Stressful situations and factors in students of nursing in clinical practice

Eliana Ofélia Llapa Rodrigues[1]
Daniel Almeida Marques[2]
David Lopes Neto[3]
María José López Montesinos[4]
Adriana Sousa Amado de Oliveira[5]

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Objective. To assess the risk factors for stress in undergraduate students of nursing in clinical practice in a public university in the Northeast region of Brazil. **Methods.** Cross-sectional descriptive study with 116 students from the fifth to the ninth period. The bilingual KEZKAK questionnaire, validated for Portuguese, was used. Stress was considered to be present when the score was equal or superior to 2. **Results.** The students with stress in clinical practice were 18 to 22 years old (2.82 ± 0.98), women (2.81 ± 0.96), married (2.80 ± 0.97), and who were permanent contracted employees (2.74 ± 0.94). The factors which were most associated with stress were: Lack of competence (2.99 ± 0.88); Impotence and uncertainty (2.98 ± 0.85); and Patients seeking a closer relationship (2.93 ± 1.01). The students of the sixth period were the most vulnerable to stress (2.85±0.96). **Conclusion**. The studies showed the main risk factors for stress among students of nursing in their clinical practice. These results could be used in the development of strategies seeking to reduce stress in this context as well as to contribute to promoting mental health.

Key words: cross-sectional studies; nursing, practical; risk factors; stress, psychological; students, nursing; questionnaires.

1 RN, Ph.D. Professor Universidade Federal de Sergipe –UFS, Aracaju-SE, Brazil. email: elianaofelia@gmail.com

2 Undergraduate student. UFS, Aracaju-SE, Brazil. email: danielmarques.enfermagem@gmail.com

3 RN, Ph.D. Professor Universidade Federal do Amazonas –UFAM, Aracaju-SE, Brazil. email: davidnetto@uol.com.br

4 RN, Ph.D. Professor, Universidade de Murcia –UM, Murcia-ES, Espanha. email: mjlopez@um.es.

5 RN, MSc. candidate. UFS, Aracaju-SE, Brazil. email: dri.amado@hotmail.com

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Situaciones y factores de estrés en los estudiantes de enfermería en la práctica clínica

Objetivo. Evaluar factores de riesgo para el estrés en estudiantes de pregrado de enfermería en la práctica clínica de una universidad pública de la región nordeste de Brasil. **Métodos.** Estudio descriptivo transversal con 116 estudiantes del 5º al 9º período. Se utilizó el cuestionario KEZKAK validado al portugués. Se consideró que se había estrés cuando la puntación era igual o superior a 2. **Resultados.** Los estudiantes con estrés relacionado con la práctica clínica estaban en el grupo de 18 a 22 años (2.82 ± 0.98), eran mujeres (2.81 ± 0.96), estaban casados (2.80 ± 0.97) y trabajaban (2.74 ± 0.94). Los factores más predisponentes fueron: la falta de competencia (2.99 ± 0.88), la impotencia y la incertidumbre (2.98 ± 0.85) y que el paciente busque una relación íntima (2.93 ± 1.01). Los estudiantes del sexto período fueron los más vulnerables al estrés (2.85 ± 0.96). **Conclusión**. El estudio mostró cuáles eran los principales factores de riesgo para el estrés en estudiantes de enfermería en la práctica clínica. Esta información puede ser empleada para el desarrollo de estrategias que busquen la reducción de estrés en los estudiantes de enfermería en la práctica clínica y así contribuir la promoción de la salud mental.

Palabras clave: estudios transversales; enfermería práctica; factores de riesgo; estrés psicológico; estudiantes de enfermería; cuestionarios.

