Predictors of stress and coping strategies adopted by nursing students

Preditores do estresse e estratégias de *coping* utilizadas por estudantes de Enfermagem

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Abstract

Objective: To identify predictors of stress and coping strategies adopted by nursing students.
Methods: A cross-sectional study conducted with 146 nursing students. The research instruments consisted of the Ways of Coping Questionnaire (WOC) and the Instrument for the Assessment of Stress in Nursing Students (ASNS). Data were analyzed using the Pearson's correlation coefficient and regression analysis.
Results: The following predictors of stress were identified: professional education, acquired practical knowledge, and free time and leisure. Predictors of stress were associated with denial and escape-avoidance coping strategies.
Conclusion: The most common strategies used by students in stressful events were considered negative and of poor effectiveness, as efforts were focused on emotions and not on the problem, compromising students' professional training process.

Resumo

Objetivo: Identificar os preditores do estresse e as estratégias de *coping* utilizadas por estudantes de Enfermagem.
Métodos: Estudo transversal realizado com 146 estudantes de Enfermagem. Os instrumentos de pesquisa foram: o inventário de estratégias de *coping* e a escala de avaliação de estresse. Para análise dos dados utilizaram-se correlação de Pearson e análise de regressão.
Resultados: Identificaram-se como preditores do estresse a formação acadêmica, conhecimento prático adquirido, e tempo e lazer. Os preditores do estresse apresentaram associação com as estratégias de *coping* negação do problema e fuga da realidade.
Conclusão: As estratégias mais utilizadas frente a eventos estressores foram consideras negativas e de baixa eficácia por centrarem seus esforços na emoção, e não no problema, comprometendo o processo de formação profissional.

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Introduction

The daily pressures and constant instability imposed by modern life demand several adaptations from people in every day situations, which can lead to the experience of stress. Stress is defined as the organism's unspecific reaction to pressure exerted on its organic system.[1] It is a complex event that occurs in the interaction between individuals and their inner and outer environments. Such mutual interaction can lead to physical, mental, emotional, and behavioral changes.[2]

The body's physiological reaction to stress is called "general adaptation syndrome," which is the organism's instinctive defense reaction in response to stimuli and consists of three phases: alarm reaction, stage of resistance, and stage of exhaustion.[1] The type of response given depends on the nature of stressors and motivate individuals to make use of coping mechanisms, which give direction to organic responses generated by the individual's assessment of the event and its repercussions.[2]

Thus, coping is defined as an individual's capacity to face and adapt to stressful situations; an ability that allows people to react to behavior, thoughts and emotions caused by such events.[3] Furthermore, it can be defined as a set of strategies used to deal with threatening events aimed at adaptation, an attempt to manage stressful situations and control the organism's physical and emotional reactions, reducing stress levels and increasing quality of life. The different forms of adaptation and coping are unique and singular. They depend on several elements that involve personal factors of cultural and emotional order, based on each person's life experiences and personality.[4]

When used correctly, coping can lead to the reduction of, adaptation to or the overcoming of a problem. In turn, when strategies are not appropriate to a given situation, they can increase stress levels.[1-5] Stress and coping seem to occur throughout all of life's phases; however, the beginning of university studies can cause many students to experience higher levels of stress due to the numerous changes and adaptations required by the new environment. On entering university, students start a new phase of their lives, meaning they must deal with changes and adapt to this newfound environment and life's new circumstances.[6]

This study focused on nursing students, as they tend to be more exposed to stressful events than students in other programs. They are almost constantly experiencing situations in which they are responsible for the health and lives of others.[1] The numerous demands, requirements and internal and external pressures of the program can lead students to experience stress and even give up on their future profession, as nursing is considered an extremely stressful occupation due to the frequent exposure to human suffering.[7,8]

Therefore, the objective of the present study was to identify predictors of stress and coping strategies adopted by nursing students. The relevance of this study lies in the need for knowledge on stress predictors and coping strategies, as the correct use of such strategies leads to successful stress management. In other words, having the tools to cope with stress in an effective and positive manner implies a professional training process experienced with greater quality and autonomy.

Methods

This was a cross-sectional study conducted with 146 undergraduate nursing students at a public university in southern Brazil. Inclusion criteria were being a nursing undergraduate student and actively enrolled in the program. Students who were not present during data collection or who were taking time off the program were excluded.

A non-probability convenience sample was used, and participants were selected according to their presence and availability at the location and time of data collection. In order to guarantee a minimum confidence level of 95%, sample size was established using a mathematical formula, which took into consideration the total number of students enrolled and the statistical tests to be

conducted. Thus, the study required a minimum of 137 subjects.

