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Stressors among nursing students during hospital internships

Factores estresantes en los estudiantes de enfermería durante las prácticas hospitalarias.

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Summary

Introduction: Stress experienced by nursing students during hospital internships is a key factor that affects their well-being and performance. **Objective:** To analyze the stressors affecting nursing students during hospital internships. **Methodology:** This quantitative study employed a non-experimental, cross-sectional, and comparative design, involving a sample of 203 nursing students from the basic and professional curricular units at the Technical University of Ambato. **Results:** The Mann-Whitney U test revealed a significance value of 0.008, which is below the threshold of 0.05, indicating a statistically significant difference between the stressor "lack of competence" and the gender of the students. Therefore, the null hypothesis is rejected in this specific case. Additionally, 39.4% of students reported experiencing high levels of stress during hospital internships, with "lack of competence" being the most predominant stressor (42.9%). **Conclusions:** It is essential to develop targeted strategies to reduce stressors and protect the physical and psychological well-being of nursing students throughout their academic training.

Keywords: nursing students; clinical practice; stress.

Resumen

Introducción: *El estrés en los estudiantes de enfermería durante las prácticas hospitalarias es un factor determinante que afecta su bienestar y desempeño.* ***Objetivo:*** *Analizar los factores estresantes en los estudiantes de enfermería durante las prácticas hospitalarias.* ***Metodología:*** *Estudio de enfoque cuantitativo con diseño no experimental, transversal de alcance comparativo, en una muestra constituida por 203 estudiantes de la carrera de enfermería, perteneciente a la unidad de organización curricular básica y profesional de la Universidad Técnica de Ambato.* ***Resultados:*** *El valor de significancia de la prueba de U de Mann Whitney de (0,008) menor a <0.05 demuestran una diferencia estadística entre el factor estresante (falta de competencia) y el sexo de los estudiantes, por lo tanto, se rechaza la hipótesis nula solo en este caso, además en las prácticas hospitalarias se experimenta un alto nivel de estrés (39,4 %), mientras la falta de competencia es el factor con mayor predominancia (42,9 %).* ***Conclusiones:*** *Es fundamental desarrollar estrategias enfocadas en reducir los factores estresantes para proteger el bienestar físico y psicológico de los estudiantes a lo largo de su formación.*

Palabras clave: *Estudiantes de enfermería. Prácticas clínicas. Estrés.*

Introduction

Hospital internships are essential for students in the healthcare field, especially for future nursing graduates, as they offer the opportunity to apply acquired theory in real-world settings, thereby positively contributing to their professional development. By engaging with diverse patients, students not only face stressors associated with academic life but also experience the same type of stress that healthcare professionals endure daily, in addition to personal life roles such as being a mother, father, or spouse, among others (1).

The World Health Organization (WHO) and the Pan American Health Organization (PAHO) have reported that psychological problems increase the likelihood of developing other conditions. Globally, stress has become a major public health issue (2). Furthermore, it is estimated that approximately 450 million people worldwide suffer from stress-related conditions. That means one in four individuals experiences stress, regardless of economic situation, culture, age, or working conditions (3).

Academic training can be significantly affected by stress, particularly during hospital internships, which are a primary source of various stressors—also known as stress-inducing agents. These are events, circumstances, or internal and external demands that challenge an individual's capacity for adaptation and adjustment (4). The WHO defines stress as psychological pressure caused by challenging and complex situations, which can manifest at different levels in people. However, this phenomenon is considered a natural and adaptive response to certain environmental stimuli or threats. When controlled and within a regulated environment, stress becomes biologically beneficial, as it prepares individuals to solve problems in stressful scenarios, enhances focus, and optimizes cognitive performance, thus supporting the achievement of goals and objectives (5).

Ecuador ranks as the country with the highest level of stress in Latin America and the Caribbean, with only 22% of Ecuadorians reportedly experiencing low stress levels (6). A study conducted among nursing students at the State University of Bolívar in Ecuador found that 88.8% reported high stress levels, particularly among women, due to academic overload and time constraints (7).

