The relation between alcohol, tobacco and stress in nursing students

Marcos Hirata Soares[1]
Felipe Santana Oliveira[2]

Objective: This study characterizes stress of the Nursing student, its relation with the academic learning process and the use of psychoactive substances. Methods: This is a transversal, descriptive study with 149 students, in Londrina-PR, in 2012. We used the Stress Scale Evaluation on the Nursing Student and the Alcohol, Smoking and Substance Involvement Screening Test. The analysis was done with the Statistical Package for Social Sciences, v.15, through Kruskal-Wallis, Jonckheere-Terpstra tests and Spearman Correlation, in level $\alpha<0.05$. Results: We identified a higher prevalence of tobacco consumption, differences in the level of stress during the series, a weak negative correlation between stress and tobacco, and a weak positive correlation regarding the consumption of alcohol and stress. Conclusion: The study has contributed to describe the relations between stress, the academic learning process and the use of alcohol and tobacco.

Descriptors: Stress, Psychological; Nursing, Students; Higher Education Institutions; Substance Abuse Detection.

[1] MSc, Professor, Departamento de Enfermagem, Centro de Ciências da Saúde, Universidade Estadual de Londrina, Londrina, PR, Brazil.
[2] Undergraduate student in Nursing, Departamento de Enfermagem, Centro de Ciências da Saúde, Universidade Estadual de Londrina, Londrina, PR, Brazil.

Correspondence

Marcos Hirata Soares
Universidade Estadual de Londrina. Centro de Ciências da Saúde
Departamento de Enfermagem
Av. Robert Koch, 60
Vila Operária
CEP: 86038-350, Londrina, PR, Brasil
E-mail: mhirata@uel.br

A RELAÇÃO ENTRE ÁLCOOL, TABACO E ESTRESSE EM ESTUDANTES DE ENFERMAGEM

Objetivo: este estudo caracteriza o estresse do estudante de enfermagem, sua relação com o processo de formação acadêmica e com o uso de substâncias psicoativas. Métodos: trata-se de estudo descritivo, transversal, com 149 estudantes, em Londrina, PR, em 2012. Foram utilizados a escala Avaliação de Estresse no Estudante de Enfermagem e o Teste de Triagem do Envolvimento com Álcool, Tabaco e outras Substâncias Psicoativas. A análise foi feita com o Statistical Package for Social Sciences, versão 15, pelos testes de Kruskal-Wallis, Jonckheere-Terpstra e correlação de Spearman, em nível α<0,05. Resultados: identificou-se maior prevalência no consumo do tabaco, diferenças entre o nível de estresse no decorrer das séries, uma relação negativa fraca entre o estresse e o consumo de tabaco e uma relação positiva fraca quanto ao consumo de álcool e estresse. Conclusão: o estudo contribuiu para descrever as relações entre o estresse, o processo de formação acadêmica e o uso de álcool e tabaco.

Descritores: Estresse Psicológico; Estudantes de Enfermagem; Instituições de Ensino Superior; Detecção do Abuso de Substâncias.

LA RELACIÓN ENTRE ALCOHOL, TABACO Y ESTRÉS EN ESTUDIANTES DE ENFERMERÍA

Objetivo: este estudio caracteriza el estrés del estudiante de Enfermería, su relación con el proceso de formación académica y con el uso de substancias psicoactivas. Métodos: se trata de un estudio descriptivo, transversal con 149 estudiantes, en Londrina-PR, en 2012. Fueron utilizados la escala Evaluación de Estrés en el Estudiante de Enfermería y la Prueba de Tría del Envolvimiento con Alcohol, Tabaco y otras Substancias Psicoactivas. El análisis fue hecho con el Statistical Package for Social Sciences, v.15, por los testes de Kruskal-Wallis, Jonckheere-Terpstra y Correlación de Spearman, en nivel a<0.05. Resultados: se identificó mayor superioridad en el consumo del tabaco, diferencias entre el nivel de estrés en el pasar de las series, una relación negativa flaca entre el estrés y el consumo de tabaco y una relación positiva flaca en cuanto al consumo de alcohol y estrés. Conclusión: el estudio aportó para describir las relaciones entre el estrés, el proceso de formación académica y el uso de alcohol y tabaco.

Descriptores: Estrés Psicológico; Estudiantes de Enfermería, Instituciones de Enseñanza Superior; Detección de Abuso de Substancias.

Introduction

According to some studies on diagnosis of abuse or dependence on psychoactive substances such as alcohol and tobacco on college students[1-2], the university context, particularly for nursing students, turns them more vulnerable to experiencing illicit substance abuse [3-4]. Among several factors related to psychoactive substances

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abuse, such as psychological factors, for example, coping with stress can also be considered an associated factor.

