





ORIGINAL

## Academic stress in first year students in the career of Medical Surgeon of the Facultad de Estudios Superiores Zaragoza. UNAM, 2022

### Estrés académico en alumnos de primer año de la carrera de Médico Cirujano de la Facultad de Estudios Superiores Zaragoza. UNAM, 2022

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#### ABSTRACT

**Introduction:** a descriptive and exploratory non-experimental study was carried out with the purpose of knowing the characteristics of academic stress generated in Medicine students in the fourth module of the first year in the 2022 generation of the degree in Medical Surgeon of the Facultad de Estudios Superiores (FES) Zaragoza, to determine which are the most relevant factors of academic stress.

**Methods:** the sample consisted of 200 students of the FES Zaragoza (UNAM). The Systematic Inventory of Academic Stress (SISCO) was used to obtain the data.

**Results:** it was found that the environmental stimuli most frequently identified as stressors were work overload, teacher evaluations, as well as the character and personality of the teachers. The most frequent stress indicators are sleep disorders, chronic fatigue, and drowsiness. Being thus the most frequently used coping strategies, assertive ability, elaboration of a plan and execution of their tasks as well as self-praise.

**Conclusions:** it can be concluded that there are differences in the frequency of presentation of the characteristics of academic stress, the importance of these is highlighted, since this will allow implementing some solutions such as the design and implementation of workshops or programs for better stress management in the academic environment with this type of population.

**Keywords:** Academic Stress; Medical Students; Stress Factors; Coping Strategies.

#### RESUMEN

**Introducción:** se realizó un estudio descriptivo y exploratorio de carácter no experimental con la finalidad de conocer las características del estrés académico que genera en estudiantes de Medicina en el cuarto módulo de primer año en la generación 2022 de la licenciatura en Médico Cirujano de la Facultad de Estudios Superiores (FES) Zaragoza, para determinar cuáles son los factores más relevantes del estrés académico.

**Métodos:** la muestra fue conformada por 200 alumnos de la Facultad de Estudios Superiores Zaragoza (UNAM). Para obtener los datos, se empleó el Inventario sistemático cognoscitivista (SISCO), de estrés académico.

**Resultados:** mediante este se encontró que los estímulos del medio que son identificados como estresores con más frecuencia es la sobrecarga de trabajo, evaluaciones de los profesores, así como el carácter y personalidad de los profesores. Los indicadores de estrés con mayor frecuencia son trastornos de sueño, fatiga crónica y somnolencia. Siendo así las estrategias de enfrentamiento utilizadas con más frecuencia, la habilidad asertiva, elaboración de un plan y ejecución de sus tareas al igual que elogios a sí mismo.

**Conclusiones:** se puede concluir que existen diferencias en la frecuencia de presentación de las características del estrés académico, se resalta la importancia de éstas, ya que esto permitirá implementar algunas soluciones tales como el diseño e implementación de talleres o programas para un mejor manejo del estrés en el ámbito académico con este tipo de población.

**Palabras clave:** Estrés Académico; Estudiantes de Medicina; Factores de Estrés; Estrategias de Enfrentamiento.

## INTRODUCTION

Academic stress is the pressure and emotional tension experienced by students because of the demands and expectations associated with their academic performance and responsibilities in the educational environment. Stress can take many forms, including anxiety, worry, fatigue, difficulty concentrating, and other stress-related symptoms.<sup>(1)</sup>

Stress among students can be caused by various factors, including exams, assignments, deadlines, competition with peers, workload, time constraints, and pressure to achieve high grades. This type of stress can negatively impact the physical and mental well-being of students, which can interfere with their academic performance and overall quality of life.<sup>(2,3)</sup>

This refers specifically to the cognitive and emotional processes through which students experience the impact of academic stressors. Stress is subjectively perceived as individuals evaluate various aspects of their educational environment as either threats or challenges, as demands they feel capable of adequately responding or believe they lack the necessary resources, or as factors that are or are not under their control, among others. These evaluations are associated with anticipatory emotions such as worry, anxiety, hope, and confidence, as well as outcome emotions such as anger, sadness, satisfaction, and relief.<sup>(4)</sup>

The Cognitive Systemic Model of Academic Stress (SISCO) defines four structural components: stressors, cognitive appraisal, coping, and perceived manifestations. These components interact dynamically with the environment.<sup>(5)</sup> Students experience indicators of imbalance in response to stressful situations, which can be classified as physical, psychological, or behavioral.

Physical indicators may include bodily reactions such as nail biting, muscle tremors, migraines, insomnia, digestive problems, and drowsiness.<sup>(6)</sup>

Psychological indicators are related to a person's cognitive or emotional functions, such as restlessness, concentration issues, depression, and anxiety.