A study in the city of Ambato, conducted by the Technical University of Ambato (UTA), revealed that nursing students experience academic stress primarily due to excessive coursework, insufficient time to complete university tasks, lack of attention during classes, and exam pressure resulting from low self-confidence (8).

In response, PAHO has developed a stress management guide aimed at helping individuals cope with critical situations and manage stress (9). Additionally, Ecuador's Ministry of Public Health (MSP) has implemented actions to strengthen mental health care at all levels through its 2023–2028 Mental Health Project. This initiative focuses on both families and communities with the goal of preventing, promoting, recovering, and rehabilitating patients with both mild and severe psychological conditions (10).

University students, especially those in nursing

programs, experience significantly high stress levels. Nursing students in particular show higher percentages of stress compared to students in other disciplines. The main cause is clinical practice, which is compounded by personal and group relationships. A study conducted by Davis and Zryewsky found that both clinical and academic environments contribute the most to stress, followed by personal and social situations (11).

Numerous stressors can affect students' emotional balance, academic performance, and both physical and mental well-being. Key stress-inducing situations in healthcare environments include dealing with patients in pain, patients with catastrophic illnesses, witnessing personal and family suffering, and managing relationships with healthcare professionals, patients, and families (12).

Consequently, the presence of stressors during hospital internships is a significant and prevalent issue in the professional development of nursing students. It negatively impacts their skill development and competency acquisition. Research has shown that more than 50% of nursing students report high levels of stress when exposed to real clinical settings, primarily associated with a lack of skills (68.4%), responsibility for patient care, and uncertainty. These situations may result in altered heart rate, blood pressure, back pain, muscle pain, difficulty concentrating, sleep disorders, and gastrointestinal issues (13).

This underscores the importance of thoroughly studying the stressors encountered during hospital internships. The present study provides a comparison of stress factors and variables such as sex, age, and professional area. It also proposes appropriate strategies to address the various identified stressors, with the goal of improving the academic performance and psychological well-being of nursing students and reducing the prevalence of stress.

Given the above, the objective of this study was to analyze the stressors experienced by nursing students at the Technical University of Ambato during their hospital internships.

Materials and Methods

A descriptive study with a non-experimental, cross-sectional quantitative design was conducted to analyze the factors influencing nursing students during their hospital internships. The selection of participants was based on inclusion criteria such as being a legally enrolled student in the Nursing Program at the Technical University of Ambato during the academic period from September 2024 to February 2025, having clinical internships in accordance with the curricular framework, and voluntarily agreeing to participate in the study by signing an informed consent form. As for the exclusion criteria, students who were absent during data collection were not considered.

From a total population of 425 students, the sample size was determined using the online calculator "QuestionPro," applying a 95% confidence level and a 5% margin of error. This resulted in a final sample of 203 participants. A simple random probabilistic sampling method was used to ensure representativeness.

The KEZKAK questionnaire was employed, which was developed and validated in Spanish by X. Zupiria et al. in 2003 (14). This bilingual Spanish-Basque questionnaire, titled "Questionnaire of Stressors Among Nursing Students in Clinical Practice," comprises 41 items that reflect potentially stressful situations grouped into nine components: lack of competence, contact with suffering, relationships with tutors and peers, feelings of helplessness and uncertainty, lack of control in relationships with patients, emotional involvement with both the work and patients, not being treated well by the patient and potentially harming the relationship, patient behaviors seeking intimate relationships with the student, and overload. The instrument has a Cronbach's alpha of 0.95 (15).

Scoring is based on a Likert scale: none (0), a little (1), quite a bit (2), and a lot (3), resulting in a total score ranging from 0 to 123. The general level of stress is classified as follows: 0 to 41 = low stress, 42 to 82 = moderate stress, and 83 to 123 = high stress. Table 1 describes the items and cutoff points used to form the categories (16).

