

Stress in nursing students: study on sociodemographic and academic vulnerabilities

Estresse em estudantes de enfermagem: estudo sobre vulnerabilidades sociodemográficas e acadêmicas

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Abstract

Objective: To analyze the association between the presence of stress in nursing students and sociodemographic and academic vulnerabilities.

Methods: Analytical research conducted with 455 nursing students, whose data were obtained by means of a questionnaire to identify sociodemographic and academic vulnerabilities, and by the *Lipp's Stress Symptoms Inventory*. The association between variables was tested by Pearson's chi-square ($p < 0.05$), the strength of this association by odds ratio, and logistic regression (backward method) was used to fit the model.

Results: Among all students, 64% presented stress with the following associated factors: sex ($p < 0.010$), age group ($p < 0.029$), marital status ($p < 0.001$), children ($p < 0.001$), occupational status ($p < 0.001$), cost of education ($p < 0.009$) and current study period ($p < 0.001$). In the final model these factors remained: sex, marital status and current study period.

Conclusion: Women, students with partners, and those in the senior year of college were more likely to present stress.

Resumo

Objetivo: Analisar a associação entre a presença de estresse em estudantes de enfermagem e vulnerabilidades sociodemográficas e acadêmicas.

Métodos: Pesquisa analítica, realizada com 455 acadêmicos de Enfermagem cujos dados foram obtidos por meio de um questionário para identificar vulnerabilidades sociodemográficas e acadêmicas e pelo Inventário de Sintomas de *Stress* de Lipp. A associação entre as variáveis foi testada pelo qui-quadrado de Pearson ($p < 0,05$), a força dessa associação pela razão de chance, sendo a regressão logística (método *backward*) utilizada para ajuste do modelo.

Resultados: Do total de discentes, 64% apresentou estresse, tendo como fatores associados: sexo ($p < 0,010$), faixa etária ($p < 0,029$), situação conjugal ($p < 0,001$), presença de filhos ($p < 0,001$), situação ocupacional ($p < 0,001$), custeio dos estudos ($p < 0,009$) e ano em curso ($p < 0,001$), permanecendo no modelo final: sexo, situação conjugal e ano em curso.

Conclusão: As mulheres, os estudantes com companheiro e aqueles no último ano da faculdade tiveram maiores chances de apresentar estresse.

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Introduction

The rate of mental disorders has increased considerably worldwide and their distribution differs between social classes, sex and different life stages. This condition has generated interest on these determinants, and stress is the most frequent among these disorders.⁽¹⁾ Currently, the word stress is understood as an experience of tension, irritation, where an organism reacts to physical or psychological components when a situation that causes fear, excitement or confusion appears, which can trigger manifestations of depression, tachycardia, digestive disorder, among other things.⁽²⁾

Biopsychosocial pressures are responsible for imbalances in the individual's homeostasis, impairing performance in the most varied circumstances.⁽³⁾ These stress-generating pressures are experienced at several moments in personal, social, professional and academic life.

Academic stress has been receiving significant national and international interest, as university students experience countless situations that contribute to their growth and development, but which also generate feelings such as frustration, fear and anguish. Thus, the environment that can be conducive to the development of professional knowledge sometimes becomes the trigger of pathological disorders.⁽⁴⁾

Health care education generally has practical activities in the curriculum, where students often perceive limitations in their knowledge.⁽⁵⁾ Therefore, health students experience high levels of stress, especially those who are in an undergraduate program, because of the greater proximity and time spent with patients and their health problems.⁽⁶⁾ Although students do not have the same responsibilities as the nurses, they need to adapt to a new model of life, taking on responsibilities such as studying, tests, practical classes and internships.⁽⁷⁾ In addition, there is a lack of adequate support for the pressures experienced in daily practice, and coping with death, all of which contribute to high levels of stress.⁽⁸⁾

Due to the complexity of nursing education and dealing with human boundaries, nursing students may develop feelings of inadequacy regarding the activities required during professional education. It is worth discussing this question, as stress causes negative cognitive repercussions. Caregivers also require care to maintain physical and mental health at appropriate and satisfactory levels.⁽⁸⁻¹⁰⁾

Studies published in Brazil are focused on the sociocultural and environmental contexts of southern Brazil, with few publications referring to stress in undergraduate students from the northeast areas of the country. Knowing the profile of nursing students with predictive factors for the occurrence of stress is relevant, as the results can contribute to planning and programming of actions developed by the educational institution with regard to their real needs.

