

## COPING STYLES AND STRESS PROFILE IN STUDENTS OF THE DEGREE OF SURGEON

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**Abstract:** The medical career is distinguished by its constant and growing academic demand, which requires students to constantly adapt, this is aggravated by the need for optimal preparation, essential for their future career in an increasingly competitive work environment. Furthermore, this formation takes place during a particular stage of the life cycle, which spans adolescence and early adulthood. The purpose of this study was to identify the level of stress and coping methods used by medical students. The research was carried out using a descriptive, cross-sectional and analytical approach. The instrument used was the Stress Profile developed by Nowack, which was applied to 395 students enrolled in the medical surgeon degree at the Tampico School of Medicine belonging to ``Universidad Autónoma de Tamaulipas``. The results obtained reflect a correlation between the level of stress experienced by the students and several factors, including their study habits, participation in physical exercise, quality of rest and sleep, food and nutrition, in addition to their positive attitude, perception of threat, focus on problem solving and psychological well-being. In addition, it was observed that the ninth semester students presented a medium level of stress, while those of the first semester experienced a low level. Regarding gender, it was identified that the majority of women presented a medium level of stress, while a low level predominated in men. In conclusion, the need to implement a preventive health program aimed at students is emphasized, with the purpose of promoting changes in their lifestyles and in the coping strategies used in stressful situations.

**Keywords:** stress, coping, students, medicine

## INTRODUCTION

At present, the term stress has become common in a variety of contexts and daily activities, covering both the work and educational spheres; workers, educators and students face stressful situations derived from factors present in environments that potentially generate such scenarios; Among these susceptible scenarios, is the university environment, where students are especially prone to experience this condition (Madrid & Moreno, 2019).

Stress represents a factor that implies a risk to health, well-being and quality of life, since it is defined as “the individual’s reaction to circumstances that threaten him and that are difficult to manage” (Pozos et al., 2022, p.18). This response can manifest itself in students of all educational levels and age ranges, and it is a reality present in academic institutions, however, its impact is particularly pronounced in profiles linked to health sciences (Madrid & Moreno, 2019)..

Today, stress can arise for a wide range of reasons, ranging from the expectation of receiving a grade on an important exam, to a conflict with the boss at work, preparing for a trip, or even meeting someone. someone new, among other examples. Consequently, stress becomes an inherent component of the human experience, linked to various situations that encompass emotional states, effort, fatigue, pain, fear, humiliation, and even large-scale unexpected achievements (Becker, 2022).

## DEVELOPMENT

### STRESS

The term stress takes its origin from the field of physics, where it refers to the pressure exerted externally on a material or object, resulting in tensions or distortions. Following this logic, the English physicist Robert Hooke stated that if the stress applied to a material

does not exceed its elasticity limits, then said material does not experience alterations (Camacho, 2020).

At present, from the perspective developed by Selye, the study of stress encompasses various elements that include physiological, perceptual and cognitive aspects, which is why it is defined as “the accumulation of non-specific effects derived from factors such as daily activities, agents that they promote diseases, chemical substances, inadequate lifestyle habits, abrupt changes in work, educational and family environments, among others, which can impact the individual” (Selye, 1960, p. 329).

Derived from the above, the stress approach has been carried out in various ways and under different theoretical approaches, some of them focusing on the organic response and others only studying the stimuli or external factors that trigger the stress response. Being the model of Folkman et al. (1986) one of the most accepted since the subject plays a key role and the stress response originates from the appreciation or cognitive evaluation related to the situation or problem he is facing; where cognitive appreciation refers to the process by which the person evaluates the context of the environment in which they find themselves and whether or not it is relevant to their well-being and if so, in what way it impacts them, for which stress is consequence of the perception that the individual has about the situation and not the situation itself (Tacca & Tacca, 2019).

According to the research by Conti, Mas & Sampol (2018), stressors can be categorized into five different classifications based on their nature. These categories encompass physical, chemical, physiological, intellectual and psychosocial aspects. For their part, Cardona & Caballero (2019) propose a classification based on the magnitude of the stressors, divided into two groups: major

stressors and minor stressors. Major stressors are events that are not influenced by the individual's subjective perception and may include events such as natural disasters, life cycle transitions, changes in residence, or changes in educational level. On the other hand, minor stressors are those in which the appearance of stress is completely determined by the individual perception of the subject.

## ACADEMIC STRESS

Academic stress refers to the “body's reaction to stressful factors that originate in the educational environment and that interfere with behaviors such as studying or attending classes” (Chavarrriaga et al., 2018, p. 2). These factors have an impact on cognitive processes and generate difficulties in students such as short- and long-term memory failures, a decrease in the ability to plan and organize time, concentration and attention problems, which in turn have a direct impact on their academic performance (Mas et al., 2022).

