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Scientific articles

Estrés y rendimiento académico en estudiantes universitarios

Academic Stress and Performance in University Students

Estresse e desempenho acadêmico em estudantes universitários

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Resumen

El estrés académico puede tener un impacto negativo en el rendimiento de los estudiantes universitarios. El presente estudio exploratorio cualitativo investigó las causas y consecuencias del estrés académico desde la experiencia de los propios estudiantes. Se realizaron tres entrevistas semiestructuradas y un grupo focal con estudiantes de noveno semestre de la carrera de Licenciado en Negocios Internacionales, adaptando el Inventario SISCO del Estrés Académico de Barraza-Macías y examinando los estímulos estresores, reacciones físicas, reacciones psicológicas y reacciones comportamentales para evaluar el nivel de estrés académico. Los resultados obtenidos a través del análisis de contenido de las entrevistas y el grupo focal con el software ATLAS.ti 23 indican que las principales fuentes de estrés son la carga de trabajos excesivos y las interacciones con maestros. El estrés académico conduce a problemas de concentración y ansiedad entre los estudiantes, impactando negativamente en su rendimiento. Se necesitan más estudios para comprender a profundidad este fenómeno en el contexto universitario. Estos hallazgos sugieren la necesidad de implementar programas de manejo del estrés en instituciones de educación superior. Dichos programas podrían incluir talleres de manejo del tiempo, técnicas de

relajación y apoyo psicológico, con el fin de mejorar el bienestar y el rendimiento académico de los estudiantes.

Palabras clave: estudiantes universitarios, estrés académico, rendimiento académico, Inventario SISCO de Estrés Académico, ATLAS ti. 23.

Abstract

Academic stress can have a negative impact on the performance of university students. This exploratory qualitative study investigated the causes and consequences of academic stress from the students' own experiences. Three semi-structured interviews and a focus group were conducted with ninth-semester students of the Bachelor of International Business program, adapting the SISCO Inventory of Academic Stress by Barraza-Macías and examining stress-inducing stimuli, physical reactions, psychological reactions, and behavioral reactions to assess the level of academic stress. The results obtained through content analysis of the interviews and the focus group using ATLAS.ti 23 software indicate that the main sources of stress are excessive workloads and interactions with professors. Academic stress leads to concentration problems and anxiety among students, negatively impacting their performance. Further studies are needed to gain a deeper understanding of this phenomenon in the university context. These findings suggest the need to implement stress management programs in higher education institutions. Such programs could include time management workshops, relaxation techniques, and psychological support to improve student well-being and academic performance

Keywords: university students, academic stress, academic performance, SISCO Academic Stress Inventory, ATLAS.ti 23.

Resumo

O estresse acadêmico pode ter um impacto negativo no desempenho dos estudantes universitários. O presente estudo exploratório qualitativo investigou as causas e consequências do estresse acadêmico a partir da própria experiência dos estudantes. Foram realizadas três entrevistas semiestruturadas e um grupo focal com alunos do nono semestre do bacharelado em Negócios Internacionais, adaptando o Inventário SISCO de Estresse Acadêmico de Barraza-Macías e examinando os estímulos estressantes, reações físicas, reações psicológicas e comportamentais. reações para avaliar o nível de estresse acadêmico.

Os resultados obtidos por meio da análise de conteúdo das entrevistas e do grupo focal com o software ATLAS.ti 23 indicam que as principais fontes de estresse são a carga horária excessiva e as interações com os professores. O estresse acadêmico leva a problemas de concentração e ansiedade nos alunos, impactando negativamente seu desempenho. Mais estudos são necessários para compreender plenamente esse fenômeno no contexto universitário. Estas conclusões sugerem a necessidade de implementar programas de gestão do stress nas instituições de ensino superior. Esses programas poderiam incluir workshops de gestão do tempo, técnicas de relaxamento e apoio psicológico, a fim de melhorar o bem-estar e o desempenho académico dos alunos.

Palavras-chave: estudantes universitários, estresse acadêmico, desempenho acadêmico, SISCO Academic Stress Inventory, ATLAS ti. 23

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Introduction

The concept of stress has its roots in ancient times. In the 14th century, the word “stress” was adopted from Latin (stringere: tension or stretching) and incorporated into the English language to denote oppression, adversity, or difficulty (Hutmacher, 2021). Today, stress has become a public health problem that impacts approximately 50% of the population (Nguyen-Thi et al., 2023). Stress is especially common among university students (Lovin and Moreau, 2022; Terrazas et al., 2021). According to Barraza-Macías (2007), academic stress is considered a systemic process of an adaptive and psychological nature triggered when the student perceives certain stimuli or demands as stressors that threaten their balance. These stressors are present through physical manifestations (headaches, muscle pain, sleep problems), psychological (anxiety, depression) and behavioral (interpersonal conflicts, isolation) that affect the well-being and integral development of the student (Castillo-Navarrete et al., 2020). The Barraza-Macías SISCO Academic Stress Inventory (2007) is a tool designed to identify the characteristics of academic stress.