Table 1. Dimensions and Category Formation

Dimension	Items	Stress Level		
		Low	Medium	High
Lack of competence	1, 2, 3, 4, 5, 6, 13, 15, 16, 17, 26	0–11 pts	12–22 pts	23–33 pts
Contact with suffering	9, 10, 14, 18, 27, 29, 31, 32, 34, 39	0–10 pts	11–20 pts	20–30 pts
Relationship with tutors and peers	1, 12, 19, 20, 25, 28	0–6 pts	7–12 pts	13–18 pts
Helplessness and uncertainty	2, 3, 6, 14, 17, 20, 23, 32, 36, 38, 41	0–11 pts	12–22 pts	23–33 pts
Lack of control in patient relationship	5, 7, 17, 20, 29, 30, 33, 39	0–8 pts	9–16 pts	17–24 pts
Emotional involvement	8, 21, 22, 31	0–4 pts	4–8 pts	9–12 pts
Harm to relationship with patient	1, 14, 15, 24, 26	0–5 pts	6–10 pts	11–15 pts
Patient seeks intimate relationship	37, 40	0–2 pts	3–4 pts	5–6 pts
Overload	30, 31, 34, 35, 36	0–2 pts	3–4 pts	5–6 pts

Statistical Analysis

After data collection, the information was processed using Microsoft Excel and then analyzed and coded in aggregate form using the statistical software SPSS (Statistical Package for Social Sciences), version 27.

Ethical Considerations

This study adhered to the ethical principles outlined in the Declaration of Helsinki, ensuring strict confidentiality in the handling of information. In addition, informed consent was obtained from participants to confirm their voluntary involvement in the research. The study was also reviewed and approved by the Human Research Ethics Committee (CEISH) of the Technical University of Ambato, under approval code 289-CEISH-UTA-2024, dated October 2, 2024, in Ambato

Results

Table 2. Sample Characteristics

Variable	Category	Frequency	Percentage
Gender	Female	169	83.3%
	Male	34	16.7%
	Total	203	100%
Academic Area	Professional	135	66.5%
	Basic	68	33.5%
	Total	203	100%

According to the analysis conducted, the 203 participating students ranged in age from 18 to 29 years, with a mean age of 20.8 and a standard deviation of 1.7 years. The table above presents the frequency and percentage distributions for gender and academic areas among the study subjects.

Table 2 shows a predominance of female participants (83.3%) compared to males (16.7%), which reflects a historical trend in gender distribution within the nursing profession. The basic academic area includes students from the second and third semesters, while the professional area comprises those from the fourth to seventh semesters.

Table 3. Stressors

Stressors	Low	%	Moderate	%	High	%	Total	%
1. Lack of competence	70	34.5	46	22.7	87	42.9	203	100.0
2. Contact with suffering	45	22.2	78	38.4	80	39.4	203	100.0
3. Relationship with tutors/peers	44	21.7	96	47.3	63	31.0	203	100.0
4. Helplessness and uncertainty	37	18.2	89	43.8	77	37.9	203	100.0
5. Lack of control in patient care	67	33.0	70	34.5	66	32.5	203	100.0
6. Emotional involvement	55	27.1	85	41.9	63	31.0	203	100.0
7. Damaged relationship with patient	70	34.5	65	32.0	68	33.8	203	100.0
8. Patient seeks intimate relation	70	34.5	54	26.6	79	38.9	203	100.0
9. Overload	63	31.0	64	31.5	76	37.4	203	100.0

Table 3 shows the distribution of stressors among students, highlighting "lack of competence" as the main source of stress, affecting 42.9% of participants. It is followed by "contact with suffering" (39.4%), "the patient seeks an intimate relationship" (38.9%), and "overload" (37.4%), all with significant percentages in the high-stress category. These results indicate that situations challenging students' technical and emotional preparedness—as well as excessive demands—are the most impactful, affecting their ability to adapt.

Table 4. Stress Levels by Gender and Academic Area

Variable	Category	Low	Moderate	High	Total
Gender	Female	23.08% (39)	36.09% (61)	40.83% (69)	83.3% (169)
	Male	35.29% (12)	32.35% (11)	32.35% (11)	16.7% (34)
Academic Area	Basic	19.12% (13)	35.29% (24)	45.59% (31)	33.5% (68)
	Professional	28.15% (38)	35.55% (48)	36.29% (49)	66.5% (135)

Table 4 indicates significant differences in stress levels based on gender and academic areas. Female students experienced a higher level of stress (40.83%) compared to male students (32.35%). This may be related to biological factors, social roles, or differences in emotional regulation. Regarding academic areas, both basic and professional level students presented high stress levels, likely due to the continuous development of theoretical and especially practical competencies required by the nursing curriculum from early to advanced semesters.