In this study, the objective was to analyze the association between the presence of stress in nursing students and their sociodemographic and academic vulnerabilities.

Methods

An analytical study, conducted in the nursing course of the Health Sciences Center, of a private Higher Education Institution (HEI), located in Fortaleza-Ceará-Brazil. The institution was chosen because it was the only private university in the State, inaugurated in 1973, and has a large number of students enrolled in the nursing course.

For education of the nursing professional, the HEI requires a minimum of five years, with courses conducted in the three periods of the day (morning, afternoon and night). Based on this information, the study population consisted of 455 students, distributed between the first, third and fifth years of the undergraduate course in nursing. We chose students in the first year (first and second semesters), because they are faced with the reality of academic life, starting

their education to work with their expectations and first impressions of the course; and of the third year because they are beginning their clinical practice activities (fifth and sixth semesters), with their first real contact with the patient and all his/her subjectivity; and in the fifth year, because they are finishing their nursing education, working within the health services in the modality of a supervised internship (ninth and tenth semesters) and are often dealing with fears and anxieties of entering the labor market and practicing as nurses, aware of their rights and duties.

The sample calculation was based on the number of students enrolled in the aforementioned semesters of the last year, totaling 700 students. Based on these data, the sample was calculated for finite population, with a confidence of 95%, error of 3%, and considering an estimate of the proportion equal to 50% (due to unknown prevalence); a sample size of 423 individuals was established to meet the statistical validity requirement.

The inclusion criteria were academics regularly enrolled in the first, third and fifth year of the undergraduate nursing course, in the face-to-face modality; from the diurnal, evening and night periods; and be 18 years of age or older.

Data collection occurred in the first four months of 2014, with two instruments: a questionnaire with sociodemographic and academic information to characterize the students (current semester, age in full years), sex, marital status (single, married, divorced, living with a partner), number of children, paid employment (work), with whom he or she lives (parents/relatives, alone, student residency, spouse), identification of the person responsible for paying for college (full or partial student financing), and the *Lipp's Stress Symptoms Inventory* (LSSI), which evaluates the state of stress (presence or absence). The questionnaires were distributed to the participants in the classrooms during theoretical activities.

The Statistical Package for the Social Sciences (SPSS), version 18.0, was used for data storage, processing and statistical analysis. Categorical variables were summarized using descriptive statistics of frequencies (absolute and relative).

The association between the variables and the presence of stress was evaluated using the Pearson chi-square test, and a value of $p < 0.05$ was considered statistically significant; the strength of this association was evaluated using the Odds Ratio (OR) and backward logistic regression to fit the model. For input of the variables in the model, $p < 0.20$ was considered, with $p < 0.05$ for its permanence.

The project was approved by the Research Ethics Committee of the University of Fortaleza (No. 168,791), according to Resolution 466/2012 of the National Health Council.

Results

According to the period, the participants were stratified into 162, 142 and 151 individuals, respectively, in the first, third or fifth years of the course. Among the students studied during the three years of study, 64% presented stress (Figure 1).

In addition, sociodemographic and academic characteristics related to the state of stress were verified. Table 1 shows the sociodemographic characteristics and their relationship with the stress status.

The 455 academics evaluated were predominantly female (94.06%), and cases of stress were found in 64% of the students. There was a higher proportion of stress cases among women (65.4%), compared to men (40.7%). The age ranged from 18 to 49 years, with a mean of 22.25 ± 5.4 years; 86.2% of the individuals were in the age range between 18 and 29 years old. In the analysis of marital status, academics without partners were in the majority (81.3%).

The presence of at least one child was reported by 13.2% of the students, of whom 85% presented stress. Approximately 25.5% of the students were employed, and nearly 22% lived alone. A higher proportion of stress was identified in the last year of the course, and the presence of this condition was increasingly distributed when comparing students of the first, third and fifth years, with 46.9%, 62.7% and 83.4%, respectively.