Situações e fatores de estresse em estudantes de enfermagem na prática clínica

Objetivo. Avaliar os fatores de risco para o estresse em estudantes de graduação de enfermagem em prática clínica em uma universidade pública da região nordeste do Brasil. **Metodologia**. Estudo descritivo de corte transversal, com 116 acadêmicos, del 5º ao 9º período. Empregou-se o questionário bilíngue KEZKAK validado para o portugués. Considerou-se estresse quando a pontuação fosse igual ou superior a 2. **Resultados**. Os estudantes com estresse na prática clínica encontraram-se no grupo de18 a 22 anos (2.82 ± 0.98), mulheres (2.81 ± 0.96), casados (2.80 ± 0.97), e que possuíam vínculo empregatício (2.74 ± 0.94). Os fatores mais condicionantes para estresse foram: Falta de competência (M=2.99, DP=0.88); Impotência e incerteza (M=2.98, DP=0.85); O paciente busca uma relação íntima (M=2.93, DP=1.01). Os académicos do sexto período foram os mais vulneráveis para o estresse (2.85±0.96).. **Conclusão**. O estudo mostrou os principais fatores de risco para o estresse entre alunos de enfermagem na sua prática clínica. Estes resultados podem ser utiizados no desenvolvimento de estrategias que busquem a redução do estresse nesse contexto, bem como contribuir para a promoção da saúde mental.

Palavras chave: estudos transversais; enfermagem prática; fatores de risco; estresse psicológico; estudantes de enfermagem; questionários.

Introduction

Stress results from conditions which vary from mildly challenging stimulation to severely adverse conditions,[1] experienced by people in a situation of real or perceived imbalance in relation to the environmental requirements necessary for survival, and the capacity for their adaptation to these demands resulting from different factors.[2] Many studies have revealed a negative association of stress with mental, emotional and physical morbidity. Chronic and excessive stress leads to physical, emotional and mental health problems and reduction of self-esteem, academic and personal performance, and professional development,[3] considering that stress affects individuals in different environments, independent of age, sex, social level or activity.[4]

In a global perspective, the teaching of nursing at an undergraduate level has changed significantly in the last decade, with a greater emphasis on the student's learning in the clinical environment. The objective of the teaching of nursing in this modality is to provide the theoretical knowledge necessary and the clinical experience in order to prepare the undergraduate students of nursing to undertake their future professional role. During this process of academic training, however, students of nursing, at all educational levels, report high

levels of stress in the clinical environment.[5] One study mapping stress among students of nursing during the clinical practice, undertaken at the University of Murcia between 2010 and 2011 revealed that lack of knowledge of the clinical practice environment and the fear of causing harm to the patient are the main stress factors for the students of nursing.[6] Other studies[7,8] indicate overload in theoretical/practical activities in the teaching of nursing, expectation and concern with the job market, the study/family life relationship, the accumulation of academic activities with the undertaking of examinations and the relationship with the lecturer, as well as the student's requirements in relation to the responsibility of meeting the individual/family/community needs, as the principal stressing stimuli present among students on nursing courses.

Considering the impact to be of particular interest in relation to the quality of the nursing care, patient safety and the psychosocial consequences of the work undertaken by nursing professionals, we understand that identifying stress in future nursing professionals, resulting from clinical practices, will allow us to assess the weak points of curricular content related to the training of students regarding the care context which they experience in the practice undertaken as part of the curriculum. This could be of considerable help to nurses in teaching, in re-orienting the formative itinerary of the future nursing professional. This study's objective was to evaluate risk factors for stress in students of nursing in clinical practice.

Methods

Descriptive cross-sectional research, with a quantitative approach, undertaken with students of nursing in the fifth or later period of their course, as these have already undertaken the practical hospital-based classes in a higher education institution, in the Northeast region of Brazil. This institution was chosen as it was the only federal institution in the region. The non-probabilistic convenience sample was made up of 116 students of the 5th (21), 6th (33), 7th (20), 8th (19) and 9th (23) periods, undertaking practical hospital-based clases, representing 60% of the study population. It is emphasized that the students of the 1st to 4th periods did not participate in the study, as – because at these stages they were not yet undertaking practical hospital-based classes – they did not meet our inclusion criteria.