Academic stress is associated with a variety of negative outcomes, including poor health, anxiety, depression, and lower academic performance (Travis et al., 2020; Camacho-Villa et al., 2023). According to Pustovalova and Avdeenko (2022), academic performance is an indicator of educational quality in the university setting, combining pedagogical, institutional, psychosocial, and sociodemographic factors. Research has shown that excessive

academic stress not only causes negative cognitive attitudes towards school activities (Tom, 2022), but also impairs students' academic performance (Khatake et al., 2022).

It is important to mention that there is a debate regarding the relationship between academic stress in students and its impact on academic performance (Soto et al., 2022). This gap calls for further research on this topic. Therefore, the purpose of this article is to analyze the relationship between stress levels and performance of university students through a qualitative exploratory study that delves into the subjective experiences of students.

Methodology

In this research, an exploratory qualitative study was carried out with a phenomenological approach to delve into the experiences of university students in relation to the academic stress they experience during their education and how this affects their academic performance. This exploratory approach is appropriate due to the need to obtain a more detailed understanding of students' perceptions and experiences around academic stress. The sample consisted of 10 students of the Bachelor of International Business program at the Autonomous University of Tamaulipas, intentionally selected to ensure diversity in terms of sex, age, and semester of study. The participants were six women and four men between the ages of 22 and 23, all enrolled in the ninth semester of the aforementioned program.

For data collection, three semi-structured interviews and a focus group were conducted, using the SISCO Academic Stress Inventory (Barraza-Macías, 2007) as a basis, adapting it with 29 questions (see Table 1) to ensure the validity and reliability of the results.

Table 1. Data collection instrument

Categories	Questions
Stimuli stressors	1. Do you feel that competition with your classmates contributes to your stress level? In what ways? 2. Do you think that the amount of homework and schoolwork is excessive and contributes to your stress level? In what ways? 3. Do you think that the personality and character of your teachers influence your level of academic stress? How? 4. How do you feel about the assessments (exams, essays, research papers) that your teachers give you? 5. What type of academic work causes you the most stress and why do you think that? 6. What do you do when you face difficulties in understanding the topics discussed in class? 7. Do you feel pressured or stressed when having to participate in class, whether by answering questions or giving presentations? 8. How do you handle stress when you have little time to complete an academic assignment?
Reactions physical	9. When you are stressed about school issues, have you experienced palpitations, excessive sweating, muscle tension, or something similar? 10. Do you think that academic stress has affected your quality of sleep, ever experiencing nightmares due to the academic load? 11. Do you think that academic stress has contributed to the feeling of chronic fatigue or permanent tiredness in your daily life? 12. Have you experienced headaches or migraines related to academic stress situations? 13. Do you think that academic stress has influenced your digestive system, causing problems such as abdominal pain or diarrhea? 14. Have you noticed changes in your physical habits (scratching, biting your nails or rubbing your hands) in response to academic stress? 15. Do you think that academic stress has caused you to experience a greater need for sleep or drowsiness during the day?
Reactions psychological	16. Have you ever experienced difficulties in relaxing and staying calm due to the academic workload and stress related to your studies? 17. Have you ever experienced feelings of depression or sadness related to academic stress and the demands of your study program? 18. Do you think you have felt anxiety, anguish or despair when faced with academic challenges? 19. Have you sought professional help or implemented strategies to manage your anxiety or despair related to studies? 20. Have you noticed that academic stress affects your ability to concentrate and focus on tasks and studies? 21. What techniques do you use to improve your concentration and academic performance in times of stress?

	22. Has academic stress caused you to experience an increase in your level of irritability or feelings of aggression? 23. How do you manage these feelings to prevent them from affecting your interpersonal relationships and your overall well-being?
Behavioral reactions	24. Have you noticed that academic stress leads you to have more conflicts or argue with other people, whether classmates, friends or family? 25. What strategies do you use to manage irritability or the tendency to argue that can arise due to academic stress? 26. Have you ever isolated yourself from friends, classmates, or other social interactions due to academic pressure? 27. How do you think this isolation may be affecting your emotional well-being and academic performance? 28. Have you experienced a feeling of discouragement or lack of motivation to do your schoolwork as a result of academic stress? What strategies do you use to overcome it? 29. Have you noticed changes in your food consumption pattern during periods of academic stress? Will it be an increase or a reduction in your food intake?

Source: adaptation of the SISCO Inventory of Academic Stress by Barraza-Macías (2007)

These interviews and the focus group assessed four dimensions as shown in Table 1: stressor stimuli, physical reactions, psychological reactions, and behavioral reactions. Each interview was conducted in a single session lasting 30 to 35 minutes, while the focus group included the participation of 10 students for a duration of 60 minutes. This focus group size follows methodological recommendations from the literature to facilitate meaningful interactions (Guest et al., 2017). All interactions were conducted by a single experienced researcher, ensuring uniformity in the administration of the interviews and in the interaction with the focus group participants. The sessions were audio-recorded after obtaining prior consent from participating students, emphasizing that their collaboration would remain anonymous and that their personal data would not be disclosed.