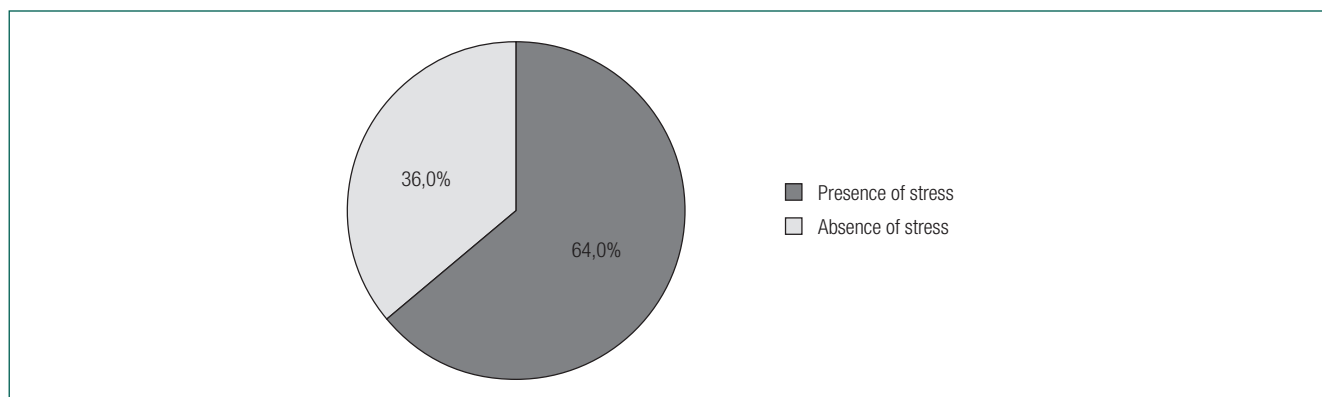


Figure 1. Distribution of presence/absence of stress among the nursing students participating in this study

Table 1. Association between sociodemographic characteristics and stress in the nursing students

Variables	Stress status		p-value	Odds Ratio (Confidence interval 95%)
	Presence n(%)	Absence n(%)		
Sex				
Female	280(65.4)	148(34.6)	0.010	2.75(1.24-6.08)
Male	11(40.7)	16(59.3)		
Age group (in years)				
< 30	243(62)	149(38)	0.029	0.51(0.27-0.94)
≥ 30	48(76.2)	15(23.8)		
Marital status				
with partner	221(59.7)	149(40.3)	<0.001	0.31(0.17-0.57)
without partner	70(82.4)	15(17.6)		
Children				
Yes	41(85)	9(15)	<0.001	3.660(1.75-7.64)
No	240(60.8)	155(39.2)		
Occupational situation				
Working and studying	91(78.4)	25(21.6)	<0.001	2.530(1.54-4.14)
Studying	200(59)	139(41)		
Type of living				
Alone	59(59)	41(41)	0.243	0.763(1.48-1.20)
With partner	232(65.4)	123(34.6)		
Year of study				
3 rd & 5 th	215(73.4)	86(26.6)	<0.001	3.12(2.08-4.67)
1 st	76(46.9)	78(53.1)		
Payment for school				
By her/himself	31(83.8)	06(16.2)	0.009	3.14(1.28-7.69)
By others	260(62.2)	158(37.8)		

When asked about how their studies were funded, payment by others was highest (91.9%), followed by total and partial student financing (24.4% and 13.4%, respectively), parents or guardian (51.6%), or others (2.4%). By demonstrating the relationship of cost to the state of stress, the experience of stress was higher among those who paid for the studies themselves.

Stress was associated with: sex ($p < 0.010$), age range ($p < 0.029$), marital status ($p < 0.001$), children ($p < 0.001$), occupational situation ($p < 0.001$), cost of studies ($p < 0.009$), and the year in the course ($p < 0.001$).

Table 2 shows the logistic regression models of stress, considering sociodemographic and academic variables.