Data collection was undertaken in January – April 2013 using the bilingual KEZKAK questionnaire, a public-use instrument, validated for the Portuguese language and, therefore, available for use in research, made up of 41 items.[9] The instrument's internal consistency was analyzed using the Cronbach alpha. A total of 40 items were used for the use of the final questionnaire, given that the question for item 25 was excluded as it was not adapted to the context of the population studied. As the instrument is a psychometric scale of the Likert type, the responses for each item varied according to intensity, from 1 to 4, where number 1 represented the least intensity and number 4, the greatest intensity. For this study, an item was considered to be stressing when it presented an average score equal or superior to 2.0, as used in another study.[10] It is emphasized that the questions were regrouped, purely for analysis, following the original questionnaire: F1 – Lack of competence, (S1, S2, S3, S4, S5, S6, S13, S15, S16, S197 and S26), F2 – Contact with suffering (S9, S10, S14, S18, S27, S29, S31, S32, S34 and S39), F3 – Relationships with tutors and companions (S1, S12, S19, S20 and S28), F4 – Impotence and uncertainty (S2, S3, S6, S14, S17, S23, S32, S36, S38, and S41) F5 – Lack of control in relationships with patients (S5, S7, S17, S20, S29, S30, S33 and S39) F6 – Emotional involvement (S8, S21, S22 and S31), F7 – Being harmed by the relationship with patients (S11, S14, S15, S24 and S26), F8 – Patient seeking a close relationship (S37 and S40), F9 – Overload (S30, S31, S34, S35 and S36).

For analysis, initially, the score obtained by each participant, for each factor, was summed, and divided by 40, thus producing the mean. Based on the results produced, the means and standard

deviation were calculated for sex, age group, marital status, family situation and 'period' of the course, these being compared using the one-way ANOVA test when there were more than 2 groups, and the Student t-test in the presence of only 2. The statistical treatment for comparison of the stress for situations between the 'periods' of the course was undertaken through nonparametric tests, as when the D'Agostino-Pearson normality test was undertaken, it was assessed that the set of data did not follow normal distribution ($p<0.05$). The Kruskal-Wallis test was used to identify the significant statistical differences ($p<0.05$) between the groups, and the Mann-Whitney test was used for 2x2 comparisons. In order to determine the statistical difference between the nine factors, the means were calculated for each factor, followed by the one-way ANOVA test for comparison of the factors between themselves. In the cases in which there was significant difference, the Bonferroni post-test was applied with the objective of identifying between which factors this difference occurred. All data were analyzed using the GraphPad Prism software, version 3.0.

The study was approved by the Research Ethics Committee of the Federal University of Sergipe (Protocol N. 143.908/2012). All the participants in the study signed the terms of free and informed consent, in accordance with Resolution 466/2012, of the Brazilian National Health Council/National Council for Ethics in Research. In methodological terms, the study's limitations occur as a result of the initial documentary revision due to the impossibility of accessing certain databases and documentary sources as these are restricted or do not present the text in full. In relation to the fieldwork, we can mention the difficulties in collecting complete and reliable data, a fact which caused us to reduce the number of the population (Figure 1). The investigation derived from the scientific initiation project titled stressful situations and factors in students of nursing in clinical practice, of the Department of Nursing of the Federal University of Sergipe. It is emphasized that the present study did not receive financial support for data collection although the student involved was a grant-funded scholar on the scientific initiation program.