Literature review

In two studies on stress in Nursing students[5-6], we identified that the major sources of stress to the students are related to academic activities and concern for their labor market insertion, as well as their overload during the final year[6]. Consonant to this fact, a survey[4] identified that tobacco consumption increased gradually in the grades and self-medication practices, suggesting the hypothesis that the academic complexity is configured as a source of stress, causing students to use both licit and illicit drugs as a way of coping.

Reflecting on stress, it is considered that theories of coping with stress are important to serve as an instrument for nurses' understanding and research. There are two stress main approach models, one model with emphasis on physiological responses, classifying them into alarm, resistance and exhaustion[7], and the other is based on an adaptation model and coping with stress[8], which focuses on the psychological responses. This model was chosen because it is considered more appropriate to this study, because it defines that coping with stress, considered a process, is conditioned to ongoing reassessments that individuals make of their relationship with the environment, which is surrounded by the personality characteristics, values, beliefs, sociocultural factors and events of life.

In this complex confrontation relation, there is the possibility of the subject's involvement with psychoactive substances that can be used as ways of coping with stress or other psychological distress the student is experiencing.

When coping with stress is successful, a real change of relationship is possible between the subject and his/her environment, allowing adaptation, which affects the health, psychological well-being and social functioning, positively. However, the Nursing course dynamics, with its many complex theory and practice moments, has as one of its characteristics, being a course with moments of intensity and varied sources of stress. In this respect, one researcher has developed an identification and measurement instrument of academic stress of the Nursing Student[9], stratifying them from low to very high stress level and their areas that are perceived as stressful.

Considering the importance and magnitude of stress, a survey[10] suggests it is higher in nursing, compared to other areas. It is of great importance to characterize the type and prevalence of stress among the students' grades of the Nursing course, as well as its relationship with psychoactive substances abuse. In this study, we considered important to investigate the association between academic stress and the use of alcohol and tobacco, using an instrument that assess of stress among nursing students (ASNS)[9] and Alcohol, Smoking and Substance Involvement Screening Test (ASSIST), a test that measures the frequency of psychoactive substances use and the need for intervention[11]. Thus, the present study aimed to investigate the association between the level of stress of Nursing student, consumption of alcohol and tobacco and the stress level and the course grade.

Methods

This is a descriptive, transversal and individualized study. The sample consisted of 149 students, distributed in all grades of the Nursing course from an Institution of Higher Education, in the countryside of Paraná, in from June to August 2012. The data collection moments have been adapted to the dynamics and routine of each grade, inviting the students individually, during spare time of academic activities.

The inclusion criterion was being a student regularly enrolled in the course. The project was approved by the Ethics Committee on Human Research of the State University of Londrina (C.A.A.E. 028.0.268.000-11).

The ASSIST test is an internationally validated test[12] and Brazil[11], with Cronbach's alpha of 0.80. Its purpose it to evaluate the involvement with licit and illicit drugs, directing the need for brief intervention or probable addiction. However, this study did not aim to apply the instrument for implementing the intervention, because it is not the purpose of this research, but from the moment there was knowledge of students with problems related to alcohol and tobacco, they were referred to services available at the university.

The instrument for measuring the stress levels, called "instrument for the assessment of stress among nursing students (ASNS)"[9], proposes stress is linked to the relation between individuals and their environment and their study requires people to be evaluated within their own contexts, in their relation with the environment and the allocation of meanings to events. The ASNS, whose internal consistency estimated by Cronbach's alpha ranged from 0.71 to 0.87, allows assessing stress among nursing students as a variable in studies or for educational purposes through six domains.

The domain 1(D1), Realization of Practical Activities, refers to the technical knowledge acquired by the student to procedures and feelings involved during the patient's assistance. In domain 2 (D2), Professional Communication, are assessed difficulties in communication within the workplace and in conflict situations. The domain 3 (D3), Time Management, considers the student's difficulty in conciliate the academic activities established in the curriculum requirements with the personal, emotional and social demands. The domain 4 (D4), Environment, discusses the degree of difficulty to access internships or university and distress situations perceived by the students with the means of transport. The items of domain 5 (D5), Vocational Training, refer to the concern about the students' knowledge acquired in their academic education and the impact it has on their future professional life, and also address their perception of situations they may meet when professional. The domain 6 (D6), Activity Theory, measures the student's degree of difficulty in dealing with the curriculum, with activities and teaching methodology adopted.