As shown in table 2, sex, marital status and year of study remained in the final regression model. This evidence shows that women, students with partners, and those in the final year of study were more likely to have stress.

Discussion

The prevalence of stress among the population is increasing,⁽¹¹⁻¹⁴⁾ and this fact is also constantly observed among nursing students. The prevalence of stress reaches 82.6%,⁽¹⁵⁾ confirming the need to study the factors related to this psychological state.

From the data found, this profile was corroborated by other national and international studies, which verified the presence of stress in nursing students aged 18 to 25 years, predominantly female, without partners and children, without paid employment, and who were living with parents or guardians.^(1,2)

Analyzing the data regarding sex, the predominance of female students was verified. These data reinforce existing studies on the theme that evidence

Table 2. Steps of the Logistic Regression Model

Steps	B(Standard error)	Adjusted Odds ratio	95% Confidence interval		p-value
			Inferior	Superior	
1st step					
Constant	-3.013 (0.698)	0.049			0.000
Sex	1.512 (0.467)	4.534	1.814	11.334	0.001
Age group (years)	0.264 (0.382)	1.302	0.616	2.752	0.490
Marital status	-0.655 (0.353)	0.519	0.260	1.037	0.063
Children	0.666 (0.425)	1.935	0.841	4.453	0.121
Occupational situation	0.599 (0.305)	1.820	1.000	3.311	0.050
Year of study	1.011 (0.220)	2.749	1.786	4.230	<0.001
Payment for school	1.034 (0.549)	2.813	0.959	8.253	0.060
2nd step					
Constant	-2.838 (0.643)	0.059			0.000
Sex	1.532 (0.468)	4.629	1.849	11.592	0.001
Marital status	-0.614 (0.346)	0.541	0.274	1.067	0.076
Children	0.630 (0.422)	1.877	0.821	4.290	0.135
Occupational situation	0.556 (0.298)	1.743	0.972	3.127	0.062
Year of study	0.995 (0.218)	2.703	1.762	4.148	<0.001
Payment for school	0.947 (0.531)	2.579	0.911	7.303	0.074
3rd step					
Constant	-2.258 (0.505)	0.105			0.000
Sex	1.567 (0.467)	4.794	1.920	11.970	0.001
Marital status	-0.826 (0.320)	0.438	0.234	0.820	0.010
Children	0.572 (0.297)	1.771	0.989	3.171	0.055
Occupational situation	1.026 (0.217)	2.789	1.821	4.270	0.001
Year of study	0.939 (0.528)	2.558	0.908	7.203	0.075

R² = 0.128 (Cox e Snell); R² = 0.176 (Nagelkerke); x² of model = 62,537, p < 0.001

the predominance of women in nursing undergraduate courses. This predominance is related to the existing prejudice around the image of the profession: historically, nursing is a feminine profession, because the idea of caring and protecting is linked to the history of women.^(16,17)

The relationship between stress and the other variables of the study showed a higher prevalence of stress in women academics. Studies demonstrate that this is related to responsibilities with compulsory university activities, work, care of the home, and family care.⁽⁴⁾ An overload of responsibilities increases the production of hormones, such as cortisol and adrenaline, which affects two women for each man, implying high levels of emotional exhaustion and onset of anxiety, panic and depression.^(3,18)

It is also important to mention that the sample consisted mainly of young adults, which is consistent with the literature. The predominance of young adults is a very grateful and new professional for young people, with many offers and possibilities in the labor market.⁽¹⁹⁾ This occurrence of stress can be attributed to feelings of insecurity, added to

irresponsibility and immaturity, determining high level of stress. In addition, the most varied emotions are present during the clinical hospital practice, due to inexperience with the suffering and the pain of others.⁽²⁰⁾

Regarding the marital status and presence of children, the majority of students lived alone (81.3%), were without children (86.8%), indicating that some were not working and did not have family responsibilities.

Concerning marital status and presence of children, the majority of students lived alone (81.3%) and were childless (86.8%), indicating that some of them were not working and did not have family obligations, which makes it easier to dedicate time to the courses. Marriage or having a stable partner and having children is attributed to a lower propensity for chronic stress.⁽²¹⁾ However, students who reported having at least one child presented 3.66 more chances of having stress.