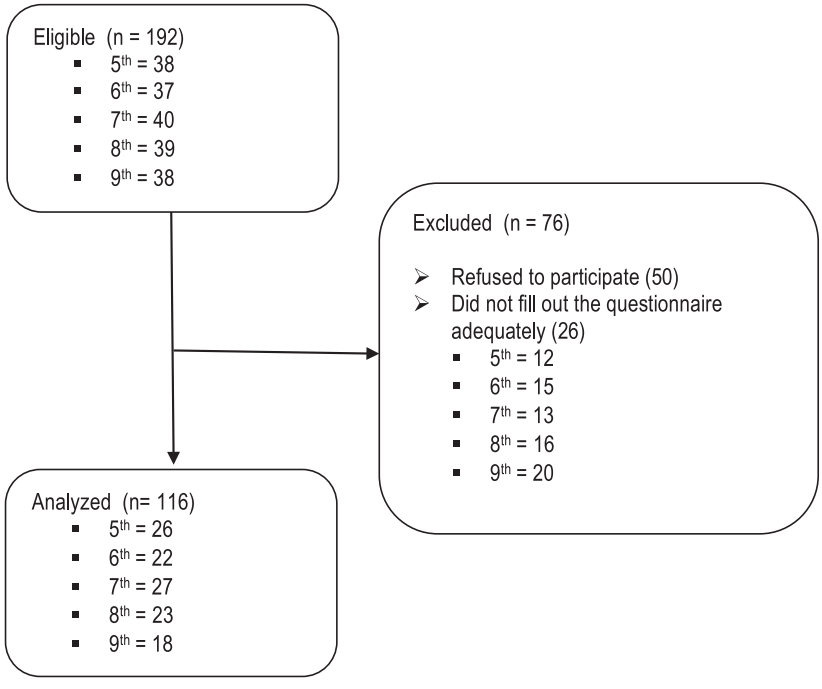

Figure 1. Flowchart of students who participated in the research.

Results

The characterization of the participants showed them to be female students (83.6%), single (78.4%), aged between 23 and 27 years old (54.3%), without permanent contracted employee status (76.7%), and that the majority lived with their family (73.3%). The students who presented the greatest stress were those in the age range from 18 to 22 years old (2.82 ± 0.56), female (2.81 ± 0.47), married (2.80 ± 0.40), who lived with the family (2.79 ± 0.95) and who were permanent contracted employees (2.74 ± 0.94). It is worth emphasizing that there was statistical significance only in relation to gender (Table 1).

According to the global average, in Table 2, it was observed that 97.5% of the situations obtained a mean higher than 2, considered, for this study, as a source of stress. The following stood out, in order: S13 – *To be infected by a patient* (3.5), S35 – *Overload of academic work* – (3.5); and S15 – *To jab myself with an infected needle* – (3.4). On the other hand, when the means between the periods were observed, the sixth presented the highest stress level (2.85), while the lowest rate was presented by the ninth period (2.61). On the other hand, a significant statistical difference was identified in the following items: S18 *To see a patient dying*: was shown to generate greater stress in the 5th period when compared with the 9th and 7th.; S30 *To have to be with a patient with whom it is difficult to communicate*: was shown to be a very stressful situation in the 5th period in comparison with the 9th. In contrast, and with the lowest level of significance, this item was less stressful in the 9th in comparison with the 6th and 7th periods; S10 *To have to talk with the patient about his/her suffering*: was found to be a stressful situation for the students of the 6th period in comparison with the students of the 7th and 9th periods; and S19 *Relationship with the professor*: stood out as being a greater stressor for the 7th period when compared with the 5th, 8th and 9th. Equally, it was considered highly stressful for the 6th when compared with the 8th and 9th periods.

Table 1. Profile of the participants by sex, age group, marital status and family situation. Aracaju, SE, Brazil. 2013

Variable	n	%	KEZKAK score	P value
Sex				
Female	97	83.6	2.81 ± 0.47	0.015
Male	19	16.4	2.51 ± 0.56	
Age group				
18-22	45	39	2.82 ± 0.56	0.499
23-27	63	54	2.71 ± 0.45	
28 and over	8	27	2.78 ± 0.49	
Marital status				
Married	22	19	2.80 ± 0.40	0.908
Single	91	78	2.75 ± 0.52	
Others	3	3	2.76 ± 0.34	
Lives with family				
Yes	85	73.3	2.78±0.44	0.252
No	31	26.6	2.67±0.63	

Table 2. Mean and standard deviation of the stressful situations in relation to the periods of the course. Aracaju, SE, Brazil. 2013