The data were analyzed by the program Statistical Package for Social Sciences, v.21 (SPSS). The initial step was to conduct a normality test, in order to choose between parametric tests, for normal distribution, non-parametric, for non-normal, prior the analysis itself. The tests used to assess the normality of the sample were the tests *Kolmogorov-Smirnov* and *Shapiro-Wilk* with *Lilliefors Correction*, whose results varied between p=0.000 and p=0.314, classifying the sample as non-normal, globally.

The comparison between the students' grades was performed by the test *Kruskal-Wallis*, which is indicated for comparisons between three or more groups. The search for a linear relation positive or negative between the students' grades and the advance level of stress was observed by the test *Jonckheere-Terpstra* and, in order to know the possible correlations between variables, we used the *Spearman correlation coefficient*. The level of significance adopted was α<0.05, the level α<0.01, in *Spearman correlation* was also admitted.

The *Spearman correlation* searches the existence of a linear relationship between two ordinal variables and can express if there is a positive relationship, i.e., the more one variable increases, the other related variable also increases or can also express a negative relationship, meaning that the more a variable increases, the more other variable decreases. Thus, the correlation expresses intensity of the relationship between two variables, and the greater the correlation coefficient, the greater the intensity of this relationship, whose value varies between -1 and +1. The interpretation of values varies according to each author. In this study, values from 0 to 0.20 indicate a very low correlation; from 0.20 to 0.40, low; from 0.40 to 0.60

indicate a moderate correlation; from 0.60 to 0.80, high and from 0.80 to 1.0, too high[13].

Results

Alcohol and Tobacco

We interviewed 149 undergraduate students from a public nursing university in Paraná, equivalent to 67% of all students, from 18 to 39 years old (M=21.5 SD±3 years). In this sample, 92 (61%) lived away from the family, in republics or pensions, while 57 (39%) lived with their families. There was a homogeneous participation of all grade years: the first year with 28%, the second year with 22%, the third year with 26% and the fourth year with 24%.

Data measured by ASSIST (Table 1) were represented, in the case of alcohol, from 0 to 3 as low risk; 4 to 26 as medium risk and above 26 points as high risk or probable alcohol dependence. For tobacco, 0 to 10 represent low risk; 11 to 26, average risk and above 26, high risk or probable tobacco dependence. For ASNS scale, as to the total score, the minimum score was 27, the maximum was 78, (M=51.93; SD=10.03).

The students' grades and areas of stress comparison resulted in the values X^2=12.752, p=0.005, for the domain D5 and 11.622, p=0.009, for the domain D6 in the *Kruskal-Wallis* Test. As to the J*onckheere-Terpstra* Test , the values were 3.041, p=0.002, for the domain D5 and -3.321, p=0.001, for the domain D6. We only presented statistically significant results, because they are considered more important.

Table - 1 - Percentage and frequency of consumption of alcohol and tobacco by nursing students, Londrina, PR, Brazil, 2012

	Low risk	Medium risk	High risk	Mean	Standard deviation
Alcohol	41 (27.5%)	103 (69.1%)	5 (3.4%)	7.86	6.95
Tobacco	135 (90.6%)	12 (8.1%)	2 (1.3%)	2.89	5.55

In Table 1 we present that the highest frequency in the consumption of licit substances such as alcohol and tobacco are represented by 69.1% of students regarding medium risk of alcohol use and 90.6% low risk of tobacco consumption. Students who had low risk received reinforcement information on behavior and to students who had medium or high risk and, thus, needed brief intervention, were oriented to seek assistance in the service provided by the university itself.

Referred stress level

In the domain 1, which refers to the Realization of Practical Activities, the prevalence of students with low to medium stress level is approximately 40%.

(M=10.11; SD=2.69). In other domains, such as D2 (M=5.81, SD=2.15), on Professional Communication, was represented with 43% of students with low stress. The domain 3 (M=9.54, SD =2.79), Time Management, has 60.4% of students with low level of stress and only 4 (2.68%) with a very high level. The domain 4 (M=7.13, SD=3.42), Environment, presents 51% with low stress and 19 (12.75%) with very high level of stress. The domain 5 (M=10.55, SD=3), which refers to the Vocational Training and reached the most alarming levels of stress in this study, presents 59 (39.60%) with low level and 41 (27.52%) with very high level of stress. The domain 6 (M=8.79, SD=2.38), which measures the stress on Activity Theory of the course, had 100 (67.1%) with low level of stress and 7 (4.70%) with very high level.