According to Barraza & Barraza (2019), academic stress is a “systemic process of an adaptive and fundamentally psychological nature, which develops in three descriptive stages” (p. 75). In the first place, the student is exposed in the school environment to a series of demands that, through her own evaluation, are considered as stress-generating factors. Second, these stressors induce an imbalance, thus creating a stressful situation that is reflected in a series of symptoms (indicators of the imbalance). Finally, this systemic imbalance leads the student to use coping strategies in order to restore balance (Silva, López & Meza, 2020).

Hasan, Elsayed & Tumah (2018) address the consequences of academic stress, classifying them into four categories according to the area they impact: affective, physical, cognitive and behavioral. In addition, the university environment can promote inappropriate

lifestyle habits that further intensify the appearance of these problems. On the physical plane, a wide range of symptoms arise including migraines, sleep disturbances, digestive disorders, chronic fatigue, vomiting, facial paralysis, reduced immune system and psychosomatic reactions. These symptoms have a negative impact on both academic performance and the general well-being of the individual; stressors are linked to alterations in sleep patterns, changes in eating schedules and little physical activity, all as a result of an excessive workload and intense evaluation periods (Tingal & Briones, 2018).

## COPING

According to Uribe et al. (2018), coping is defined as the “mechanism by which individuals regain a sense of control over their environment and over themselves in response to a stressful experience” (p. 442). Over time, the concept of coping has evolved. Initially, it was based on two different models: the animal model, which originated in behavioral psychology and considered behavioral responses to environmental stimuli, and the model of behavioral psychology. ego, derived from psychological approaches related to psychoanalysis and the defense mechanisms proposed by the latter. However, Lazarus & Folkman (1987) proposed that coping fulfills two main functions: changing or eliminating problematic conditions in the relationship between the person and the environment, and regulating the emotional charge of stress.

Considering these two functions, coping unfolds as a dynamic process, which is intrinsically linked to the way in which a person perceives their context. Herrera et al. (2021) propose two fundamental coping categories, which have been developed by various researchers. The first is problem-focused strategies, which use concrete actions to address the difficulty and reduce stress;

and the second is emotion-focused strategies, which seek to express emotions with the purpose of reassessing the situation from an emotional perspective.

## STRESS AND COPING

The methods of coping with stress are constantly evolving due to various determining factors. According to Cabanach et al. (2018), one of these factors is time, since a person can use different coping methods depending on the changing circumstances from day to day. Another crucial factor is the social environment, since coping strategies are influenced by the interaction between stressors and social resources. In this process, individual personality, mindset and behavior play a significant role (Conti, Mas & Sampol, 2018). In addition, Cachique & Zegarra (2021) argue that the choice of a particular coping strategy is also influenced by situational factors, such as the socialization process, social influences can shape the way people act and behave, even in the face of limitations that could require different responses.

## MATERIALS AND METHODS

The research has a quantitative approach, in relation to the design it is a descriptive, transversal and analytical type of research. The population is made up of students of the medical surgeon career of “Universidad Autónoma de Tamaulipas” of the first, fifth and ninth semester and the sample was made up of a total of 395 students selected for convenience, of which 58.0% (229) are of the female sex and 42.0% (166) belong to the male sex, in regards to age the results obtained show that 43.5% (172) are between 16 and 18 years old, 32.7% (129) between 19 and 21 years, 21.8% (86) between 22 and 24 years and 2.0% (8) between 25 and 27 years.

The technique used was the survey and the instrument to collect the data was the Stress

Profile, which identifies characteristics and behaviors that protect against or contribute to stress-related diseases (Nowack, 2002: 147); This test is based on the Lazarus cognitive-transactional theory used in several tests and generates T scores for 15 dimensions: stress, health habits, exercise, rest/sleep, food/nutrition, prevention, ARC cluster, social support network, behavior type A, cognitive strength, positive appraisal, negative appraisal, threat minimization, problem concentration, and psychological well-being (Haynes et al., 1980: 38). To evaluate the statistical analysis, the SPSS version 2022 was used, systematizing the results through frequency and percentage tables.

## RESULTS AND DISCUSSION

The results describe the coping responses to stress presented by the 395 students of the medical surgeon career, which they showed.

In relation to the categorized stress variable, it was observed that 49.9% (197) obtained a medium level, followed by 45.8% (181) with a low level and finally the high level with 4.3% (17), as shown in the table 1.