The coping strategies that individuals implement in response to stress can be simultaneously considered as both effects and regulators of academic stress. Stress can cause immediate effects on students. Depending on how they assess the situation, they will cope with it in different ways.<sup>(9)</sup> Each strategy can be more or less suitable for different situations and, as a result, more or less effective in preventing academic stress from negatively impacting the student's well-being, health, or performance. This is why they act as regulators. Coping is closely related to the subjective perception of stress. Therefore, both processes will be addressed together in a later section.<sup>(10,11)</sup>

During the 1960s, research emphasized the significance of academic stressors and their impact on students' health and well-being.<sup>(12)</sup> Studies reported that three months prior to exams, subjects experienced psychosomatic symptoms such as stomach pain and fatigue. Additionally, there was an increase in the consumption of sedatives and sleeping pills.<sup>(13)</sup> Over the weekend before the exams, the psychosomatic symptoms significantly increased in magnitude and variability. Some students even fell ill, likely due to a state of increased vulnerability. Finally, on the morning of the exams, most students reported abdominal pain, diarrhea, and breakfast intolerance. The majority reported a significant decrease in anxiety as soon as the first exam began.<sup>(14,15)</sup>

Various aspects of the educational system that could impact the mental health of medical students are mentioned, including teaching and evaluation methods, information overload deemed irrelevant by students, time constraints, and communication issues with professors. Although research and theorizing on academic stress are relatively recent, starting in the 1990s, there have been three main areas of focus: stressors, symptoms, and research based on the transactional model.<sup>(16)</sup>

Significant results have shown higher levels of anxiety in first-year students compared to sixth-year students. The primary sources of stress were academic overload, time constraints for completing academic tasks, and taking exams.<sup>(8)</sup>

Academic stress related to assessment has been extensively researched. However, sometimes it has been used as a means to test hypotheses or theoretical models about stress in general, rather than as a subject of study.<sup>(17)</sup>

The overall stressful nature of exams results from various reasons that are often incompatible.<sup>(18)</sup> Commonly considered factors include evaluation apprehension, fear of failure, and other cognitive and affective elements. These factors are all linked to our subjective assessment of the situation and our perceived ability to cope, as well as our internal-external, controlled-uncontrolled causal attributions.<sup>(19)</sup>

Other factors associated with overload and role ambiguity, which often accompany academic assessment, should be added: concentration of exams in certain periods of the course; high level of demand or extensive

material to be covered; uncertainty of students about the professors' expectations, how the professors will assess and grade their performance and learning, and subsequently what is the best way to prepare for an exam. Another factor to consider is the frequent, reasonable doubt regarding the adequacy of the evaluation method to the professors' instruction and the subject's objectives. Exams are considered the most powerful academic stressor due to their significant effects on behavioral, cognitive, and physiological levels.<sup>(20,21,22)</sup>

The aim of this study is to comprehend the characteristics of academic stress encountered by first-year students who are enrolled in the Bachelor of Medicine and Surgery program at the Faculty of Higher Studies Zaragoza, UNAM.

## METHODS

A descriptive, exploratory and non-experimental study. The aim of this study was to identify and analyze the characteristics of academic stress experienced by first-year medical students at the Faculty of Higher Studies Zaragoza, UNAM, between January and December 2022.

The study was carried out on a sample of 200 students enrolled in the fourth module of the Bachelor of Medicine and Surgery program at the Faculty during the 2022 academic year. The study's inclusion criteria required enrollment in the course and voluntary consent to participate. The exclusion criteria included incomplete surveys and refusal to participate.

The study employed the Cognitive Systematic Inventory of Academic Stress (SISCO), a self-administered questionnaire developed by Barraza.<sup>(23)</sup> The inventory uses a Likert-type scale to assess the perception of stress, stressors, stress symptoms, and coping strategies.

The SISCO was completed by the students during the academic semester. Confidentiality of the participants was ensured, and they were informed about the purpose of the study. The data were collected and analyzed in accordance with ethical principles for research involving human subjects.

The data collected through the SISCO were statistically analyzed. Descriptive statistics were employed to quantify the frequency and level of stress, identify the major stressors, and the most common physical, psychological, and behavioral responses. The most frequently used coping strategies among students were also evaluated.

The research was conducted in accordance with ethical guidelines for research involving human subjects. Informed consent was obtained from all participants. Confidentiality and anonymity of responses were also guaranteed.

## RESULTS

After administering the survey, it was found that 100 % of students responded affirmatively when asked if they had experienced stress at some point during the academic cycle.