Subsequently, both the interviews and the focus group were transcribed verbatim for analysis using the ATLAS.ti 23 software. Once the transcriptions were completed, the data was processed using qualitative analysis (Ceylan and Bavli, 2023). This process was carried out using an inductive methodology that allowed the identification of categories and subcategories in the collected material. The coding of these categories was carried out with the assistance and support of the ATLAS.ti 23 software, a tool that facilitated the organization and detailed analysis of the qualitative data obtained, thus contributing to a deeper understanding of students' experiences of academic stress. Verbatim quotes from participants

are included to transparently illustrate the identified patterns and ensure clarity in the interpretation of the results.

Findings

Once the data were entered into the ATLAS.ti 23 software, the segments extracted from the interviews and the focus group were coded. During this stage, a set of 218 individual codes was identified. In order to improve the organization and understanding of the information collected, five main codes were selected as categories, which were used to classify and structure the other related codes. Table 2 presents a detailed breakdown of the number of codes assigned to each of these primary categories.

Table 2. Categories created

Categories created	Codes
Stress	68
Stressor stimuli	74
Physical reactions	21
Psychological reactions	19
Behavioral reactions	36

Source: Own elaboration, with information from ATLAS ti. 23

Based on the results obtained in the interviews and the focus group, the categories of stress, stressful stimuli, physical reactions, psychological reactions and behavioural reactions were created by grouping codes. It is essential to highlight that these categories emerged from an inductive process, which will be explained later to facilitate their understanding in detail.

Stress Category

The first category explored in this analysis refers to the "Stress" of university students, which is revealed through the academic stress code summarized in Table 3 within this same category. A notable finding arose from the question: How do you feel right now? In this context, one of the interviewees shared her experience by stating: *Right now, I feel strange, as well as overwhelmed, stressed by the load of tasks and commitments that I have, with so much pressure, I feel like I can't do it anymore, I'm very worried about my average because I'm about to graduate from university, I can't handle everything anymore, sometimes I feel like giving up.*

Table 3. Category code: "Stress"

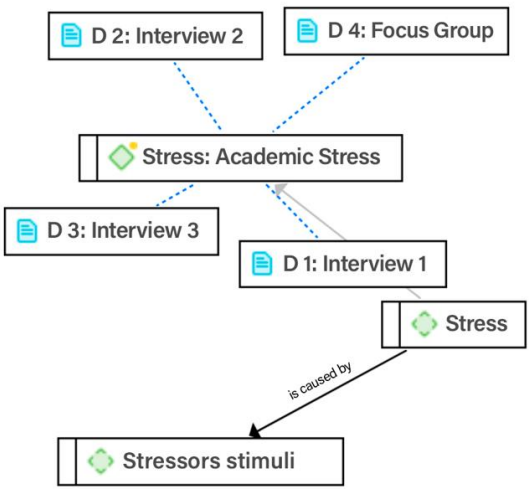
Categories	Codes	Coded segments
Stress	Academic stress	68

Source: Own elaboration, with information from ATLAS ti. 23

During their studies, university students are exposed to a series of continuous demands that include completing assignments, projects, exams, meetings, and other commitments inherent to their learning process. These factors, combined with academic expectations and psychosocial conditions, increase the likelihood of experiencing higher levels of stress (Bishevets and Byshevets, 2023). It is vitally important to highlight the most significant repercussions of this situation, which impact different areas, such as academic, physical, psychological, and social (Zhu et al., 2021; Jin, 2022). These elements are identified as stress stimuli and will be evaluated in the following category.

Finally, a semantic map was created to visualize the relationships between the categories and codes derived from the interviews and the focus group of the study participants (Figure 1). This makes it easier to understand and communicate the findings.

Figure 1. Academic stress category.



Source: ATLAS.ti 23

Category of stressor stimuli

In the analysis of stressful stimuli, through interviews and the focus group, codes were identified related to factors and activities that influence university students to become stressed during their academic training, which is composed of the codes, "competition with

classmates", "the personality and character of the professor", "not understanding the topics", "participation in class", "overload of homework and schoolwork" and "limited time to do the work", which are summarized in Table 4 within this same category, forming part of the SISCO Inventory of academic stress by Barraza-Macías (2007).

One of the sub-themes analyzed was competition with peers. A prominent finding was cited in the interview when the student was asked: how do you get along as a group? Do you feel that competition with peers in the group contributes to your stress level? In what way? Expressing the following: *In general, we are doing badly as a group, because we are very divided, very separated. This situation has caused me a bit of stress, because sometimes certain groups want to stand out and deliver better work.*

Regarding the personality and character of the teacher, when asking them, what do they think of their teachers? the following finding was observed in the focus group: *For stress, the teachers also influence, because some are stricter than others, you know which teachers you can ask permission from and which ones you can't, you also know which teacher you can tell that you didn't understand the class and have them explain it to you again.* While in interview 2, the student comments that *Definitely the personality and character of the teachers can influence my level of stress, because of the way they give classes and some are tactless, have a bad temper and don't accept being told, they think their way of thinking is the right one and that's it.*

In the subtopic, overload of tasks and schoolwork, they were asked the question: Do you consider that the amount of homework and schoolwork assigned is excessive? The student mentions that *In past semesters there was a greater amount of homework and work to be handed in, that was during the pandemic, when we had online classes, in fact, we had a teacher who asked us for work, then make a presentation and also complete the presentation that he handled in class*. While, in the focus group, one participant agrees that *Online classes had their advantages and disadvantages, it was easier to get good grades, but all the work that was assigned was stressful*.