Regarding the type of residence, 78% of the students reported co-habitation status. This presupposes exemption from the responsibilities of assuming

the full expenses and daily tasks related to domestic dynamics, favoring having more time available for studies. However, this inference still needs research that proves its validity.⁽¹⁶⁾

Regarding funding of their studies, 91.9% of the students reported that this was done by others. This allows the attenuation of the stressors associated with the need to work to pay for their own studies, since the students who have engaged in some paid activity are 3.14 more likely to have stress when compared to those who did not need to work.

The results showed the occurrence of stress of students from the first year of the course (26.1%), with a gradual increase during the undergraduate years, and the highest among students of the fifth year (43.3%), with a statistically significant difference ($p < 0.006$). The data show that, although it is less intense, stress is present in the first semesters of the nursing undergraduate course. This may be related to the fact that the student, when entering college, faces a process of adaptation to adulthood, becoming more independent and responsible.

A recent study, conducted in São Paulo, aimed to identify the presence of stress and depression among 88 students in the last year of two nursing schools. The Perceived Stress Scale was administered to this population, showing that 73.9% of the students had an average stress position.⁽²²⁾

Another study aimed to investigate burnout syndrome among undergraduate nursing students from a public university in the south of Brazil. The administration of the instrument evidenced that students did not present burnout syndrome, however, there were high manifestations of emotional exhaustion, low in disbelief in studies, and high in professional effectiveness.⁽²³⁾

The dedication required by health care courses and the assessment systems contribute to the occurrence of stress from the beginning.⁽¹⁰⁾ New requirements, skills and competencies appear and increase in each period of the course, need to be developed and, consequently, may be one of the factors that demonstrate the differences presented between the first year and the others.

Other factors are associated with stress, as this psychological state is multideterminant and, therefore, other variables must be investigated. Despite the apparent momentum, stress carries with it the potential for chronic impairment.⁽⁹⁾ The negative consequences of this phenomenon can be minimized if health and educational professionals anticipate and identify these possible stressors.

Conclusion

Nursing students experience the feeling of stress; and women, students with partners, and those in the last year of study are more likely to present with this condition. Although the research was conducted in only one educational institution, the size of the sample can reflect on the reality of other institutions. However, other investigations are necessary that associate the profile of nursing students with the presence of stress, in order to allow new inferences. It is also important to emphasize the importance of Higher Education Institutions to support students in a healthier academic life, as they are exposed to transformations, growth, failure, maturation, and experience feelings that can trigger diseases. The data presented can provide support for planning, development and implementation of strategies seeking to improve the teaching-learning process, through programs that offer better conditions to cope with stress, contributing to prevention and health promotion, and improving the quality of life of students.

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Collaborations

Cestari VRF, Barbosa IV, Florêncio RS, Pessoa VLMP and Moreira TMM contributed to the study design, analysis and data interpretation, article writing, relevant critical review of the intellectual content, and final approval of the version to be published.