When asked about their level of nervousness, 95 students (47,5 %) responded "almost always", 49 students (24,5 %) responded "sometimes", 49 students (24,5 %) responded "always", 3 students (3 %) responded "rarely", and 1 student (0,5 %) responded "never".

Table 1 shows the identified sources of stress.

Factors that cause stress in students	Always		Almost always		Sometimes		Rarely		Never	
	N	%	N	%	N	%	N	%	N	%
Competition among peers	38	41	20,5	41	76	38	34	17	11	5,5
Excessive workload (tasks and assignments)	60	30	91	45,5	42	21	5	2,5	2	1
Professors' personality and character	36	18	67	33,5	75	37,5	8	4	14	7
Professors' evaluations (exams, essays, and research papers)	77	38,5	77	38,5	40	20	5	2,5	1	0,5
Type of work requested by professors (research topics, worksheets, essays, and concept maps)	27	13,5	73	36,5	72	36	15	7,5	13	6,5
Limited time available to complete the work	66	33	70	35	39	19,5	20	10	5	2,5

Table 2 shows the identified physical, psychological, and behavioral reactions.

**Table 2.** Physical, psychological, and behavioral reactions. Faculty of Higher Studies Zaragoza, UNAM. 2023

Physical, psychological, and behavioral reactions	Always		Almost always		Sometimes		Rarely		Never	
	N	%	N	%	N	%	N	%	N	%
<b>Physical reactions</b>										
Sleep disorders (insomnia or nightmares)	20	10	42	21	80	40	46	23	12	6
Chronic fatigue (constant tiredness)	45	22,5	72	36	56	28	10	5	17	8,5
Headaches (migraines)	30	15	41	20,5	62	31	49	24,5	18	9
Digestive problems, abdominal pain, or diarrhea	51	25,5	37	18,5	55	27,5	42	21	15	7,5
Scratching, nail biting, rubbing	49	24,5	47	23,5	33	16,5	33	16,5	38	19
Drowsiness or an increased need for sleep	68	34	68	34	37	18,5	22	11	5	2,5
<b>Psychological reactions</b>										
Restlessness (inability to relax and be calm)	37	18,5	58	29	70	35	30	15	5	2,5
Feelings of depression and sadness (low mood)	22	11	49	24,5	63	31,5	37	18,5	29	14,5
Anxiety, distress, or despair	35	17,5	65	32,5	57	28,5	28	14	15	7,5
Concentration issues	42	21	44	22	81	40,5	30	15	3	1,5
Feelings of aggression or increased irritability	25	12,5	27	13,5	57	28,5	47	23,5	44	22
<b>Behavioral reactions</b>										
Conflicts or a tendency to argue or discuss	10	5	20	10	78	39	54	27	38	19
Isolation	33	16,5	37	18,5	68	34	51	25,5	11	5,5
Lack of motivation to complete academic assignments	19	9,5	52	26	81	40,5	16	8	32	16
Changes in food consumption	28	14	52	26	62	31	25	12,5	33	16,5

Additional reactions reported included: “never” by 185 people (92,5 %), “rarely” by 1 person (0,5 %) (loss of interest in their studies), “sometimes” by 3 people (1,5 %) (1. working ahead on assignments in other classes, 2. feeling isolated from family, 3. consuming alcohol), and “almost always” by 4 people (2 %) (1. not eating, 2. over thinking things, 3. feeling guilty). 4.- drug use), “always” 7 people (3,5 %), (1.-feeling inadequate, 2.-crying, 3.-drinking energy drinks, 4.-guilt (2 people), 5.-low self-esteem, 6.-diagnosed neurodermatitis).

Table 3 shows the strategies for coping with the situation that caused concern or nervousness.

**Table 3.** Strategies for coping with situations of concern or nervousness. Faculty of Higher Studies Zaragoza, UNAM. 2023

Coping strategies	Always		Almost always		Sometimes		Rarely		Never	
	N	%	N	%	N	%	N	%	N	%
Assertive skills (defending one’s preferences, ideas, or feelings without harming others)	22	11	78	39	72	36	22	11	6	3
Planning and executing tasks	15	7,5	71	35,5	62	31	39	19,5	13	6,5
Self-praise	22	11	60	30	38	19	55	27,5	25	12,5
Religious practices (such as prayer or attending religious services)	15	7,5	7	3,5	11	5,5	49	24,5	118	59
Search for information about the situation	10	5	37	18,5	66	33	52	26	35	17,5
Utterance and confidence (verbalizing the worrying situation)	12	6	45	22,5	65	32,5	49	24,5	29	14,5

Other strategies reported included “never” 195 individuals (97,5 %), “sometimes” 4 individuals (2 %) (1.- performing breathing exercises 2 individuals, 2.- crying, 3.- engaging in sports), “almost always” 4 individuals (2 %) (1.- therapy with psychologist and psychiatrist, 2.- comparing myself to my peers, 3.- ignoring problems, 4.- talking to myself), “always” 1 person (0,5 %) (being empathetic).