	Frequen- cy	Percen- tage	valid per- centage	Accumulated percentage
low stress	181	45.8	45.8	45.8
medium stress	197	49.9	49.9	95.7
high stress	17	4.3	4.3	100.0
Total	395	100.0	100.0	

Table 1. Categorized stress

The crossed analysis carried out between gender and stress resulted in 4.4% (10) of the female sex presenting at a high level, 56.3% (129) at a medium level and 39.3% (90) at a low level; On the contrary, in the male sex the high level was obtained in 4.2% (7), the medium in 41.0% (68) and the low in 54.8% (91), table 2 ( $X^2 = 9.620$   $p = .008$ ).

		categorized stress			Total
		low stress	medium stress	high stress	
female	Count	90	129	10	229
	% within gender of medical students	39.3%	56.3%	4.4%	100.0%
male	Count	91	68	7	166
	% within gender of medical students	54.8%	41.0%	4.2%	100.0%
Total		181	197	17	395
% within gender of medical students		45.8%	49.9%	4.3%	100.0%

Chi-square tests			
	Value	gl	Asymptotic sign (bilateral)
Pearson chi-square	9.620a	2	.008
likelihood ratio	9.649	2	.008
linear by linear association	7.165	1	.007
No of valid cases	395		

Table 2. Cross-analysis between gender and stress

to 0 cells (0.0%) have an expected frequency less than 5. The minimum expected frequency is 7.14.

In relation to the crossed analysis carried out between the semester and stress, it can be observed that in the first semester students the results obtained show a high stress in 1.6% (4), in medium stress 39.0% (96) and in stress under 59.3% (146); in the fifth semester, high stress occurred in 12.5% (7), medium stress in 66.1% (37) and high stress in 21.4% (12); and in the ninth semester it was found that 6.5% (6) present high stress, 68.8% (64) medium stress and 24.7% (23) low stress, table 3 ( $X^2 = 9.620$   $p = .008$ ).

		categorized stress			Total
		low stress	medium stress	high stress	
first semester	Count	146	96	4	246
	% within the semester that the student is taking	59.3%	39.0%	1.6%	100.0%
fifth semester	Count	12	37	7	56
	% within the semester that the student is taking	21.4%	66.1%	12.5%	100.0%
ninth semester	Count	23	64	6	93
	% within the semester that the student is taking	24.7%	68.8%	6.5%	100.0%
	Count	181	197	17	395
	% within the semester that the student is taking	45.8%	49.9%	4.3%	100.0%

Chi-square tests			
	Worth	gl	Asymptotic sign (bilateral)
Pearson chi-square	9.62 <sup>a</sup>	2	.008
likelihood ratio	9.649	2	.008
linear by linear association	7.165	1	.007
No of valid cases	395		

Table 3. Cross-semester analysis and stress

to. 0 cells (0.0%) have an expected frequency less than 5. The minimum expected frequency is 7.14.

Table 4 shows that the Pearson correlation coefficient indicates that there is a significant relationship between stress and health habits ( $r = .440$ ,  $p = .000$ ), and also between health habits and exercise ( $r = .395$ ,  $p = .000$ ), health and rest/sleep habits ( $r = .472$ ,  $p = .000$ ) and health and eating/nutrition habits ( $r = .371$ ,  $p = .000$ ).

Table 5 shows that the Pearson correlation coefficient indicates that there is no significant relationship between prevention, ARC (use of drugs, alcohol substances), social support network, type A behavior and cognitive strength.

Table 6 shows that the Pearson correlation coefficient indicates that there is a significant relationship between positive assessment and minimization of the threat ( $r = .427$ ,  $p = .000$ ), positive assessment and concentration on the problem ( $r = .405$ ,  $p = .000$ ) and positive appraisal and psychological well-being ( $r = .514$ ,  $p = .000$ ), also between threat minimization and psychological well-being ( $r = .356$ ,  $p = .000$ ).

Stress can operate as a trigger that triggers the body's immediate response, allowing complex tasks to be performed by increasing the speed of execution. In this sense, it becomes a kind of coping style. It must be noted that it was observed that medium stress levels were manifested in ninth-year students, while first-year students experienced low stress levels. In relation to gender, it was found that women presented medium stress levels, while men showed low stress levels.

The study carried out by Lemos, Henao & López (2018) revealed that approximately 64% of the medical students who were evaluated presented notable levels of stress. Furthermore, about half of these students experienced depression and anxiety. In line with these findings, Otero et al. (2020) point out that the school grade has an impact on the presence of stress, being more prominent in students in advanced stages of the career, particularly with regard to behavioral indicators. Research conducted by Cabanach et al. (2018), Lemos et al. (2018), as well as Llanes et al. (2022), have identified that medical students enrolled in public universities in Mexico, who express negative assessments and do not use threat minimization as a stress coping strategy, are more likely to experience symptoms of chronic stress.