Data were collected between September and November 2013. The instruments were given to the students who agreed to participate in the study by signing an informed consent form. After the data were gathered, two statistical tests were conducted to ensure the instruments' validity: main component analysis and Cronbach's alpha.

Two four-point Likert scales were used for data collection: the first to investigate the causes of stress among university students, called the Instrument for the Assessment of Stress in Nursing Students (ASNS), and the second to identify coping strategies used by nursing students, the Ways of Coping Questionnaire (WOC).

Data were analyzed using the Statistical Package for the Social Sciences software, version 22.0. Pearson's correlation coefficient was used to analyze correlations between the two variables, stress and coping. Strength of association between variables was classified according to the intensity correlation as follows: very strong association, ranging from 0.91 to 1.0; strong association, from 0.71 to 0.90; moderate association, 0.41 to 0.70; weak but defined association, 0.21 to 0.40; very weak, almost imperceptible association, from 0.01 to 0.20. Multiple regression was then conducted in order to establish predictors of stress and coping by associating a dependent variable to independent ones. Significance was established at $p<0.05$ for all tests.

The development of the present study complied with national and international ethical guidelines for research involving human subjects.

Results

Analysis of Pearson's correlation coefficient revealed a correlation between stress and coping at a 5% significance level. Cross-tabulation of academic qualification and denial (m=0.286), acquired practical knowledge and denial (m=0.202), and acquired practical knowledge and escape-avoidance (m=0.382), presented correlation between 0.21 and 0.40, a weak but defined association. Correlation between remaining factors was weak, almost imperceptible.

Correlations were also identified between professional education, acquired practical knowledge and free time and leisure with denial and escape-avoidance coping mechanisms. Figure 1 displays this correlation between stress factors and coping mechanisms, illustrating which strategies are most adopted by students in stressful situations.

Two regression analyses were conducted: the first with stress as the dependent variable and the second with coping as the dependent variable (Table 1). First, we analyzed the association between coping dimensions and stress. This model proved to be statistically significant (p=0.028), with a R^2=0.119 coefficient of determination. The planning/problem-solving dimension of coping was the greatest predictor for dealing with stress, indicating that the

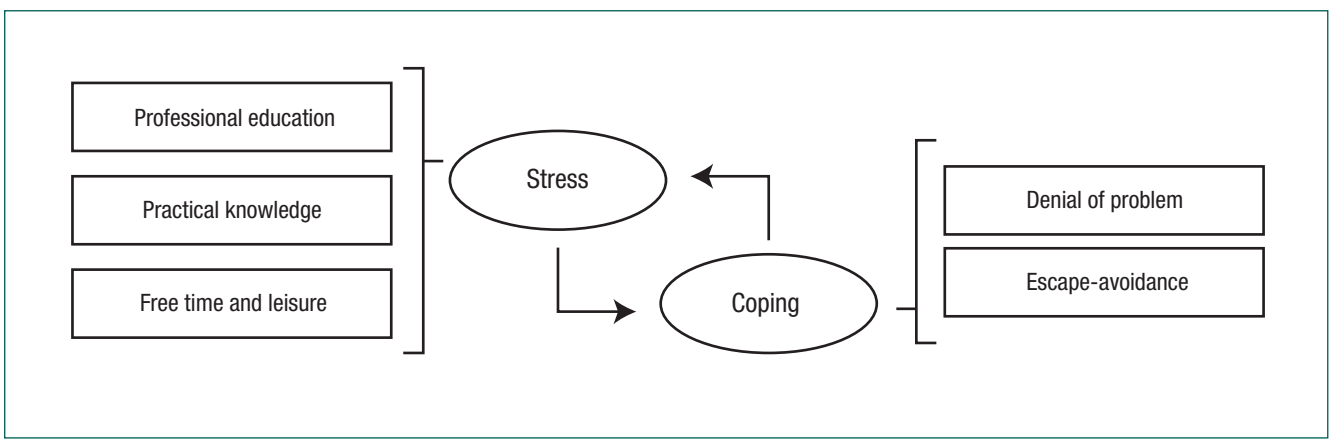

Figure 1. Correlation between stress factors and coping mechanisms

more students use this strategy, the lower the level of perceived or experienced stress.

Table 1. Regression analysis between coping dimensions and stress

Dimensions	Beta (β)	Sig (p-value)
Positive reappraisal	-0.091	0.638
Planning/problem-solving	-0.210	0.049*
Escape-Avoidance	-0.066	0.836
Distancing/Distraction	-0.161	0.389
Accepting responsibility	-0.167	0.561
Denial of problem	-0.034	0.900
Seeking social support	-0.108	0.690

*Correlation was considered significant at 0.05

The second regression analysis assessed the effects of stress dimensions on the use of coping strategies (Table 2). The model was statistically significant (p=0.014) and presented an adjusted coefficient of determination (R^2=0.071). One stress factor that was found to be statistically significant was acquired practical knowledge, which led us to infer that it exerts a positive influence on stress perception; in other words, the more students perceive deficits in their acquired practical knowledge, the higher the prevalence of stress.

