



ARTICLE REVIEW

Characterization of psychological stress in university students

Lisset Puentes-Martínez ¹✉ , Geydi Pérez-Montano ¹ , Maidielis Castillo-Morejón¹ , Ana Beatriz Díaz-Rábago ¹ 

¹University of Medical Sciences of Pinar del Río. Faculty of Medical Sciences "Dr. Ernesto Guevara de la Serna". Pinar del Río, Cuba.

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ABSTRACT

Introduction: stress is a phenomenon that affects the global population, with an increasing incidence today, causing various diseases and disorders. University students—especially those pursuing health-related degrees—also experience the effects of this process, linked to their heavy academic workload and other factors.

Objective: to describe behavioral responses to stress among university students.

Methods: forty scientific articles on the subject were reviewed from the EBSCO, Medline, Scielo, and Google Scholar databases, of which 25 were used as references. Most of the articles were published within the last five years, and others were selected for their relevance.

Development: stress arises when we perceive a threat for which we lack sufficient resources. When prolonged, it causes various pathologies—both physical and mental—affecting the entire organism. University students, burdened with numerous subjects, pressure from faculty and family, and age-related issues, are highly susceptible to stress, particularly academic stress, with manifestations that may lead to school dropout. Different coping styles are observed among these young people. Students of medical sciences perceive the demands of university life with particular intensity due to the characteristics of their training.

Conclusions: the presence of academic stress is evident among university students, accompanied by associated disorders and diverse coping styles.

Keywords: Stress, University Students, Academic Stress.

INTRODUCTION

Stress is defined as the individual's response to threatening conditions that are difficult to manage. When stress occurs in a school environment and numerous stressors are perceived, individuals increase cognitive and behavioral efforts—known as coping styles or strategies—to adapt and minimize physical and psychological harm.⁽¹⁾

Authors define stress as a dynamic process arising from the interaction between the individual and their environment, involving two evaluations: first, whether the situation is beneficial or harmful; and second, whether the person has the necessary resources to meet the demand. Stress emerges when the perceived demand exceeds available resources. It is important to emphasize that stress is an adaptive and everyday response that helps individuals face challenges or perceived threats. However, when excessive or chronic, it can negatively affect health.⁽²⁾

Currently, stress is considered a public health issue. Continuous exposure to high levels of stressors can trigger psychological or physical reactions, and if persistent, these negative effects may lead to disease and impact emotions and learning.⁽³⁾

Stress can arise from different circumstances and contexts. In the university setting, students face specific challenges and stimuli—such as new schedules, constant evaluations, and uncertainty about their professional future—that can be perceived as stressors. To identify the particular characteristics that arise in the educational environment, the term *academic stress* is used to describe stress experienced in this context.⁽²⁾

Universities are responsible for training professionals capable of innovation, research, and social transformation through educational processes that involve all human dimensions. To fulfill this mission, higher education must implement strategies that respond to ongoing social, political, economic, and cultural changes. Consequently, university education constitutes a period of considerable tension for students worldwide, associated with high levels of stress, anxiety, and depression.⁽⁴⁾

Academic stress encompasses mental and emotional burdens that students interpret as stressors—that is, threats or challenges to which they may or may not respond effectively. Barraza defines it as a systemic, adaptive, and psychological process that arises when students face academic demands, leading to emotional imbalance and health issues. It comprises three factors: Stressful stimuli academic elements or activities that overload students, causing negative emotions. Symptoms physical, psychological, or behavioral manifestations in response to stressors. Coping strategies behaviors aimed at restoring systemic balance—such as positive reframing, discussing concerns, or seeking professional help.⁽⁵⁾

Based on the foregoing, this study aims to describe stress behavior among university students.

To conduct this study, scientific literature was reviewed to gather information on stress among higher education students using Medline, Scielo, and Google Scholar databases. Forty articles were examined, and 25 were selected as references. Most publications were from the last five years, with additional works chosen for citation frequency and methodological relevance. Inclusion criteria were studies conducted among university students of any discipline, including health sciences, published in English or Spanish. Advanced search strategies using the terms "stress" and "university students" were employed.

Ethical principles were upheld, respecting the authorship and contributions of the reviewed studies.

DEVELOPMENT

The term *stress* originates from physics but is now widely studied in health sciences, particularly in the health-disease process, with three main variants: biological, psychological, and social. The first two are the most extensively studied, and our focus is on *psychological stress*, a concept strongly influenced by Hans Selye's biological perspective.⁽⁴⁾

Arpi Barazorda,⁽⁶⁾ describes stress as a broad spectrum of experiences involving tension, fatigue, and nervousness, including academic and occupational pressure. In the 19th century, Claude Bernard emphasized the importance of understanding the origin of stress through the distinction between "stressful stimuli" and "stressful situations."