Situations	5th	6th	7th	8th	9th	Global	*p*
S13 To be infected by a patient	3.43±0.87	3.58±0.66	3.45±0.76	3.68±0.67	3.48±0.79	3.53±0.74	0.780
S35 Overload of academic work	3.48±0.81	3.55±0.67	3.8±041	3.32±0.75	3.35±0.78	3.5±0.7	0.186
S15 Jab myself with an infected needle	3.38±1.02	3.3±1.02	3.55±0.76	3.58±0.84	3.26±0.86	3.4±0.91	0.557
S16 To mix up medicines	3.29±0.96	3.42±0.9	3.35±0.81	3.21±1.03	3.13±1.01	3.29±0.93	0.854
S40 When the patient touches my body inappropriately	3.05±1.12	3.33±1.05	3.3±1.03	3.26±1.1	3.48±0.79	3.29±1.01	0.752
S17 Provide care or undertake a procedure in the wrong way	3.24±0.89	3.3±0.92	3.4±0.68	3.26±0.93	3.22±0.8	3.28±0.84	0.950
S06 To physically harm the patient	3.19±0.81	3.3±0.81	3.15±1.04	3.16±0.9	3.17±1.07	3.21±0.91	0.983
S20 Finding myself in a situation in which I don't know what to do	3.38±0.67	3.27±0.8	3.15±0.81	2.95±0.78	3.17±0.78	3.2±0.77	0.487
S38 Not to locate a doctor when necessary	3.24±0.77	3.42±0.66	3.25±0.91	2.74±0.99	3.17±0.78	3.2±0.82	0.130
S36 To receive contradictory instructions from a superior	3.29±0.85	3.15±0.83	3.25±0.91	2.89±1.15	2.91±0.95	3.1±0.92	0.585
S02 My professional performance harms the patient	3.19±0.81	3.18±0.92	2.9±0.91	3.26±0.87	2.96±1.02	3.1±0.9	0.653
S29 To find myself in an emergency situation	3±0.95	3.18±0.85	3.3±0.8	3.05±0.91	2.91±0.95	3.09±0.88	0.647
S34 To have to work with aggressive patients	3.19±0.87	3.18±0.88	3.05±0.89	3±1.05	3±0.74	3.09±0.87	0.845
S18 To see a patient dying	3.38±0.8	3.3±0.95	2.75±0.72	3.05±1.13	2.61±0.94	3.04±0.95	0.005
S41 Differences between what was learned in class and what is experienced in clinical practice	2.62±0.92	3.15±0.76	2.9±0.91	2.79±0.85	2.96±0.98	2.91±0.88	0.320
S14 When a patient who was improving becomes worse	3±0.63	3.06±0.7	2.6±0.88	2.84±0.83	2.74±0.69	2.87±0.75	0.207
S03 To feel that I cannot help the patient	2.86±0.85	2.82±0.73	2.7±1.03	2.53±0.9	2.91±1.04	2.78±0.89	0.689
S09 To have to give bad news	2.9±1.04	2.79±0.89	2.75±0.97	2.84±1.12	2.52±0.85	2.76±0.95	0.577
S04 To psychologically harm the patient	2.67±1.06	2.7±0.98	2.95±1.1	2.89±1.05	2.61±0.99	2.75±1.02	0.730
S39 To have to be with a terminally-ill patient	2.76±0.83	2.91±0.95	2.85±0.75	2.58±1.07	2.43±0.95	2.72±0.92	0.316
S32 To undertake procedures which cause pain to the patient	3±0.77	2.7±0.95	2.7±0.8	2.47±0.84	2.48±0.67	2.67±0.83	0.211

Table 2. Mean and standard deviation of the stressful situations in relation to the periods of the course. Aracaju, SE, Brazil. 2013 (Cont.)

