

The study was registered on the *Plataforma Brasil*, under Ethical Appreciation Certificate (CAAE): 49062415.5.0000.5231.

Results

Among the 185 participants in the study, the median age was 41 years, ranging between 24 and 63 years. The majority was female (82.2%; $n=152$),

lived in a stable partner relationship (61.1%; $n=113$), exercised (54.6%; $n=101$) and held a *lato sensu* post-graduation degree (67.6%; $n=125$). The median monthly income was R\$4,200.00 (US\$1,346.52), ranging between R\$2,300.00 (US\$737.38) and R\$17,600.00 (US\$5,642.56).

As for the occupational characteristics, 56.2% ($n=104$) of the participants were affiliated with the high-complexity institution and 43.8% ($n=81$) with the medium-complexity institutions. Tenured nurses were predominant (70.3%; $n=130$), with only one affiliation (74.1%; $n=137$), who worked up to 40 hours per week (56.2%; $n=104$), during the day (76.2%; $n=141$) and in care practice (73.5%; $n=136$).

Although the nurses' median perception of the occupational environment at the medium and high-complexity hospitals was similar, all medians at the high-complexity institution were slightly higher (Table 1).

Table 1. Descriptive measures of the *Nursing Work Index - Revised* subscales

Subscales	Medium complexity		High complexity	
	Median (IIQ)*	Minimum/Maximum	Median (IIQ)*	Minimum/Maximum
Autonomy	11.0(8.0-12.0)	5.0-17.0	9.0(8.0-11.0)	5.0-19.0
Control over the environment	19.0(16.0-23.0)	7.0-27.0	16.0(13.0-19.0)	7.0-27.0
Physician-nurse index	7.0(6.0-8.0)	4.0-11.0	6.0(5.0-7.0)	3.0-12.0
Organizational support	26.0(21.0-29.0)	12.0-35.0	22.0(18.0-25.0)	10.0-37.0

*interquartile interval (P25-P75)

About the psychoactive substance use, the highest consumption frequencies were found for alcohol, tobacco and sedatives (Table 2). Among the substances for which the professionals indicated the need to reduce the consumption, tobacco stood out.

In table 3, it was identified that, among the nurses from the medium-complexity institutions, a negative correlation was found for alcohol use and monthly income. Among those working at the high-complexity hospitals, the alcohol consumption was negatively related with the physician-nurse index. Smoking presented a positive relation with the older participants. Autonomy, the physician-nurse index and organizational support were negatively correlated with the use of sedatives.

Table 2. Descriptive measures of Alcohol, Smoking and Substance Involvement Screening Test

Variables*	Use in the lifetime	Use in the past three months	Desire or urge to consume	Associated problems	Activity neglect	Concern by others	Attempts to reduce
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
Medium complexity							
Tobacco	36(44.4)	11(13.6)	11(13.6)	3(3.7)	-	5(6.2)	12(14.8)
Alcohol	63(77.8)	48(59.3)	24(29.6)	2(2.5)	1(1.2)	4(5.0)	7(8.6)
Sedatives	15(18.5)	3(3.7)	2(2.5)	-	-	1(1.2)	3(3.7)
Marihuana	12(14.8)	1(1.2)	-	-	-	-	1(1.2)
Opioids	5(6.2)	2(2.5)	-	-	-	-	-(-)
Amphetamines	5(6.2)	3(3.7)	-	-	-	-	2(2.5)
Inhalants	6(7.4)	1(1.2)	-	-	-	-	1(1.2)
Cocaine	3(3.7)	1(1.2)	-	-	-	-	3(3.7)
Others	4(4.9)	1(1.2)	1(1.2)	-(-)	-(-)	-(-)	1(1.2)
High complexity							
Tobacco	33(31.7)	12(11.5)	11(10.6)	2(1.9)	1(1.0)	5(4.8)	8(7.7)
Alcohol	73(70.2)	65(62.5)	31(29.8)	2(1.9)	2(1.9)	5(4.8)	3(2.9)
Sedatives	13(12.5)	4(3.8)	3(2.9)	2(1.9)	2(1.9)	3(2.9)	1(1.0)
Marihuana	6(5.8)	3(2.9)	-(-)	-(-)	-(-)	1(1.0)	-(-)
Opioids	3(2.9)	1(1.0)	-(-)	-(-)	-(-)	-(-)	-(-)
Amphetamines	2(1.9)	2(1.9)	-(-)	-(-)	-(-)	-(-)	-(-)
Inhalants	1(1.0)	-(-)	-(-)	-(-)	-(-)	-(-)	1(1.0)
Cocaine	1(1.0)	-(-)	-(-)	-(-)	-(-)	1(1.0)	-(-)
Others	4(3.8)	-(-)	-(-)	-(-)	-(-)	-(-)	-(-)