Finally, when the subtopic of limited time to do the work was addressed, they were asked in the focus group, when you have little time to hand in a job/task, how do you feel? An interesting finding worth highlighting is when the student comments that *I feel that under pressure you bring out the best version of yourself, it's like your senses are sharpened and it's like you start to intuit that this needs more, it can be developed a little more, like better work comes out than when you have time to hand it in, I feel that under pressure you bring*

out your most professional side. While another student comments on a similar context. *Well, personally, I work better under time pressure, I mean, many times my problem is leaving things to the last minute, because I think that I have to hand in better work under pressure, but I do know that I have time to do it, I do other activities just to avoid making progress, like I keep putting it off, I make excuses and everything just to not do it at that moment...etc.*

Table 4. Category of stressor stimuli

Categories	Codes	Coded segments
Stressor stimuli	Competition with group mates	21
	The personality and character of the teacher	25
	Not understanding the issues	6
	Class participation	3
	Overload of homework and schoolwork	38
	Limited time to do the job	19

Source: Own elaboration, with information from ATLAS ti. 23

As Yang et al. (2021) mention in their study, writing assignments, preparing for exams, and boring teachers are problems that cause stress to students. Furthermore, higher education has been influenced by the introduction of technology-based teaching methods such as distance education and blended learning (Stezhko et al., 2021). This was accelerated by the need to continue the educational process during the COVID-19 pandemic (Rajkhlina et al., 2022; Castro et al., 2020) generating stress among students (Muller, 2022) as expressed by the participants of this study.

Finally, a semantic map was created to visualize the relationships between the categories and codes derived from the interviews and the focus group of the participants in our study (Figure 2). This facilitates the understanding and communication of our findings.

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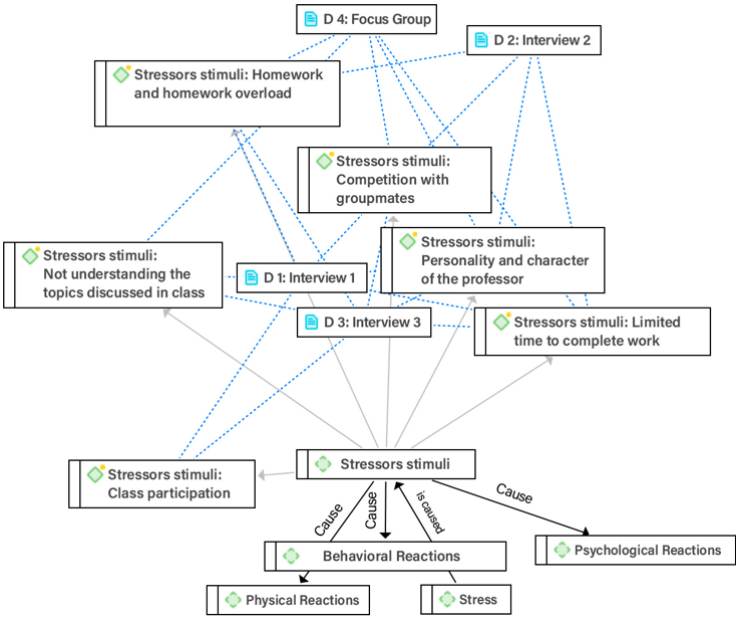
Figure 2. Category of stressor stimuli



Source: ATLAS Ti. 23

Category of Physical Reactions

The third category focuses on physical reactions caused by stressful stimuli. Through the interviews and the focus group, a series of codes were identified, including terms such as "headaches or migraines," "muscle pain," "dermatological conditions," "chronic fatigue," "gastrointestinal disorders," and "difficulty falling asleep." These codes are summarized in Table 5 and are part of Barraza-Macías' SISCO Academic Stress Inventory (2007).

A notable finding came from the question: Have you ever had a physical reaction to being stressed? In this context, one of the interviewees shared her experience by stating: *When I am very stressed, I get a lot of headaches, I feel stabbing pains on one side of my head, my hair falls out, so much, because I grab my hair, and I pull it out myself. I got dermatitis, out of nowhere I start to itch and I start to scratch myself hard and I get allergies.*

Another student states: *Stress has affected my quality of sleep, especially during exam periods, because I always fall asleep and wake up between 2 and 3 in the morning thinking that it's time to go to university, I try to go back to sleep, and I wake up again at 4 am and so on, so I don't rest well during exam week, I'm only thinking about the exam, I don't rest well.* Meanwhile, in the focus group, a student comments: *I get gastritis and colitis from stress, my hair falls out, I have headaches, and I'm irritated. I bite my nails because of the anxiety I*

suffer from. and *I feel tense, that is, my body tenses up and I can no longer work as I do when I am relaxed and focused.*