Situations	5th	6th	7th	8th	9th	Global	*p*
S32 To undertake procedures which cause pain to the patient	3±0.77	2.7±0.95	2.7±0.8	2.47±0.84	2.48±0.67	2.67±0.83	0.211
S11 When a patient mistreats me	2.62±1.02	2.76±0.94	2.8±0.77	2.79±1.03	2.3±0.93	2.66±0.94	0.261
S27 To have to be with the family of a patient who has died	2.57±0.93	2.85±0.94	2.6±0.82	2.68±1.06	2.39±0.99	2.64±0.94	0.493
S24 When the patient doesn't respect me	2.76±0.77	2.76±1	2.75±0.97	2.74±1.05	2.13±0.87	2.63±0.95	0.070
S37 When a patient of the opposite sex makes sexual insinuations	2.24±0.94	2.79±1.05	2.8±1.2	2.63±1.12	2.39±0.72	2.59±1.02	0.266
S5 Not to know how to respond to patient's expectations	2.57±0.75	2.67±0.85	2.75±0.91	2.53±0.9	2.43±0.66	2.59±0.81	0.746
S31 To have to be with a patient from whom bad news has been withheld	2.38±0.92	2.64±0.86	2.45±1.05	2.68±0.89	2.57±0.79	2.55±0.88	0.731
S7 Not to know how to respond to a patient	2.67±0.8	2.52±0.83	2.85±0.81	2.26±0.87	2.48±0.73	2.55±0.81	0.185
S26 To receive a formal complain from a patient	2.62±0.59	2.58±1	2.75±1.07	2.32±0.82	2.48±0.9	2.55±0.89	0.584
S23 Not to be able to attend the patient	2.67±0.97	2.61±0.86	2.35±0.88	2.63±0.6	2.43±0.9	2.54±0.84	0.633
S22 That my responsibility in the care of the patient should be important	2.76±0.94	2.7±1.07	2.5±0.95	2.21±0.85	2.26±0.86	2.51±0.96	0.175
S01 Not to feel integrated into the work group	2.57±0.93	2.33±0.99	2.5±0.76	2.37±0.6	2.83±0.83	2.51±0.86	0.266
S30 To have to be with a patient with whom it is difficult to communicate	2.71±0.85	2.52±0.83	2.5±0.89	2.42±0.77	1.96±0.56	2.42±0.81	0.025
S10 To have to talk with the patient about his/her suffering	2.48±0.93	2.55±0.94	1.95±0.83	2.53±0.9	2±0.67	2.32±0.89	0.042
S08 Involvement with the patient's emotions	2.57±0.81	2.33±0.74	2±0.86	2.32±0.82	2.26±0.69	2.3±0.78	0.585
S12 Relationship with the professionals of the health center	2.19±0.6	2.3±0.81	2.35±0.88	2.11±0.88	1.87±0.63	2.17±0.77	0.238
S19 Relationship with the professor	2±0.84	2.3±0.88	2.65±0.88	1.68±0.95	1.74±0.75	2.09±0.91	0.001
S33 Not to know how to conclude a conversation with a patient	1.9±0.77	2.12±0.78	2.3±0.98	2±0.67	1.83±0.58	2.03±0.76	0.363
S21 To become too involved with the patient	1.9±0.83	2.21±0.99	1.8±0.62	2.11±0.88	1.96±0.82	2.02±0.85	0.579
S28 Relationships with classmates	1.95±0.86	1.88±0.6	2.15±0.88	1.89±0.74	1.57±0.73	1.88±0.76	0.167
Global	2.79±0.95	2.85±0.96	2.8±0.97	2.71±1	2.61±0.96	2.76±0.97	0.825

Table 3 shows that the factors which most led to stress were: F1 – Lack of competence (M=2.99); F4 – Impotence and uncertainty (M=2.98); F8 – The patient seeks a close relationship (M=2.93) when compared with the factors F3 – Relationship with supervisors and workmates and F6 – Emotional involvement.

Table 3. Factors for stress, by average, ANOVA, and Bonferroni post-test. Aracaju, SE, Brazil. 2013

Stress factors	M SD	Factor vs F3	Factor vs F6
F1 – Lack of competence	2.99±0.88	$p<0.001$	$p<0.001$
F4 – Impotence and uncertainty	2.98±0.85	$p<0.001$	$p<0.001$
F8 – The patient seeks a close relationship	2.93±1	$p<0.001$	$p<0.001$
F9 – Overload	2.93±0.84	$p<0.001$	$p<0.001$
F7 – To be harmed in the relationship with the patient	2.82±0.89	$p<0.01$	$p<0.01$
F2 – Contact with suffering	2.77±0.88	$p<0.05$	$p<0.01$
F5 – Not to control the relationship with the patient	2.73±0.82	-	$p<0.05$
F3 – Relationship with supervisors and workmates	2.37±0.81	-	-
F6 – Emotional involvement	2.34±0.87	-	-