*Some participants indicated the use of two or more substances. No consumption of hallucinogenic drugs was indicated

Table 3. Correlations among the sociodemographic and occupational characteristics, *Nursing Work Index - Revised* subscales and the psychoactive substances the nurses used most

Variables	Alcohol		Tobacco		Sedative	
	ro*	p-value	ro*	p-value	ro*	p-value
Medium complexity						
Age	-0.13	0.31	-0.07	0.56	0.07	0.59
Physical exercise	0.25	0.05	0.09	0.45	-0.15	0.24
Monthly income	-0.31	0.01	0.05	0.68	0.01	0.89
Autonomy	-0.23	0.07	0.04	0.71	0.08	0.50
Control over the environment	-0.12	0.33	0.07	0.57	0.11	0.37
Physician-nurse index	-0.09	0.46	0.11	0.39	0.18	0.15
Organizational support	-0.17	0.89	0.12	0.33	0.08	0.52
High complexity						
Age	-0.09	0.48	0.29	0.02	-0.16	0.20
Physical exercise	0.04	0.74	0.08	0.52	0.07	0.56
Monthly income	0.05	0.66	0.19	0.14	0.07	0.56
Autonomy	-0.13	0.29	-0.07	0.58	-0.39	0.00
Control over the environment	-0.27	0.03	-0.14	0.28	-0.41	0.00
Physician-nurse index	0.03	0.77	-0.02	0.86	-0.13	0.31
Organizational support	-0.09	0.47	-0.09	0.47	-0.28	0.02

*Spearman's correlation coefficient

Discussion

The limitations in this study were the cross-sectional design, which restricts the identification of causal relations among the research variables, limiting the spectrum of the analysis and the generalization of the results. In addition, it should be kept in mind that this is a self-referred evaluation, entailing the possibility of answers that correspond to the socially accepted standards.

The sociodemographic characteristics were similar to those of other studies involving nurses^(2,10) as, in this study, women were predominant, which is related with the socio-historical characteristics of the profession and women's representativeness in the job market.

Most of the nurses reported only one employment, which is considered a positive factor, as long workdays represent a risk for occupational accidents, physical and mental comorbidities, unsatisfactory quality of life and hardly healthy living habits, including alcohol and tobacco consumption, sedentariness and an inappropriate sleep pattern.⁽¹¹⁾

What the nurses' perception of the occupational environment is concerned, the medians were low, indicating a negative environment, mainly what autonomy is concerned. When the nurses work in a motivating environment, in which they develop their competencies and skills autonomously, they will work with greater pleasure and satisfaction and, in turn, will contribute to promote better care to the patients and family members and will improve their relationship with the health team.⁽¹²⁾

For the sake of a supportive occupational environment, the work process needs to be organized to permit the planning and development of nursing care, with sufficient physical and human resources, good interpersonal relationships between nurs-

es and other professionals and participation in the work environment's administrative decisions.⁽¹²⁾ An environment in which physicians and nurses communicate effectively and where the teamwork favors positive outcomes of care deliver to patients and relatives reduces the tensions and dissatisfactions deriving from the work environment and reduces mental illness among the workers.⁽¹³⁻¹⁴⁾

When the nurses lack autonomy in their work environment, they present feelings of suffering, anguish, dissatisfaction, stress and mental health problems. Thus, they tend towards the use of alcohol, sedatives and other drugs to resist those situations. This ratifies the importance of a work environment that encourages the professionals' autonomy and stimulates them to continue on the job.⁽¹⁴⁻¹⁷⁾

In this sense, psychoactive substance consumption is used as a defense strategy, whether related to the occupational or personal environment. Thus, being in an environment with unsatisfactory characteristics, lack of autonomy, unsatisfactory organizational support and physician-nurse index are factors that can contribute to the consumption of alcohol, tobacco and sedatives.⁽¹⁸⁾

The consumption of legal or illegal psychoactive substances leads to different individual and social damage, besides high morbidity and mortality rates at the global level,⁽¹⁹⁾ negatively affecting the worker's life, leading to presenteeism, absenteeism and health leaves.

The prevalence of lifetime consumption of alcohol, tobacco and sedatives in this study was higher than in studies involving nursing auxiliaries, physicians and hospital nurses in Latin American countries.⁽²⁰⁻²²⁾ What alcohol is concerned, consumption is not exclusively related to the work, due to the historical-social factor that strongly links it with socialization and leisure, in addition to its free trade and availability. Nevertheless, the bond established between the worker and the work can intensify the consumption, as alcohol is conceived as a fast and effective way to reduce stress and produce physical and mental relaxation.⁽²¹⁾

In a study developed in Australia with nursing professionals, it was verified that 60% needed some substance to sleep, mainly alcohol and medicines.