Table 5. Category of physical reactions

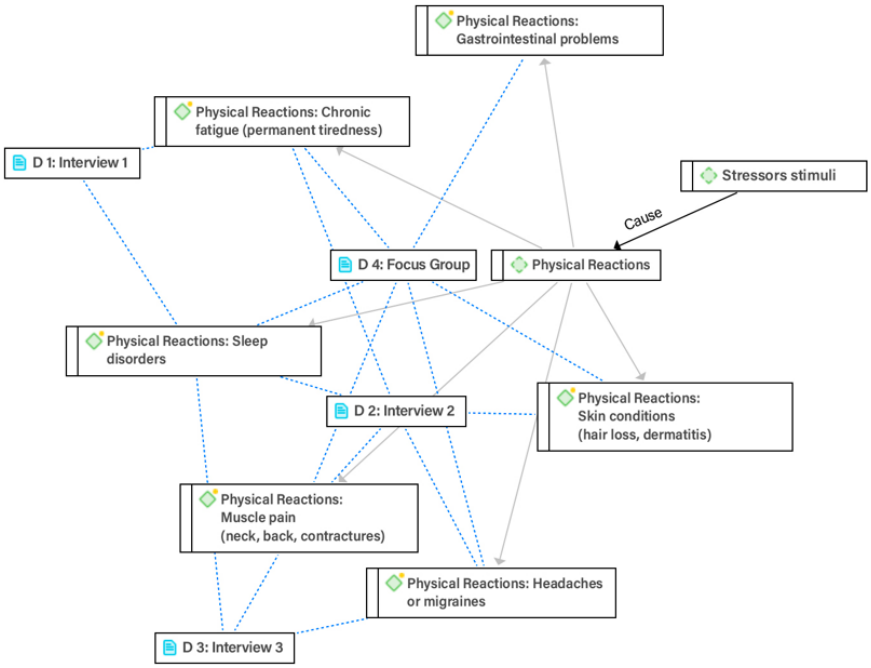
Categories	Codes	Coded segments
Physical reactions	Headaches or migraines	4
	Muscle pain	3
	Skin diseases	6
	Chronic fatigue	9
	Gastrointestinal problems	1
	Sleep disorder	8

Source: Own elaboration, with information from ATLAS ti. 23

Stress makes it difficult to relax and can be accompanied by a range of emotions such as anxiety and irritability (Schmits et al., 2021). When you are stressed, it can be difficult to concentrate (Leigh et al., 2021). It can cause headaches and other body aches, stomach problems, and also sleep problems (Gopichandran et al., 2021).

Finally, a semantic map was created to visualize the relationships between the categories and codes resulting from the interviews and the focus group of the study participants (Figure 3). This facilitates the understanding and communication of the findings.

Figure 3. Physical Reactions Category



Source: ATLAS Ti. 23

Category of Psychological Reactions

The fourth category focuses on psychological reactions caused by stressful stimuli. Through the interviews and the focus group, a series of codes were identified, including terms such as "concentration problems", "feelings of aggression", "feelings of anxiety, anguish or despair" and "feelings of depression and sadness". These codes are summarized in Table 6 and are part of the SISCO Inventory of academic stress by Barraza-Macías (2007).

The most notable findings came from the question: Have you ever experienced any psychological reaction to being stressed? In which participants stated:

I have noticed that stress affects my ability to concentrate, because I am thinking and thinking about things, to improve my concentration, sometimes I listen to music while I am doing homework or studying, it is always something that has helped me a lot to do anything, that is, for greater concentration.

When I'm stressed, I tend to get a little irritable and respond reluctantly, when it's not really their fault, this has usually happened to me with family.

Another participant comments: *Well, me too, last semester I was angry and I even think at one point I was sad, because I had so many things and I didn't have time and there were things at school that I didn't finish, because well, last semester I did my internship and from the internship I went to work and from work I also came to school, so I didn't have time, I had-like two or three hours to do homework, and sometimes I only managed to do one subject, and if they were projects I had to stay up late and get up early and it made me anxious, I wanted to cry.*

Finally, in the focus group, the participant mentioned*: To control anxiety I need to be busy, exercising or doing something with someone, not staying still.*