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Table 2 - *Spearman* Correlation and variance between the level of stress, consumption of alcohol, tobacco and Nursing students' grade, Londrina, PR, Brazil, 2012

	Total	D1	D5	D6	Alcohol	Tobacco
Alcohol						
r	0.109	0.058	-0.033	0.034	-0	0.312*
Variance	10.18%	00.33%	00.1%	00.11%	_	90.73%
p value	0.184	0.485	0.688	0.682	_	0.000
Tobacco						
r	-0.168†	-0.209†	-0.128	-0.122	0.312*	1.0
Variance	20.82%	40.36%	10.63%	10.48%	90.73%	_
p value	0.040	0.011	0.119	0.140	0.000	_
Grade						
r	0.144	0.123	0.253*	-0.271*	-0.061	0.036
Variance	20.07%	10.51%	60.4%	7.,34%	00.37%	00.12%
p value	0.081	0.134	0.002	0.001	00.458	0.664

* Correlation is significant at the 0.01 level (bilateral)

* Correlation is significant at the 0.05 level (bilateral)

Discussion

Stress and academic education

According to results of the statistical analysis through the tests *Kruskal-W* allis and *Jonckheere-Terpstra*, we found statistical significance when comparing the four students' grades of the course and the six domains of stress, in two domains: Vocational Training (D5) and Activity Theory (D6). This means that there are differences in perception and a source of stress for each grade of the studied Nursing course (p<0.05). We identified a positive linear trend in the domain Vocational Training (D5) and negative linear trend in the domain Activity Theory (D6), i.e., regarding vocational training, the more advanced the grade, the higher the level of stress related to this aspect. This means that the concern with knowledge and its future professional impact generate stress, increasing as they progress in the course (JT=3.041, p<0.05)

With respect to activity theory, the more advanced the grade in which the student is, the lower the stress level, i.e., the degree of difficulty experienced by students with the curriculum, activities and teaching methodology decrease, perceived as a minor source of stress as the progress of the student in the course (JT=-3.321, p<0,05). When looking at Table 2, it can be noted that the domain D5 has low correlation with the grades, and the domain D6 has low and negative correlation with the grades, also corroborating with the hypothesis that during the course the student presents more stress because of his/her vocational training and less stress in relation to theoretical activities (*r*=0.253; -0.271, p<0.01).

According to Table 3, by verifying the variance of 6.4% in D5 and 7.34% in D6 it can be inferred that such percentages explain the variability of domains in relation to the grades, which means that 93.6%, and 92.66% of the variability cannot be explained by these two stress domains, measured by ASNS. In other words, the student's progress throughout the course is responsible for 6.4% of the stress in relation to his/her concern about the knowledge acquired and the impact it has on the professional future and 7.34%

of the stress in relation to his/her degree of difficulty in dealing with program content, activities and the teaching methodology adopted. Thus, it is suggested that there are other sources of stress, which were not herein in this study and ASNS.

Regarding this finding, the following studies list the reasons of stress in Nursing students: fears regarding professional performance difficulties[14-15]; fear of work placement[6,16]; poor affective and social capacity and personal relationship conflicts as the second cause, being exceeded only by the fear of unemployment after the end of the course[6,15]. Consequently, a weakness feeling in relation to the future career was greatly enhanced at this stage, possibly a feeling of failure or lack of assurance after the end of the course[6].

Stress and tobacco and alcohol consumption

As the data listed in Table 1, it can be noted that the prevalence of students who need brief intervention to cease tobacco use was 8.1% and 3.4% to probably tobacco dependence.

In a study[4] conducted at the same institution in which we conducted the present study, it was found a weak correlation between the progress of the course and tobacco consumption, suggesting that students refer to consume more tobacco as they progresses the grades. However, according to the data contained in Table 2, although there is a significant relationship between tobacco consumption and stress in the domain D1, this correlation was low and negative. This means that as the student acquires a working knowledge to take care of the patient, gradually, in the Nursing course, this creates less stress and they consume less tobacco, although the magnitude of this relationship is low (*rho*=-0.168, -0.209, p<0.05), probably because the frequent prevalence of tobacco consumption was not emphasized.

Analyzing the variance, according to Table 2, it can be noted that only 4.36% of tobacco consumption is explained by stress related to the acquisition of progressive working knowledge to take care of the patient care. Thus,

it is considered that the existence of other factors of coping with stress is associated with tobacco consumption, in a majority.