Table 5. Overall Stress Level

Level	Frequency	Percentage
High	80	39.4%
Moderate	72	35.5%
Low	51	25.1%
Total	203	100%

Table 5 shows that 39.4% of students experienced a high level of stress, indicating a negative impact on overall well-being and a significant emotional burden during hospital internships. This underscores the need for support strategies. Additionally, 35.5% reported moderate stress levels, suggesting that more than a third of the students face moderate challenges that could affect their performance. Only one-quarter of the students (25.1%) maintained low stress levels, meaning they were better able to manage the clinical demands.

Hypothesis Testing

With a confidence level of 95% and a margin of error of 5%, the following hypotheses were formulated:

• H_1: The stressors experienced by nursing students differ according to their demographic characteristics.

• H_0: The stressors experienced by nursing students are the same regardless of their demographic characteristics.

• Dependent variable: Stressors

• Independent variable: Demographic characteristics

To determine the appropriate statistical analysis, the assumption of normality was tested on the 203 data points using the Kolmogorov–Smirnov test. As the significance values were all <0.05, the data were considered non-normal. Therefore, the non-parametric Mann–Whitney U test was used.

Table 6. Mann–Whitney U Test

	Asymptotic Significance (Two-tailed)		
Stress factors	Gender	Academic Area	Age
1. Lack of competence	0.008	0.394	0.461
2. Contact with suffering	0.122	0.431	0.418
3. Relationship with tutors/peers	0.778	0.925	0.778
4. Helplessness and uncertainty	0.273	0.792	0.835
5. Lack of control in patient care	0.196	0.496	0.593
6. Emotional involvement	0.325	0.277	0.945
7. Damaged relationship with patient	0.310	0.053	0.763
8. Patient seeks intimacy	0.586	0.462	0.489
9. Overload	0.050	0.604	0.824

Table 6 presents the significance values for hypothesis testing using the Mann–Whitney U test, comparing means between stressors and demographic variables such as gender, academic area, and age.

The null hypothesis was accepted for all factors and variables, except for the stressor "lack of competence" and gender, where the null hypothesis was rejected due to the significance value being below 0.05 ($p = 0.008$).

Discussion

Nursing students face an academic and clinical environment that requires mastering various theoretical and practical competencies. Although this training is essential for professional development, it also exposes students to multiple stressors that can negatively impact their overall well-being and academic performance. From a quantitative and comparative perspective, the results of this study provide insights into the prevalence of these stressors and their relationship with demographic variables.

In the present study, the most prominent stressor was perceived lack of competence, which was associated with high stress levels among students.

This perspective may reflect a sense of insecurity when facing challenges in the hospital setting and is linked to a self-perception of inadequate preparation. Other factors such as contact with suffering, patients seeking intimate relationships, and task overload also showed high prevalence. These findings are consistent with previous research, such as the study by Arias et al., which highlighted similar dimensions using the KEZKAK questionnaire. This can be explained by the fact that students perceive their clinical practice as potentially risking patient safety, particularly when they feel deficient in knowledge and skills. This can lead to insecurity, poor decision-making, and compromised quality of care (17).

Research conducted by Venegas et al. and Martínez et al. also identified a lack of practical skills as one of the main sources of stress during hospital internships. This emphasizes the need to strengthen practical training through pedagogical strategies aimed at increasing students' self-confidence and their perception of clinical competence. For this reason, the current study underlines the importance of proposing effective strategies to manage these stressors (18, 19).

Regarding the general stress level, most participants reported high levels, which supports the idea that both hospital demands, and emotional aspects weigh heavily. This aligns with findings from Ruidíaz et al., whose study showed that 51% of students experienced high stress. Furthermore, female students in this study reported higher stress levels, possibly due to biological, social, or cultural factors. This observation is consistent with findings by Sánchez et al., who attribute it to gender stereotypes—particularly the expectation that women possess greater caregiving and compassion skills than men (20, 21).