Table 6. Category of psychological reactions

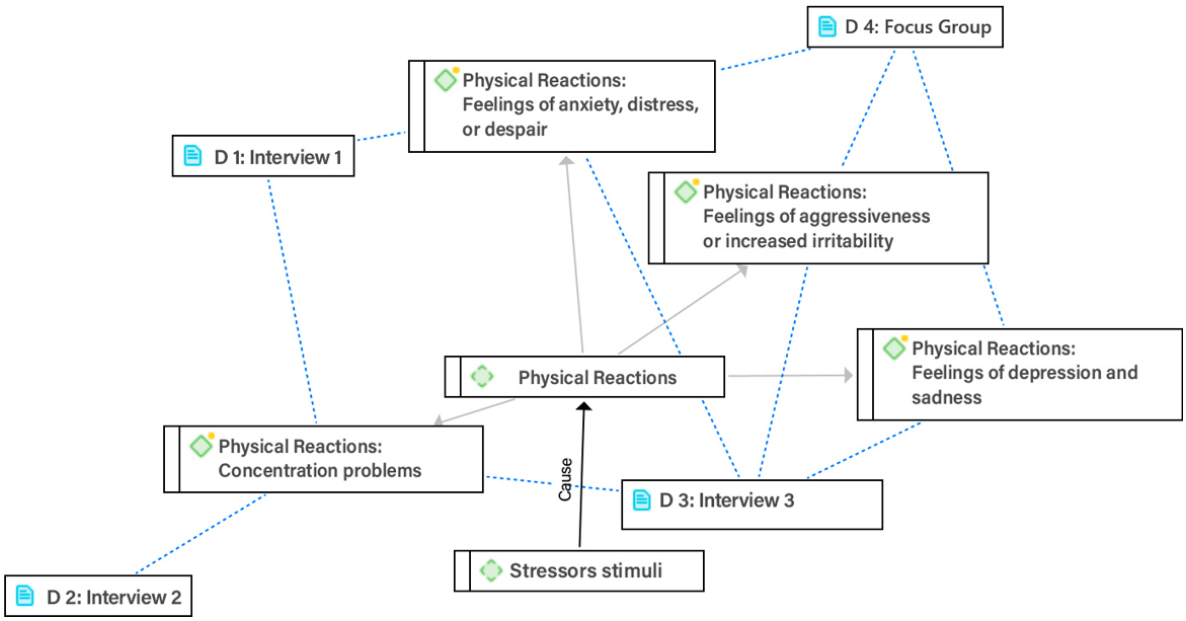
Categories	Codes	Coded segments
Psychological reactions	Concentration problems	4
	Feelings of aggression	4
	Feeling of anxiety, distress or despair	10
	Feelings of depression and sadness	5

Source: Own elaboration, with information from ATLAS ti. 23

Academic stress in students can be one of the main causes that induce depression (Deng et al., 2022; Akinola et al., 2019). Likewise, anxiety can lead to poor performance and the development of psychological disorders (Wang et al., 2023; Ribeiro et al., 2018).

Finally, a semantic map was created to visualize the relationships between the categories and codes derived from the interviews and the focus group of the participants (Figure 4), in order to facilitate the understanding and communication of the findings.

Figure 4. Psychological reactions category



Source: ATLAS Ti. 23

Category of behavioral reactions

The fifth category focuses on behavioral reactions caused by stressful stimuli. Through the interviews and the focus group, a series of codes were identified, including terms such as "isolation," "increased or decreased food consumption," and "aggressive behavior." These codes are summarized in Table 7 and in the semantic map (Figure 5), which are part of Barraza-Macías' SISCO Inventory of Academic Stress (2007). The following findings shared by the interviewees and the focus group can be mentioned:

To avoid problems, I prefer to isolate myself and listen to music until I relax, because when you are angry you don't think things through and the people, I usually take it out on can feel an aggressive comment.

When I'm stressed, I'm not hungry, I don't want to eat anything, I even forget that I should eat. Once I've de-stressed, that is, finished doing the activities I had pending, and if I have time I like to cook, prepare my own food, but if I don't have time, I prefer to buy something, because I'm already tired.

When I am very stressed, I often take my stress out on people close to me and then regret the harm I caused them.

Table 7. Category of behavioral reactions

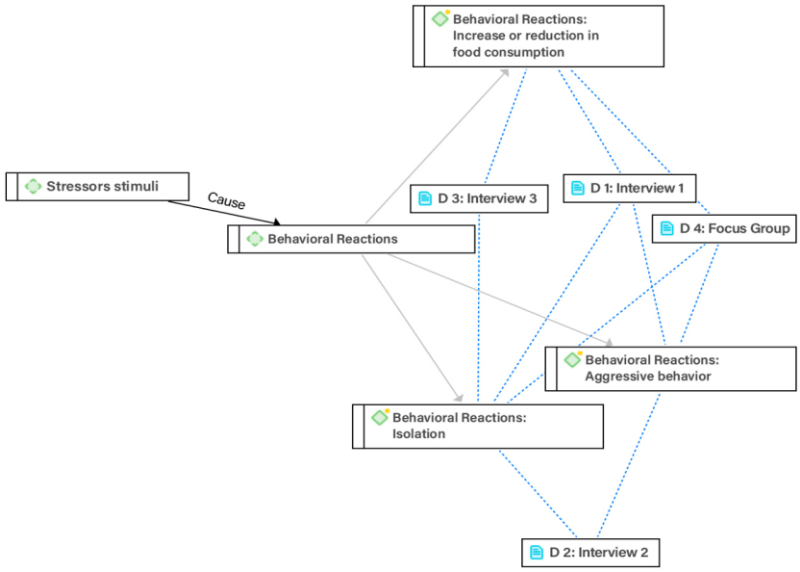
Categories	Codes	Coded segments
Behavioral reactions	Isolation	25
	Increase or reduction in food consumption	6
	Aggressive behavior	11

Source: Own elaboration, with information from ATLAS ti. 23

According to Barraza-Macías (2007), behavioral reactions involve the individual's conduct in his or her environment, not establishing a relationship with others, lack of interest in academic work, conflicts and absences in classes.