The use of cigarettes, energy drinks, benzodiazepines, barbiturates, antidepressants, amphetamines and opioids was also verified.⁽²³⁾

The low salaries, that is, the payment received far below the worker's qualification and merit for the functions performed, are commonly linked with dissatisfaction, lack of recognition and invisibility of nursing⁽²⁴⁾ and, in this study, was correlated with alcohol consumption.

Smoking was associated with older nurses and this finding indicates that this prevalence is lower among the younger nurses. In the past, the media strongly influenced the encouragement of smoking habits. Tobacco represents a risk factor for different pathologies though, resulting in the implementation of public policies such as damage reduction.⁽²⁵⁾

These study results were similar to a study developed in Sulaymaniyah, Iraq, involving health professionals who worked at teaching hospitals. Tobacco consumption was present in 26.5% of the subjects and predominant among workers with longer time working at the institution, which corresponded to the older individuals.⁽²⁶⁾

It is presupposed that, due to the stressful conditions, the hospital environment can also influence the smoking. A study found that, when the nurses smoke, there is greater predisposition to increased tobacco consumption, and relapse among former smokers.⁽⁶⁾ In addition, characteristics from the hospital work environment can also influence the smoking, such as nighttime work, other employment bonds, contact with other smokers and an environment with restrictive measures.^(27,28)

What the use of sedatives is concerned, a negative relation was identified for the physician-nurse index, organizational support and autonomy. The nursing professionals figure among the health workers who are most prone to the development of mental disorders due to the peculiarities of their work process and the lack of professional acknowledgement,⁽³⁾ leading them to the use of sedatives as a strategy to relieve tensions.

In a study involving health professionals from Morocco, Africa, it was identified that 20% of the participants used hypnotic/sedative drugs more than once during the week before the data collection,

and that the use of these substances was related with nighttime work, stress, workload and fatigue.⁽³⁰⁾

Hence, the consumption of psychoactive substances is related with a mechanism of coping with the problems deriving from the occupational environment as, in this environment, the patients should receive continuing nursing care, which is also wearing and provokes exhaustion; thus, the consumption of these substances turns into a strategy to minimize the suffering.⁽²⁾

It has been demonstrated in a study that the motives that make nursing professionals use psychotropic drugs include anxiety and occupational stress.⁽⁶⁾ In case of usage of psychoactive prescription or non-prescription drugs, the chance of an occupational accident increases fivefold, and absenteeism and health leaves also increase.⁽²⁾

The nursing professionals often have unrestricted access to psychotropic drugs and are skilled at self-administering. This fact makes them vulnerable to abuse and possible addiction to non-prescription substances. The anesthetic drugs with high potential abuse in health professionals include propofol and ketamine. Cross-sectional and cohort studies involving health workers addicted to these substances indicated that the course of addiction is fast, social and occupational activities are abandoned or reduced due to the use of these substances, significant physical injuries are present due to the intoxication and mortality rates due to acute intoxication and respiratory depression are high.⁽³¹⁻³²⁾

Another characteristic evidenced in this study was illegal substance consumption among the nurses, the most self-reported substances being marijuana and cocaine. This result is supported in the literature, which indicates marijuana as the most consumed illegal drug in the world among young people and adults.⁽³³⁾ Despite the lack of studies that relate the occupational risks with the use of marijuana, the workers who use this substance with symptoms that indicate recent and frequent use should be removed from the workplace as, when the blood levels of tetrahydrocannabinol surpass 5 ng/mL, the brain function and the performance of physical, mental and cognitive functions are compromised.

These workers should be submitted to an occupational health assessment to evaluate their mental health, which may indicate a functional change or leave of absence from work for the purpose of treatment.⁽⁵⁾

Therefore, prevention measures need to be taken at the organizational level against psychoactive substance consumption among hospital nurses. The managers also need to forward the users for treatment, together with a multidisciplinary clinical assessment to verify whether the worker needs a leave or functional rehabilitation, as isolated punitive measures, although justified, such as dismissal by the health service, do not solve the problem and prevent the professionals from seeking help out of fear of punishment. Such actions value the people dedicated to care for others and reduce the occupational health damage and possible accidents and adverse events that may happen due to this practice.

Conclusion

A significant relation was found between the nurse's occupational environment and the consumption of alcohol, tobacco and sedatives, evidencing that, the more negative this environment, mainly concerning the physician-nurse relationship, organizational support and autonomy, the higher the psychoactive substance consumption among these professionals.

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Collaborations

Scholze AR, Martins JT and Galdino MJQ contributed to the conception of the project, data analysis and interpretation, writing of the article, critical review of the intellectual content and final approval of the version for publication. Ribeiro RP contributed to the interpretation of the data, relevant critical review of the intellectual content and final approval of the version for publication.

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