The divergences highlighted in these investigations between the female and male genders are explained through the analysis of coping strategies different from those already

		stress	health habits	exercise	rest/sleep	food/nutrition
stress	Pearson correlation	1	.440**	.016	.317**	.125*
	Next (bilateral)		.000	.751	.000	.013
	N	395	395	395	395	395
health habits	Pearson correlation	.440**	1	.395**	.472**	.371**
	Next (bilateral)	.000		.000	.000	.000
	N	395	395	395	395	395
exercise	Pearson correlation	.016	.395**	1	-.038	.058
	Sig. (bilateral)	.751	.000		.454	.251
	N	395	395	395	395	395
rest/sleep	Pearson correlation	.317**	.472**	-.038	1	.152**
	Next (bilateral)	.000	.000	.454		.002
	N	395	395	395	395	395
food/nutrition	Pearson correlation	.125*	.371**	.058	.152**	1
	Next (bilateral)	.013	.000	.251	.002	
	N	395	395	395	395	395

Table 4. Pearson's correlation analysis between variables stress, health habits, exercise, rest/sleep, and eating/nutrition

\*\* . The correlation is significant at the 0.01 level (two-sided).

\* . The correlation is significant at the 0.05 level (two-sided).

		prevention	ARC (substance use drugs alcohol)	social support network	type A behavior	cognitive strength
prevention	Pearson correlation	1	-.267**	.003	.278**	-.063
	Next (bilateral)		.000	.960	.000	.210
	N	395	395	395	395	395
ARC (substance use drugs alcohol)	Pearson correlation	-.267**	1	.097	-.077	-.007
	Next (bilateral)	.000		.053	.125	.884
	N	395	395	395	395	395
social support network	Pearson correlation	.003	.097	1	.125*	.116*
	Next (bilateral)	.960	.053		.013	.021
	N	395	395	395	395	395
type A behavior	Pearson correlation	.278**	-.077	.125*	1	-.178**
	Next (bilateral)	.000	.125	.013		.000
	N	395	395	395	395	395
cognitive strength	Pearson correlation	-.063	-.007	.116*	-.178**	1
	Next (bilateral)	.210	.884	.021	.000	
	N	395	395	395	395	395

Table 5. Pearson correlation analysis between prevention variables, ARC, social support network, type A behavior and cognitive strength

\*\* . The correlation is significant at the 0.01 level (two-sided).

\* . The correlation is significant at the 0.05 level (two-sided).

		positive feedback	negative feedback	threat minimization	concentration on the problem	psychological well-being
positive feedback	Pearson correlation	1	-.232**	.427**	.405**	.514**
	Next (bilateral)		.000	.000	.000	.000
	N	395	395	395	395	395
negative feedback	Pearson correlation	-.232**	1	-.198**	.078	-.297**
	Next (bilateral)	.000		.000	.124	.000
	N	395	395	395	395	395
threat minimization	Pearson correlation	.427**	-.198**	1	.243**	.356**
	Next (bilateral)	.000	.000		.000	.000
	N	395	395	395	395	395
concentration on the problem	Pearson correlation	.405**	.078	.243**	1	.246**
	Next (bilateral)	.000	.124	.000		.000
	N	395	395	395	395	395
psychological well-being	Pearson correlation	.514**	-.297**	.356**	.246**	1
	Next (bilateral)	.000	.000	.000	.000	
	N	395	395	395	395	395

Table 6. Pearson's correlation analysis between variables positive appraisal, negative appraisal, threat minimization, concentration on the problem and psychological well-being

\*\* . The correlation is significant at the 0.01 level (two-sided).



mentioned, such as emotional elements, problem solving, cognitive approaches and social support (Parrillo & Gómez, 2019). However, it is common to find studies in various countries that link academic stress with anxiety, the latter manifesting itself in various professions and educational settings (Peláez et al., 2021).

The results obtained by Pozos et al. (2022) are in line with the findings of this study, in which it is observed that the female sex registers a higher average in chronic stress scores, as well as in the variables related to coping compared to the male sex.

## CONCLUSIONS

Taking into account that the impacts of stressors on the health, cognitive abilities and well-being of students are conditioned by the individual perception of the situation and the way in which it is dealt with, we conceptualize coping as the adaptation strategies necessary to deal with it. the demands generated by stress situations, using the available resources

to mitigate the negative effects and continue functioning in physical, psychological and social aspects; From this perspective, we observe that coping functions involve regulating emotions in stressful contexts and adjusting or modifying the interaction between the person and the stressful environment.

In addition, we understand that coping mechanisms are specific thought and behavior patterns that can vary depending on the situation and the people involved. Based on the results obtained in this research, it is proposed to implement a preventive health program aimed at students, with the purpose of promoting changes in their lifestyles and coping strategies in stressful situations, whose objective would be to improve both the health of students and their academic performance, as carried out by international universities with similar experiences that already have with preventive mental health programs and that could serve as a model for their implementation.

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