Finally, a semantic map was created to visualize the relationships between the categories and codes derived from the interviews and the focus group of the participants (Figure 5), to facilitate the understanding and communication of the findings.

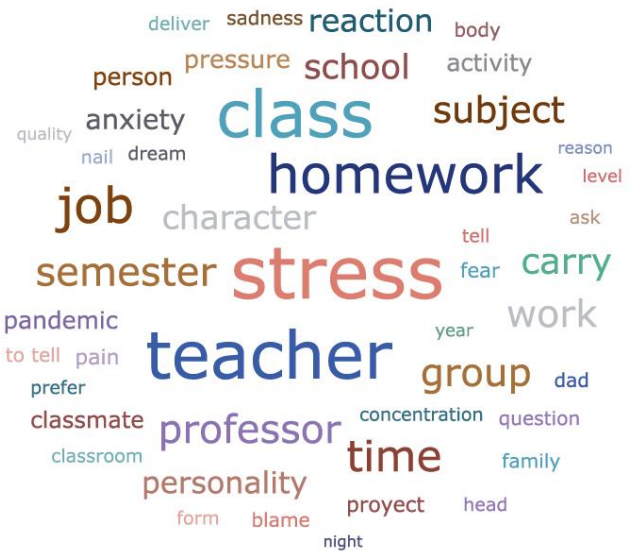
Figure 5. Category behavioral reactions



Source*:* ATLAS Ti. 23

To conclude and enrich the research, it concludes with the illustrative image of the word cloud (Figure 6), visually representing the key words that were most frequently mentioned in the interviews and the focus group.

Figure 6. Word cloud



Source: ATLAS Ti. 23

Artificial Intelligence Analysis

In order to strengthen our research and take advantage of advanced technological tools, we have used Artificial Intelligence (AI), which occupies a prominent place in the educational field (Zawacki-Richter et al., 2019). AI enables the execution of tasks that simulate intelligent human behaviors, such as inference, analysis, and decision making (Duan et al., 2019). In this research, ATLAS.ti 23 has been used, allowing us to automatically identify codes using artificial intelligence and offering an innovative perspective as can be seen in Table 6, where there is a detailed summary of the three interviews and the focus group, reaffirming the aforementioned findings.

Table 6. Summary Analysis of Participants by (IA).

Participant	Summary
P1	The 22-year-old woman who lives with her mother in Cd. Madero, Tamaulipas, is studying a Bachelor's Degree in International Business and is in her ninth semester. She has experienced academic stress due to the division and separation of the group, the amount of homework and assignments to be handed in in past semesters, and the personality and character of some professors. The academic load affects her academic performance, as she only puts effort into the assignments or exams with the highest score or difficulty. It causes her stress when she is asked to participate at random or to go to the front to speak. She has experienced physical reactions such as hair loss, dermatitis, nail biting, snapping her fingers, biting her lip, and sleep problems. She has also had headaches and back contractures due to stress. On a psychological level, academic stress affects her concentration and makes her irritable. On a behavioral level, she sometimes vents her stress on people close to her and has had moments of wanting to drop out of her degree due to the academic load and the stress experienced. She has also had binges when she is stressed.
P2	The 22-year-old woman lives in Tampico with her mother and is studying a degree in International Business in the ninth semester. She feels tired because she gets little sleep due to her work and studies. Sometimes she finds herself in competitive groups where other students fight for participation. She considers that the amount of homework and assignments is not usually excessive, but sometimes all the activities pile up at the end of the semester, which causes her stress. In addition, she does not like that now, with the use of Teams, tasks are assigned to be handed in on the weekends, since before she had more time to do them. Due to her job, she cannot complete the tasks on time, so she does them between classes or after work, which affects her rest. The way in which teachers give classes can influence her stress level. Giving presentations does not cause her stress, but she does not like doing them because she feels that she does not learn. Large and laborious projects do cause her stress, as do tasks assigned from one day to the next. When he has difficulty understanding a topic, he asks his classmates for help or does research on his own. If he doesn't fully understand, he asks the teacher to explain it again. So far, he has been able to handle stress and control himself, although he sometimes experiences anxiety. He has not had any stress-related physical health problems, except for sleep problems and headaches. School does not cause him much stress and he has learned to deal with different types of teachers.
P3	The individual is a 22-year-old student who lives with his parents in Altamira, Tamaulipas. He is studying for a Bachelor's degree in International Business. He enjoys making friends and gets along well with his group. He sometimes gets stressed when assigned projects or assignments with short deadlines. He has experienced stress from demanding teachers in the past, but generally feels calm with his current teachers. Projects are a source of additional stress due to the lack of information about other countries. When he does not understand a topic,

	he looks it up on his own or asks the teacher. He gets nervous when presenting and prefers to participate voluntarily. Having to turn in assignments quickly makes him feel pressured, but he tries to take breaks to calm down. He experiences migraines, back pain, and trouble sleeping during exam weeks. He has not experienced digestive problems due to stress, but he bites his nails and snaps his fingers. He sometimes has a hard time relaxing and has felt depressed for not achieving certain goals in his life. He turns to his brother to talk about his problems and finds relief. Stress affects his ability to concentrate. When he is stressed, he may become irritable and prefer to isolate himself to relax. At one point, he considered dropping out of school due to stress, but decided to continue for his parents. He snacks when he is stressed, but then feels guilty. He believes that being calm influences his academic performance.
Focus Group	Overall, the group acknowledges that academic stress is a reality in their lives and that it affects both their physical and emotional health. Although some feel more motivated and productive under pressure, they are also aware of the negative effects it can have on their well-being. Furthermore, the influence of teachers on their stress level is acknowledged, and some participants have even made academic decisions based on a teacher's difficulty or teaching style. In short, academic stress is a common and complex experience for these students, with significant impacts on several aspects of their lives.