When analyzing the academic area variable, both basic and professional students reported high stress levels. This suggests that stress is a transversal phenomenon that persists throughout the entire academic training—not just during the early semesters, as reflected in a study by Condoyque et al., which reported higher stress during the initial stages due to students adapting to hospital demands (22).

Additionally, statistical analysis using the Mann–Whitney U test revealed that lack of competence was the only stressor that showed significant differences related to gender ($p = 0.008$). This indicates that female students reported higher levels of stress in this domain, which may be linked to social stigma, role expectations, and discrimination. Supporting this interpretation, Sánchez et al. noted that cultural roles associated with caregiving and empathy are predominantly assigned to women, resulting in a greater emotional burden.

Therefore, the null hypothesis was accepted for all other factors and variables, meaning that age, gender (except in lack of competence), and academic area do not significantly affect the level of stress students may experience during their clinical internships.

Finally, the high levels of stress encountered during hospital practice pose a serious risk to students' professional development. As Silva has pointed out, stress can compromise learning and emotional balance, thus affecting both academic and professional performance (13).

Based on these findings, the following strategies are proposed to reduce stressors:

1. Competency development and training: Periodic workshops should be implemented focusing on developing technical and cognitive skills, including proper patient handling, pharmacology, hospital protocols, and use of medical equipment. Continuous simulations in well-equipped labs are also recommended, with active participation from trained tutors to provide support and foster a collaborative and organized environment.

2. Emotional and psychological support: Establish biweekly group sessions where students can share experiences and emotions related to hospital practice under the guidance of mental health professionals. Access to individual sessions with institutional psychologists should also be facilitated to provide emotional regulation and therapeutic support through active listening. These actions aim to promote psychosocial well-being and prevent psychological issues during students' professional development (23).

3. Relaxation techniques: Incorporate stress-regulation strategies such as deep and controlled breathing, meditation workshops, yoga, group walks to encourage bonding between teachers and students, and at-home activities like aromatherapy, music therapy, or hobbies to support emotional balance (24).

4. Reducing overload: Promote appropriate academic planning that considers time for simulation labs, hospital practice, class hours, and personal needs. This includes brief, scheduled active breaks (5–10 minutes) between academic tasks and the promotion of healthy rest habits (8).

Additionally, it is important to promote and ensure access to health services provided by the Technical University of Ambato, including general medical care, gynecology, dentistry, clinical and educational psychology. Despite these services being free, many students are unaware of their availability. Therefore, it is recommended to develop informative campaigns to raise awareness of the importance of maintaining comprehensive health during professional training.

Conclusions

This study allowed for the analysis of the stressors affecting nursing students at the Technical University of Ambato during their hospital internships. Among the stressors, lack of competence stood out as the most predominant. This finding reveals that students face both technical and emotional challenges in hospital environments, which can negatively impact their well-being and performance.

Additionally, stress levels were examined according to gender and academic area, showing higher levels in female students and those in both basic and professional areas. This suggests the need for timely interventions, including strategies that take into account both individual and group aspects, in order to safeguard students' physical and psychological well-being throughout their training.

The results confirmed that the "lack of competence" was the only stressor that showed a statistically significant difference between male and female students ($p = 0.008$), while "overload" was close to reaching significance ($p = 0.050$). In contrast, none of the stressors showed statistically significant differences regarding academic area or age (all $p > 0.05$). This suggests that these variables do not have a determining impact on the stress levels reported by the students.

These findings highlight the importance of addressing lack of competence as a critical factor—particularly among female students, who were shown to be the most affected. Previous studies have also emphasized the role of insufficient technical preparation, emotional demands, and the structural conditions of the hospital environment in the generation of stress. Therefore, it is essential to implement strategies that strengthen both clinical competencies and emotional management from the early stages of professional training, ensuring that students are well-prepared to provide quality care to others. As Jean Watson states in her fourth assumption: "First, we must love and care for our own behaviors and treat ourselves with gentleness and dignity before providing care for others. Caring for ourselves is a prerequisite to caring for others."

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Conflicts of Interest

None of the authors have any conflicts of interest to declare.

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