Table 2. Regression analysis between stress dimensions and coping strategies

Dimensions	Beta (β)	Sig (p-value)
Environmental and professional relationships	0.008	0.913
Commute	0.040	0.344
Professional education	0.011	0.808
Acquired practical knowledge	0.147	0.017*
Free time and leisure	0.023	0.636
Professional insecurity	0.056	0.326

*Correlation was considered significant at 0.05

Discussion

Limitations of this study were related to the use of a convenience sample and to its cross-sectional design, which does not allow the establishment of cause and effect relationships and has low generalizability. The results of this study are an important advancement in the field of nursing, as they point to the need to rethink undergraduate nursing education programs and to invest in strategies for stress reduction that can establish a more qualifying, dynamic and healthier professional education, thus benefiting future professionals.

Statistical analyses revealed correlations between stress factors and coping strategies; however, such associations were weak. Professional education and denial of problem, and acquired practical knowledge and escape-avoidance presented the highest correlation values, between 0.21 and 0.40, a weak but defined association. Correlations among other factors presented weak, almost imperceptible associations. Our results were in accordance with those of other studies, which obtained similar results regarding low correlations between stress and coping.[9,10]

A possible explanation for such low levels of correlation is that other variables are involved in the studied phenomena, and they cannot be analyzed separately as isolated causes; mutual influence among variables must be analyzed within each unique context.[10] Difficulties associated with professional education were directly related to the use of coping strategies such as denial of problem/expressing emotions. Previous research with undergraduate students found that some of the main sources of stress among this population were university assessment systems, which were exhausting and generated an overload of assignments. Consequently, students had no time to participate in other types of activities.[10,11] The complexity of assessment methods and the level of difficulty of exams and assignments, the relationship between teaching methods and theoretical content taught in the classroom, plus the daily overload of activities and lack of time for executing required tasks were all significant predictors of stress among university students.[1]

Thus, the more difficulties students experience throughout their undergraduate studies, the more they use coping strategies such as denial. This strategy consists of students denying the existence of a problem, ignoring and hiding their feelings, and distancing themselves from others. This is a negative strategy that promotes passive abandonment of and submission to the problem. In such cases, students attempt to control and omit their emotions by suppressing their reactions and impulses in order to avoid exacerbating them.[4]

Regarding the other correlation found in this study between practical knowledge and es-

cape-avoidance, there was a directly proportional relationship between acquired practical knowledge (stressor) and the use of escape-avoidance (strategy). Therefore, we infer that the more students perceive themselves as lacking in knowledge, the more they avoid dealing with the situation, escaping from the problem and trying to ignore reality. This strategy can lead to future professionals with poor reflexive skills and who are not greatly committed to the reality of the Brazilian health system, a fact that reduces the autonomy of future nursing professionals and the quality of their work.[12]

Thus, the more nursing students use escape-avoidance strategies, the more they perceive knowledge dimensions as potential stressors.[5] In this sense, escape-avoidance is not a very effective strategy for managing stressful events.[12] This factor was the most prevalent among our sample, demonstrating that students try to escape from their problems using a delusionary or imaginary strategy, using escapist fantasies to minimize the severity of the situation.

This strategy was more prevalent among students who reported not conducting leisure activities. This finding shows that lack of leisure can lead to reduced social life and progressive isolation, motivating students to make use of negative strategies such as emotion-focused coping.[1] Lack of leisure time is also common to the nursing profession, as nurses often work multiple shifts and take on heavy weekly workloads, situations that can perpetuate the use of strategies such as escape-avoidance to the sphere of nursing work.

Emotional involvement with a stressful reality leads to the use of defensive mechanisms, such as distancing oneself from reality, a poorly effective strategy for managing or resolving stress.[4] Turning away from reality is a negative form of adaptation, which can lead to feelings of isolation and, consequently, apathy and lack of motivation for carrying out academic activities, possibly leading to a future lack of professional motivation.[2]

One study pointed to this lack of effectiveness, finding that students who used escape-avoidance strategies to deal with stress presented the greatest mean values of stress in all domains.[12] This fact was confirmed by another study, which demonstrated an inversely proportional association between escape-avoidance strategies and stress management/solution: the more students used escape-avoidance strategies, the higher their mean levels of stress.[13]