Source: Own elaboration, with information from ATLAS.ti. 23

Discussion

The findings of the present study, obtained through interviews and focus groups, confirm the high prevalence of academic stress among university students, which is consistent with previous literature . According to Yang et al. (2021) and Bishevets and Byshevets (2023), students face a variety of academic demands, such as the load of homework, projects, exams, and constant interaction with professors. These demands considerably increase stress levels, negatively affecting their well-being in academic, physical, psychological, and social dimensions, as mentioned by Zhu et al. (2021) and Jin (2022).

Research reveals that stress causes concentration problems, anxiety, irritability, insomnia, headaches, and gastrointestinal disorders. These findings are consistent with previous studies such as Gopichandran et al. (2021), who point out that academic stress can trigger sleep problems and headaches. Likewise, Schmits et al. (2021) mention the difficulty in relaxing and the presence of negative emotions such as anxiety and irritability among students with high levels of stress. As indicated by Deng et al. (2022) and Akinola et al.

(2019), academic stress can induce depression and aggravate other pre-existing psychological disorders. These findings are supported by recent studies showing how anxiety related to academic stress can lead to poor academic performance and, eventually, to the development of more serious psychological disorders (Wang et al., 2023; Riboldi et al., 2022).

This study not only describes the sources and effects of academic stress in international business students, but also lays the groundwork for implementing strategies to reduce its adverse effects in the educational environment. The results obtained provide information for designing interventions to improve student well-being and optimize academic performance. The practical implications of these findings are significant for higher education institutions. Implementing stress management programs that include time management workshops, relaxation techniques, and psychological support can help improve student well-being and academic performance; in addition, training teachers in pedagogical strategies that minimize stress among students and promote effective communication and a supportive, humanistic environment.

Future studies should examine the effectiveness of different interventions to manage academic stress in diverse student populations. Additional research could explore how sociodemographic and cultural factors influence perceptions and reactions to academic stress. Longitudinal studies could also be conducted to observe the evolution of academic stress and its consequences over time. Expanding the sample to include students from different majors and universities would also provide a more generalizable understanding of the phenomenon.

Conclusion

This exploratory qualitative study investigated academic stress and its relationship with academic performance in university students. Results obtained through content analysis of the interviews and focus group indicate that the main sources of stress are excessive workload and interactions with certain professors. These findings are consistent with previous studies and underline the importance of addressing these factors within the educational context.

Academic stress generates a range of negative reactions among students, including concentration problems, anxiety, irritability and insomnia, disrupting cognitive processes necessary for optimal learning. Some students also experienced physical symptoms such as

headaches, hair loss, gastrointestinal problems and dermatitis, highlighting the multifaceted nature of the impact of stress.

In terms of academic performance, stressed students tend to focus only on the highest-scoring assignments or tests, procrastinate on activities, and vent their frustration on people close to them. Some even contemplate dropping out of school due to stress. These behaviors not only affect their academic performance, but also their overall well-being and perception of the college experience.

These findings suggest several practical implications. First, it is crucial for higher education institutions to implement stress management programs. Such programs could include time management workshops to help students better manage their workloads, relaxation techniques to reduce anxiety, and psychological support to provide a safe space where students can talk about their concerns and receive guidance.

Additionally, it is important for teachers to receive training in pedagogical strategies that minimize stress among students. Encouraging effective communication, setting clear expectations, and providing constructive feedback are steps that can create a supportive environment and reduce sources of academic stress.

Future research should focus on evaluating the effectiveness of different interventions to manage academic stress in diverse student populations. It would also be beneficial to explore how sociodemographic and cultural factors influence perceptions and reactions to academic stress. Longitudinal studies could provide more detailed insight into the evolution of academic stress and its consequences over time.

Finally, expanding the sample to include students from different majors and universities would allow for a more generalizable understanding of the phenomenon of academic stress, helping to develop more effective and specific intervention strategies for diverse student populations.

Future lines of research

Although this research has revealed connections between stress and academic performance in college students, there is a need to explore other mediating factors that might influence this relationship. Future studies should focus on investigating how coping mechanisms and resilience act as mediators between stress and psychological well-being, in order to provide a more detailed understanding of the strategies students use to manage stress and how these affect their academic performance.

In addition to examining how the impact of stress varies both at the intra-individual and inter-individual level, considering not only differences between students from different institutions (public and private), but also the moderating role of gender in these associations.

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