References

- Oliveira BL, Filha MO, Monteiro CH, Monteiro RV, Cunha CL. Estresse entre graduandos de enfermagem de uma universidade pública federal: um estudo epidemiológico. *J Manag Prim Health Care*. 2012; 3(2): 72-9.
- Bagcivan G, Cinar FI, Tosun N, Korkmaz R. Determination of nursing students' expectations for faculty members and perceived stressors during their education. *Contemp Nurse*. 2015; 50(1):58-71.
- Silva RM, Goulart CT, Lopes LF, Serrano PM, Costa AL, Guido LA. Hardy personality and burnout syndrome among nursing students in three Brazilian universities: an analytic study. *BMC Nurs*. 2014; 13(1):9.
- Gervásio SM, Kawaguchi LYA, Casalechi HL, Carvalho RA. Análise do estresse em acadêmicos de Enfermagem frente ao primeiro estágio da grade curricular. *J Health Sci Inst*. 2012; 30(4):331-5.
- Oliveira R, Caregnato RC, Câmara SG. Burnout syndrome in senior undergraduate nursing. *Acta Paul Enferm*. 2012; 25(2 Esp.):54-60.
- Benavente SB, Costa AL. Physiological and emotional responses to stress in nursing students: an integrative review of scientific literature. *Acta Paul Enferm*. 2011; 24(4):571-6.
- Tomaschewski-Barlem JG, Lunardi LV, Ramos A, Silveira RS, Barlem EL, Ernandes CM. Manifestações da síndrome de burnout entre estudantes de graduação em enfermagem. *Texto Contexto Enferm*. 2013; 22(3):754-62.
- Hirsch CD, Edison LD, Almeida LK, Tomaschewski-Barlem JG, Figueira AB, Lunardi VL. Coping strategies of nursing students for dealing with university stress. *Rev Bras Enferm*. 2015; 68(5):783-90.
- Ratanasiripong P, Ratanasiripong N, Kathalae D. Biofeedback intervention for stress and anxiety among nursing students: a randomized controlled trial. *ISRN Nurs*. 2012; 2012:827972.
- Soeiro RL, Souza AC. A relação entre o início da vivência no campo de prática hospitalar e o desenvolvimento de sintomas de distúrbios psicossomáticos em graduandos de enfermagem. *Rev Pesq: Cuid Fundam Online*. 2010; 20(2):438-40.
- Costa DT, Marins MC. Estresse em profissionais de enfermagem: impacto do conflito no grupo e do poder do médico. *Rev Esc Enferm USP*. 2011; 45(5):1191-8.
- Souza MC, Guimarães AC, Araújo CC. Estresse no trabalho em professores universitários. *Rev Bras Ciênc Saúde*. 2013; 11(35):1-8.
- Costa MF, Ferreira MC. Fontes e reações de estresse em advogados brasileiros. *Paideia*. 2014; 24(57):49-56.
- Koch MO, Biazzi RJ, Benedetto C. Estresse em docentes: um estudo comparativo entre uma instituição de ensino superior pública e uma instituição de ensino superior privada na cidade de Toledo-PR. *Rev UNINGÁ*. 2015; 21(1):17-23.
- Benavente SB, Silva RM, Higashi AB, Guido LA, Costa AL. Influência de fatores de estresse e características sociodemográficas na qualidade do sono de estudantes de enfermagem. *Rev Esc Enferm USP*. 2014; 48(3): 514-20.
- Souza NV, Penna LH, Cunha LS, Baptista AA, Mafra IF, Mariano DC. Perfil socioeconômico e cultural do estudante ingressante no curso de graduação em Enfermagem. *Rev Enferm UERJ*. 2013; 21(2):718-22.
- Bublitz S, Guido LA, Kirchhof RS, Neves ET, Lopes LF. Perfil sociodemográfico e acadêmico de discentes de enfermagem de quatro instituições brasileiras. *Rev Gaúcha Enferm*. 2015; 36(1):77-83.
- Sawatzky RG, Ratner PA, Richardson CG, Washburn C, Sudmant W, Mirwaldt P. Stress and depression in students: the mediating role of stress management self-efficacy. *Nurs Res*. 2012; 61(1):13-21.
- Donati L, Alves MJ, Camelo SH. O perfil do estudante ingressante no curso de graduação em Enfermagem de uma faculdade privada. *Rev Enferm UERJ*. 2010; 18(3):446-50.
- Chernomas WM, Shapiro C. Stress, depression and anxiety among undergraduate nursing students. *Intern J Nurs Educ Scholar*. 2013; 10(1):255-66.
- França SP, Martino MM, Aniceto EV, Silva LL. Preditores da Síndrome de Burnout em enfermeiros de serviços de urgência pré-hospitalar. *Acta Paul Enferm*. 2012; 25(1):68-73.
- Moreira DP, Furegato AR. Stress and depression among students of the last semester in two nursing courses. *Rev Lat Am Enfermagem*. 2013; 21(Spec):155-62.
- Tomaschewski-Barlem JG, Lunardi VL, Lunardi GL, Barlem EL, Silveira RS, Vidal DA. Burnout syndrome among undergraduate nursing students at a public university. *Rev Lat Am Enfermagem*. 2014; 22(6):934-41.