Stress has been linked to numerous pathologies and problems across personal, academic, occupational, and social domains. It may exacerbate pre-existing conditions, creating complex challenges for social intervention. Stress levels among young people have risen significantly, as they are exposed to multiple stressors and are therefore at higher risk of developing mental health problems such as anxiety, adjustment, conduct, emotional, or developmental disorders, as well as substance use and family conflicts.⁽⁷⁾

Coping—a less common but essential term for understanding stress response—refers to the psychological resources individuals use to manage stress. It plays a key role in determining quality of life and psychological well-being. Coping is defined as "the process by which individuals manage the demands of the person-environment relationship appraised as stressful and the emotions generated by it."⁽⁸⁾

Among young people, stress arises not only from academic workload, deadlines, and available resources but also from family factors, such as conflict typical of adolescence and strained parental relationships. Parents who criticize or reject their children experience more conflicts with them.⁽⁹⁾

Stress linked to educational demands is known as *academic stress*. According to the systemic cognitive model, it results from discomfort caused by stressors that disrupt systemic equilibrium, forcing the individual to mobilize resources to restore it. A tolerable level of stress can serve as a motivator to face life's challenges; however, chronic stress can seriously harm students' emotional, psychological, and physical health.⁽¹⁰⁾

Academic stress has also been conceptualized as a systemic process of an adaptive and essentially psychological nature, which is presented descriptively in three moments: the student is subjected to stressors, they cause a systemic imbalance (stressful situation), which manifests itself in a series of symptoms (indicators of imbalance), that systemic imbalance forces the student to take coping actions to restore systemic balance.⁽¹¹⁾

Other authors also propose, following the same idea, that stress associated with the educational environment or academic stress is defined as those stimuli or factors of the educational environment (autonomy, events, adaptation problems, interpersonal relationships between teacher-student, student-student, among others) that pressure or overload the student and influence their performance; which is currently a problem of global scope with an upward trend.⁽¹²⁾

To Marín Laredo MM,⁽¹³⁾ any situation that disturbs harmony and interferes with class activities can be a source of stress and, certainly, affects academic functioning in the educational event. In the state of the art on academic stress, prepared from a database consisting of 60 researchers conducted between 1996 and 2006 in Latin America and Spain, 11 stressors are identified, among which are: lack or limit of time to be able to comply with academic activities, academic overload, study overload, homework or school work, taking an exam, the study task, and the evaluation of teachers.⁽¹⁴⁾

Lara Barrón AM,⁽¹⁵⁾ mention that among the consequences presented by academic stress, like other types of stress, are individual physical manifestations, such as increased heart rate, sweating, and muscle tension in arms and legs; shortness of breath and grinding of teeth, sleep disorders, chronic fatigue, headache, and digestive problems. The most relevant behavioral reactions are deterioration of performance, tendency to argue, isolation, apathy, smoking, alcohol or other consumption, absenteeism, nervousness, increased or reduced appetite and sleep.

Entering University usually coincides with the second stage of adolescence and, in turn, constitutes entry into a social development situation that is distinguished by new complexities for the development of young people. This transition forces young people to develop a series of knowledge, skills, abilities, attitudes, and values that allow them to actively adapt to new demands, new types of interactions between peers, as a couple, and also to new opportunities for freedom and pleasures that are much more independent of family tutelage.⁽¹⁶⁾

Undoubtedly, the incorporation of a student into the university implies facing important changes in the way of approaching learning that occurs, greater autonomy and initiative, changes in the methodology of teaching and evaluation of competences, and, in many cases, in the personal sphere, changes that occur in social support networks and application to a new environment, factors that could increase the risk that students in accessing the university generate clinical symptoms.⁽¹⁷⁾

For the particular case of stress in university students, some antecedents can be cited that constitute a starting point for the study of the object and corresponding field of action. Barraza studied academic stress in 60 postgraduate students in Mexico.

The results showed that postgraduate students presented a moderately high level of stress, eight attributing this level to the overload of tasks and the limited time to do the work. Similarly, they were able to observe that the symptoms that indicated the presence of stress were sleep disorders and concentration problems. In that same year, García Bravo,⁽¹⁸⁾ in the United States evaluated academic stress in 392 students between North Americans and foreigners from two different universities, applying the Demographic Information Questionnaire and the Academic Stress Scale. They found that there are cultural differences in the perception and management of stress, since North American students reported greater stress than foreigners.