Discussion

The results show that the majority of factors presented generate stress, these results being in accordance with other studies.[11,15] In relation to the socioeconomic aspects, higher prevalence of stress was prevalent in the ages between 18 and 22 years old. In this regard, one can infer that levels of hormones and maturity in the phase of adolescence influence the student's psychological state. Study results regarding coping with stress in adolescence corroborate this finding in revealing that adolescent students experience a variety of cognitive and emotional demands which can trigger stress.[10,16] Also observed was a high level of stress in married students, mainly due to the demands posed by the family which are peculiar to this condition. In relation to this, one source of stress is routine occurrences and the people with whom the individual has to deal on a day-to-day basis.[15] In consonance with this, the study identified that the variable of marital status was associated with situations of stress, as a result of the overload of work, of responsibility, and of the process of building family relationships itself.[10] Consequently, married students, who were permanent contracted employees and who live with their family are more prone to situations which generate stress.

On the other hand, the study identified the female gender as that which presents a greater level of stress in comparison with the male gender.[10] In the present study, due to the sample being composed mainly of women, the relationship between gender and the results was not representative. In this study, the following items stand out as having greater predisposition to stress: *To be infected by a patient* (S13), *Overload of academic work* (S35) and *Jab myself with an infected needle* (S15). The study undertaken in the University of Murcia, in Spain,[12] presented similar results, in which the majority of students of nursing experienced identical situations generating stress. In this regard, it is expected that, with the acquisition of professional experience, the levels of stress should reduce.[10,11]

Elements which trigger stress, such as excessive work, can influence personal and professional behavior, impairing the individual's quality of life. In this context, it is understood that the

strain suffered by the worker can raise her stress level and cause serious risks to her health.[13] In the same way, the various activities in the academic field can cause *overload of work* (S35), a situation which predisposes to stress: among the main causal elements, emphasis is placed on the excess and accumulation of theoretical, practical and research activities.[12] It is deduced that, besides the obligatory curricular hourly workload, the student, in these periods, is likely to be involved in complementary and extracurricular activities such as: scientific initiation, monitoring, extension, courses, and events, which predisposes to overload and impairs quality of life. The students of the sixth period showed that they experience more stressful situations. In this respect, it must be observed that the students, in this period, begin with courses characterized by their high hourly workload and practical classes in the various scenarios. One can also add that for the students, this context is configured as new experiences, and at the same time, insecurities arise which are specific to the teaching-learning process in which they are involved.

Research on situations of stress experienced by students of nursing in the fifth and sixth periods shows that the common stressors are associated with lack of knowledge and the impotence and uncertainty experienced when compared with those students in the initial and final periods[10]. In line with this, it was identified that the ninth period presented the lowest level of stress, in spite of the greater responsibility during the clinical practice, which may be related to the academic maturity resulting from the development of competencies, skills and attitudes for dealing with stressful situations.[14]

The conclusion of this study made it possible to investigate the main risk factors for developing stress in the academic routine, a situation which may be reflecting negatively on the quality of life and the performance of the academic activities undertaken by these actors. The stress factors indicated by the students are characterized by feelings of insecurity, impotence, fear of the unknown and by overload of academic activities. It is believed that this issue should be a focus for concern on the part of teaching institutions; it is therefore suggested that undergraduate courses should undertake proposals which have as their objective the development of strategies which prepare the student to deal with situations of pressure, with the purpose of minimizing the stress of academic life, and with a view to making the pedagogical environment more productive.

Finally, the stressing situations which permeate the academic life of the student of nursing must go through the pedagogical course project for appropriate strategic planning which re-orients and redefines the clinical practice. One should remember that the prevention of stress must be an institutional goal, considering that in the future, this student will provide care: consequently, it is necessary to maintain her physical and mental health in balance.

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