When students perceive themselves as lacking in theoretical and practical knowledge throughout their undergraduate education, feelings of insecurity emerge about their future professional life. Feeling insecure and unprepared for professional practice due to inexperience, lack of confidence and feelings of inefficiency with respect to acquired knowledge are all factors that contribute to the emergence of stress.[14]

When stressful events are perceived, coping strategies are employed in an attempt to manage the threatening situation and regain balance.[9] The main stress-causing factors in this study were issues related to professional education and to insufficient acquired practical knowledge.[14] The most prevalent strategies among nursing students in stressful situations were negative, as they were focused on the management of emotion rather than on problem solving.[15-17]

Such exposure to constant stressors and the absence of effective coping strategies can lead to physiological alterations manifested in sleep patterns, reduced physical activity, and increased irritability, which reflect in individuals' psychological health and social relationships. In this sense, it is important that nursing programs seek to develop stress management abilities in students in order to improve their quality of life and prevent exhaustion, which in the long run, can lead to feelings of dissatisfaction and program abandonment.[14-17]

The current study raises the question about whether problem denial and escape persist as the most commonly used coping mechanisms by nursing professionals when dealing with the stressful situations inherent to their professional routine, as the knowledge and attitudes developed during professional education can possibly persist throughout nurses' professional lives.

Conclusion

Professional education, lack of practical knowledge and lack of free time and leisure were the most com-

mon predictors of stress. The most prevalent coping strategies used by nursing students were denial of problem and escape-avoidance, both ineffective ways of dealing with stressful situations.

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Collaborations

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References

1. Del Prato D, Bankert E, Grust P, Joseph J. Transforming nursing education: a review os stressors and estrategies that support students' professional socialization. Adv Med Educ Pract. 2011; 2(1):109-16.
2. Chipas A, Cordrey D, Floyd D, Grubbs L, Miller S, Tyre B. Stress: Perceptions, manifestations, and Coping Mechanisms of Student Registered Nurse Anesthetists. AANA J. 2012; 80(4 Suppl):S49-55.
3. Flores-Torres IE, Alarcón EH, Jiménez EC, Amador MAV, Barrios DZ, Narváez YR, et al. Afrontamiento y adaptación en pacientes egresados de unidades de cuidado intensivo. Aquichan. Chía-Colombia. 2011; 11(1):23-39.
4. Martos MP, Land JMA, Zafra EL. Sources of stress in nursing students: a systematic review of quantitative studies. Int Nurs Rev. 2012; 59(1):15-25.
5. Gibbons C. Stress, coping and burn-out in nursing students. Int J Nurs Stud. 2010; 47(1):1299-309.
6. Altiok HO, Ustun B. The stress sources of nursing students. ESTP. 2013; 13(2):760-6.
7. Nicolas M, Sánchez ML, Marín SL, Rodríguez CL, Ruiz IM, Ángela SG. Percepción del estrés en los estudiantes de Enfermería ante sus prácticas clínicas. Enferm Glob. 2013; 12(31):232-53.
8. Kurebayashi LFS, Prado JM, Silva MJP. Correlations between stress and anxiety levels in nursing students. J Nurs Educ Pract. 2012; 2(3):128-34.
9. Prasad CV, Suresh A, Thomas DK, Pritty MK, Beebi S, Multazim V. The level of stress and coping mechanism adopted by I Year B.Sc. nursing students. Arch Med Health Sci. 2013;1:19-23.
10. Labrague LJ. Stress, stressors, and stress responses of student nurses in a government nursing school. Health Sci J. 2013;7(4):424-35.
11. Diaz-Martín Y. Estrés académico y afrontamiento en estudiantes de Medicina. Rev Hum Med. 2010; 10(1):1-17.
12. Gibbons C, Dempster M, Moutray M. Stress, coping and satisfaction in nursing students. J Adv Nurs. 2011; 67(3):621-32.
13. Gibbons C. Stress, coping and burn-out in nursing students. Int J Nurs Stud. 2010; 47(1):1299-309.
14. Nelwati ML, Plummer V. Indonesian student nurses' perceptions of stress in clinical learning: A phenomenological study. J Nurs Educ Pract. 2013; 3(5):56-65.
15. Shaban IA, Khater WA, Akhu-Zaheya LM. Undergraduate nursing students' stress sources and coping behaviours during their initial period of clinical training: A Jordanian perspective. Nurs Educ Pract. 2012; 12(4):204-9.
16. Sharma N, Kaur A. Factors associated with stress among nursing students. Nursing and Midwifery Research Journal. 2011; 7(1):12-21.
17. Eswi AS, Radi S, Youssri H. Stress/Stressors as Perceived by Baccalaureate Saudi Nursing Students. MEJSR. 2013; 14(2):193-202.