Other investigations have also explored the relationship between stress and academic performance, as well as its influence on the emotional well-being of students. Pozos-Radillo BE, Preciado-Serrano ML and their colleagues, ⁽¹⁾ highlight the direct influence of stress on academic performance, underlining the importance of understanding this relationship to implement effective intervention strategies. Likewise, Avalos Guijarro A de Á,⁽¹⁹⁾ point out the relevance of perceived emotional intelligence in the subjective well-being of students, highlighting its connection with perceived stress and academic performance.

There are resources that allow minimizing the consequences described above. Stress coping strategies are effective tools to modify the stressor agent and facilitate emotional control through the regulation of emotions caused by stressful situations. The use of appropriate coping strategies can minimize the risks and remedy the state of stress in which a student finds himself. In this sense, and considering that each individual reacts differently to a stressful event, it is necessary to identify appropriate strategies to reverse the stressful condition and its symptoms.⁽²⁰⁾

Coping styles are procedures in which the person reacts to a stressful situation that depends on their values, goals, or beliefs. There are types of coping style that undoubtedly apply in the situation, it is worth mentioning that a common style is, "Focused on the problem situation", where the resolution of the central problem is carried out. Coping strategies are the actions specialized in being in direct contact with the environment that triggers stress.

In relation to coping strategies, it is appreciated in research carried out on university students in Santiago de Chile, that the one referring to positive reevaluation is different and greater proportionally in Occupational Therapy with 53,1 % compared to the other careers that do not reach 15 % ($p < 0,01$). This coincides with the psychological reactions before academic stress and what was indicated by Clarke and his collaborators in their study with South African students.⁽²¹⁾

Other studies suggest that there are various coping styles in the face of stress, some of them in nursing students are in the first place active emotional coping that includes humor, positive reformulation, etc.; in the second place, problem-centered coping strategies that include active coping, planning, etc.; and finally the least used coping strategies were those of avoidance. Similarly, it was shown that university students of some career in the health area maintain preference for coping strategies such as positive reevaluation, the search for support and planning.⁽²²⁾

Precisely, in careers in the medical sciences, the phenomenon of stress has been investigated by several authors, and how it affects students of these specialties. Medical education constitutes a period of many tensions for students around the world and has been associated with high levels of stress, anxiety, and depression. Medical universities are responsible for ensuring that students have adequate knowledge and skills before starting their professional lives. Unfortunately, some aspects of the training process lead to negative consequences for their emotional and physical health.⁽²³⁾

Medicine is one of the most stressful fields of education, due to high academic and professional demands. The large curriculum of medicine, periodic exams, and the fear of failing are constant sources of stress and anxiety for students of the career. For this reason, the presence of stress has been reported in the field of medicine more frequently than in other professional areas. It is well documented that medical students experience high levels of stress and mental disorders, for example, depression. When exploring the adverse effects of anxiety and depression on

academic results in them, it was found that those who had elevated levels of these stressors, when evaluated, presented low academic performance ⁽²³⁾

In the case of Nursing students, in a study carried out at the University of Sonora, the presence of a moderate level of stress could be verified and, in addition, the use, in general, of an active emotional coping style. According to various studies, those who use problem-centered coping strategies and more functional emotional strategies adapt better, being able to obtain greater success in the academic, work, etc. 16 when facing events more actively.⁽²⁴⁾

For nursing students there are many stressors. described the main sources of stress for nursing students; they found that academic and clinical areas generated 78.4% of stressful events.⁽²⁴⁾

The presence of Generalized Anxiety Disorder in Stomatology students was also reported during the period of the COVID-19 pandemic. The desire to abandon their study programs by the participants was related to the presence of anxiety and the self-perception of these that the COVID-19 pandemic has impacted their mental health.⁽²⁵⁾

On the other hand, in a study with 123 Psychology students 19, they found that the coping strategies used most frequently were positive reinterpretation and the search for social support; and the coping styles most used were mixed and basically focused on the problem and on the emotion. Similar results were obtained by Chau 20, finding as the most used coping style the one focused on the problem, followed by the emotion and in last place the avoidance.⁽²⁴⁾

CONCLUSIONS

This review conducted an extensive analysis of stress as a global phenomenon causing illnesses that can be life-threatening. Prolonged stress affects all organ systems, jeopardizing both physical and mental balance. University students face significant academic pressures that may lead them to feel incapable of meeting higher education demands, sometimes resulting in dropout or other harmful manifestations. Specifically, medical science students experience intense academic stress due to heavy coursework and frequent evaluations. It is therefore essential to help these young people manage stress effectively, fostering coping styles focused on problem-solving rather than avoidance, enabling them to face the multiple challenges inherent in their academic and professional formation.

Conflict of interest

The authors declare no conflicts of interest.

Author contributions

All authors participated in conceptualization, formal analysis, project administration, drafting the original manuscript, review and editing, and approval of the final version.

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