## DISCUSSION

Out of the 200 surveyed students, 47 % showed a moderately high level of stress, while 25,5 % exhibited a high level. Other studies have reported that 41 % of health field students experience high levels of stress, with

25 % experiencing a medium level. On the other hand,<sup>(20,24)</sup> it has been noted that 85 % of students experience high levels of academic stress. It is important to acknowledge that the Medicine and Surgery career is highly stressful compared to other health-related professions.<sup>(25)</sup>

The evaluations indicate that the most common cause of stress is an overload of tasks and academic work, accounting for 45 %. Professors' evaluations are the second most common cause, accounting for 38,5 %, followed by the professors' personality and character accounting for 37,5 %. Likewise, Aloufi *et al* found that the main stressor was the professors' personality. In the Medicine and Surgery career, each subject is divided into different areas, including practice and theory. These areas require tasks and assignments for which students often feel they don't have enough time.<sup>(20)</sup> Additionally, the evaluation factor also demands theoretical and practical exams. Finally, at the end of each module, a modular exam is taken which becomes an extremely stressful factor.

The most common physical reactions observed among medical students at the Faculty of Higher Studies Zaragoza were sleep disorders, including insomnia and nightmares, reported by 40 % of participants. This was followed by chronic fatigue, experienced by 36 % of students, and increased drowsiness or increased need for sleep, reported by 34 %. Gaston-Hawkins *et al.* similarly identified insomnia, migraines, chronic fatigue, and drowsiness as prevalent symptoms.<sup>(26)</sup> Furthermore, chronic fatigue, drowsiness, and digestive issues were frequently reported, with the most common symptoms being increased drowsiness, chronic fatigue, and sleep disorders.<sup>(27)</sup> Notably, sleep disorders, particularly difficulty falling asleep or sleeping without being able to rest well, were attributed to the perceived lack of time to complete tasks, assignments, and study effectively.<sup>(28)</sup>

Concerning the psychological reactions shown in our sample, the main reaction was concentration problems (40,5 %), followed by restlessness (inability to relax and be calm) as a second factor (35 %), and anxiety or distress (32,5 %). De Dios Duarte *et al.* identified restlessness, anxiety, and concentration issues as the main factors, as well as anxiety and distress.<sup>(29)</sup>

Within behavioral reactions, we observed a lack of motivation for performing academic tasks (40 %), conflicts or a tendency to argue or discuss (39 %), and an increase or decrease in food consumption (30,5 %). These findings align with those reported in the literature, which also noted the presence of conflicts, lack of motivation, and changes in food intake.<sup>(30)</sup>

In regards to coping strategies for stress, we found a greater tendency to deal with it through assertiveness (defending one's preferences, ideas, or feelings without harming others) at 39 %, followed by planning and executing tasks at 35,5 %, and self-praise less frequently at 30 %. These results are similar to those reported by Zárata-Depraect *et al.* who found that individuals resort to religion practice, assertiveness, and planning and execution.<sup>(31)</sup>

## CONCLUSIONS

The level of academic stress exhibited by first-year Medicine and Surgery students at the Faculty of Higher Studies Zaragoza is moderately high, based on their physical, psychological and behavioral responses. The results presented in this study were obtained from a population of Medicine and Surgery students. The research findings yielded the following data.

1. The main causes of stress are overload of tasks and academic work, professors' evaluations and the type of assignments required by professors.
2. The main physical signs in students are sleep disorders, chronic fatigue, and drowsiness or increased need for sleep. These factors affect concentration and academic performance.
3. The primary psychological reactions include concentration issues, restlessness, and feelings of anxiety, distress, or despair. These reactions are also factors of irritability that similarly affect academic performance.

Due to the various factors, there are different behavioral responses, including lack of motivation to complete academic work, conflicts or a tendency to argue or debate, and increased or decreased food consumption.

The majority of students deal with stress through various strategies, including assertiveness, planning and executing tasks, and self-praise.

The authors of this study recommend conducting workshops on psychological therapy, study strategies, and relaxation techniques aimed at improving the quality of life of students and keeping a good mental health for their own well-being and for the well-being of those around them, including their peers, family members, professors, and patients. Addressing stress is crucial in the Medicine and Surgery career, providing continuous support to students throughout their education, and offering class tutors for support.

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## CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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