It is clear, then, that the progressive increase in tobacco consumption[4] does not seem to have a positive relationship with the level of stress in the Nursing student as had been hypothesized in a previous study. But it seems to converge with another study in the same institution in 2009[5] that the students' perception of stress is high, although the sources of stress appear to be different from other population of Nursing college students[6,16], suggesting that stress, although existing in Nursing student, has different generating sources causes, mainly the basic socioeconomic[10].

According to the data in Table 2, we note that the prevalence of low risk customers/abstainers was 27.5%; the risk drinkers was 69.1% and the students with probable alcohol dependence was 3.4%. Several studies indicate such drug as the psychoactive substance most commonly used by university students[1-2] also among the Nursing students[3-4]. If compared the referred consumption of alcohol and tobacco, it is noted that there is a great difference, as well as diagnosed in other studies[3-4,17]. It is probable that this difference in consumption of these two drugs is a result of combat policy against tobacco use, by the State Law 16239, which prohibits the use of cigarettes, cigars, pipes or other products that produce smoke, derived or not from tobacco in work, study, culture, leisure, sport, entertainment places and other common areas[18].

Alcohol emerges as the most prevalent substance in relation to tobacco, as it was seen in previous studies[1-4,17]. A study[4] held in 2010 at the same institution lists alcohol, tobacco and marijuana, in descending order, as the most commonly consumed drugs by Nursing students. Tobacco use in relation to alcohol is small, but there is a trend of alcohol consumption during all years and all situations of stress or not, in the student's life, which shows the need for universities to invest in strategies that deviate their students from these substances abuse.

The university entrance becomes a daily life adaptation phase of higher education and teaching methodology, and tends to decrease as the grades progressed. It is known that every process in which the individual is exposed to new situations and the need to develop or acquire skills implies submit him/her to the experience of greater or lesser intensity of stress.

The threatening or challenging character of teaching-learning process is, particularly, important for nursing students, in particular, when the error in this process involves direct damage to the patient[14-15]. In the domain 6, which assesses stress in relation to Activity Theory, we note that the difficulty felt by the student in relation to the curriculum itself decreases during the course. It suggests, then, that the student of the analyzed institution is more confident, unlike other studies[6,16], in which students showed a lot of worry and stress with the final year because of overload activities and, in this same analyzed institution, there was also stress due to their labor market insertion[5].

Monitoring of nursing students in theoretical activities or clinical practice allows us to consider the difficulties experienced by students. Several reasons can be highlighted as stress factors. In the entering the university stage, the students face a new environment, different and distant from their life context. The need to adapt to new requirements and school obligations, social and occupational responsibilities that are part of the learning process, the need for better organization of daily activities, socializing with colleagues and frequent challenges regarding personal and professional options contribute to the emergence of situations of anxiety and stress[15].

A preliminary study for the construction of an instrument to measure stress in Nursing student[19] was also performed with students in the last grade of the course[6,16]. It suggested that students who are in the final phase of the undergraduate course experience moments of fear about the future not as students but as professionals, indicating a waited maturing stage for this moment.

Conclusion

Several studies have pointed to the increasing and earlier use of psychoactive substances, particularly alcohol and tobacco, by the Brazilian university students. Culturally, alcohol and tobacco are seen by society as a coping with stress factor, linked to pleasure, relief and status. It was also perceived that tobacco consumption was associated with academic stress, but in a contrary way to what was assumed, meaning that, the lower stress was related to the acquisition of instrumental knowledge for patient care, the greater was the consumption of tobacco.

With the statistical analysis, it was possible to find a relationship between the level of stress associated with specific issues, such as practical activity, vocational training and theoretical activities and then, when increasing linearity in vocational training, it means that the more the student advances in the ongoing grades, the higher the stress level with the acquired knowledge and its impact on the professional future, suggesting his/her fear with the insertion in the professional market, and less stress level with theoretical activities when the student is already more adapted to the teaching methodology, curriculum and activities. This means that the student can develop strategies to cope with stress sources such as use of medication, for example, since the variability in relation to alcohol and tobacco is very small.

While limitations to this study highlight the uncertainty regarding the classification of the Nursing student's academic stress as a risk factor, there is a need to conduct a longitudinal study, as well as extensive interference of several external stress variables, hindering the individualized study. There are no national studies on the theme stress with statistical analysis, which makes comparison with other sites and populations difficult.

However, this study, undoubtedly, brought significant knowledge advances about the interface between the processes of nursing education, stress associated with this

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process and the use of psychoactive substances, as through specific instrument for the Nursing student. We identified the most prevalent areas of stress and its association with the grades of the course, as well as a low association between the alcohol and tobacco consumption and stress measured by ASNS, which, until then, had not been done in other study, in addition to be the first study with this instrument application until now.

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