REVISTA CÁTEDRA

The influence of academic stress on the performance of basic education students at the Central University of Ecuador

La influencia del estrés académico en el rendimiento de los estudiantes de educación básica de la Universidad Central del Ecuador

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(Received on: 10/04/2025; Accepted on: 25/05/2025; Final version received on: 30/06/2025)

Suggested citation: Díaz-Parra, J., Curipallo-Peralta, N., Rojas-Avilés, H., & Parra-Muñoz, J. (2025). The influence of academic stress on the performance of basic education students at the Central University of Ecuador. *Revista Cátedra, 8*(2), 363-370.

Abstract

Academic stress significantly affects the performance of university students, manifesting itself in various ways: physical, emotional, and cognitive. Previous studies indicate that 77% of people worldwide suffer from moderate or severe stress (United Nations Development Program, 2022). In Ecuador, research such as that by Moscoso and Barsallo (2018) reveals that 43.2% of students experience moderate academic stress. This research sought to evaluate the level of stress in students of in-person basic education. To do so, a non-experimental-descriptive methodology and a deductive method with a quantitative approach were used. The SISCO SV-21 Inventory was applied to 586 students, selected through stratified probability sampling by semester. The results showed that a severe level of stress prevails among students, ranging from 61% to 100%. The main stressors identified were homework overload (M=3.68) and the type of work required (M=3.58). The most frequent consequences included concentration problems (M=4.10) and feelings of depression (M=3.77). Coping strategies that stood out were emotional control (M=3.86) and focusing on positive aspects (M=3.62). Statistical analysis ($\chi 2=150.530$, $p<.001$) confirmed the relationship between the semester completed and the level of stress. These findings suggest the need to implement institutional programs to manage academic stress, especially aimed at first-semester students and those in advanced semesters.

Keywords

Basic education, academic stress, stressors, Sisco SV-21, academic performance, mental health.

Resumen

El estrés académico afecta significativamente el rendimiento de los estudiantes universitarios, manifestándose de diversas formas: físicas, emocionales y cognitivas. Estudios previos indican que el 77 % de las personas a nivel global padecen estrés moderado o grave (Programa de las Naciones Unidas para el Desarrollo, 2022). En Ecuador, investigaciones como la de Moscoso y Barsallo (2018) revelan que el 43.2 % de los estudiantes experimentan estrés académico moderado. La presente investigación buscó evaluar el nivel de estrés en los estudiantes de Educación Básica Presencial. Para ello, se empleó una metodología no experimental-descriptiva y un método deductivo con enfoque cuantitativo. Se aplicó el Inventario SISCO SV-21 a 586 estudiantes, seleccionados mediante un muestreo probabilístico estratificado por semestres. Los resultados mostraron que en los estudiantes prevalece un nivel de estrés severo, ubicándose en un rango del 61 % al 100 %. Los principales factores estresores identificados fueron la sobrecarga de tareas (M=3.68) y el tipo de trabajo requerido (M=3.58). Las consecuencias más frecuentes incluyeron problemas de concentración (M=4.10) y sentimientos de depresión (M=3.77). Como estrategias de afrontamiento, se destacan el control emocional (M=3.86) y el enfoque en aspectos positivos (M=3.62). El análisis estadístico ($\chi 2=150.530$, $p < .001$) confirmó la relación entre el semestre cursado y el nivel de estrés. Estos hallazgos sugieren la necesidad de implementar programas institucionales para manejar el estrés académico, especialmente dirigidos a estudiantes del primer semestre y a aquellos en semestres avanzados.

Palabras clave
Educación básica, estrés académico, factores estresores, Sisco SV-21, rendimiento académico, salud mental.

1. Introduction
Academic stress in university students is an increasingly recognized problem in the educational field due to its significant impact on students' physical, mental, and academic well-being. Academic stress arises from the pressures of university studies, such as the academic load, tight deadlines, and the need to balance studying with other personal or family responsibilities. This set of pressures can lead to various difficulties for students, affecting both their physical and mental health and manifesting in symptoms such as anxiety, exhaustion, frustration, and even serious illnesses that affect their health.

Stress significantly affects students' quality of life, negatively impacting their academic performance and personal development. A stressed mind is constantly overwhelmed by external concerns, which hinders concentration and memory, and causes sleep problems. Consequently, these problems lead to decreased motivation and energy levels, which hinder effective study and participation in academic activities.

According to the United Nations Development Program (UNDP) Human Development Report (2022), “stress, anxiety, and depression increased by 25% worldwide. The global survey revealed that 77% of people suffer from moderate or severe stress, 59% suffer from anxiety, and 35% from depression” (UNDP, 2022, p. 94). In Ecuador, academic stress is equally concerning. A study conducted at the University of Cuenca by Moscoso and Barzallo revealed that 43.2% of medical students experienced moderate academic stress and 33.3% faced high levels (Moscoso and Barzallo, 2018, p. 90). These data highlight the urgent need to implement effective strategies to prevent and reduce academic stress, in order to protect the mental health and optimize the performance of university students.

The objective of this paper is to evaluate the levels of academic stress experienced by students in the In-Person Basic Education program at the Central University of Ecuador by applying the Sisco SV-21 Inventory. The research questions are: What is the level of stress experienced by students? What factors generate it? How does it affect academic performance?

The article is structured in five sections, consisting of a literature review on academic stress, the methodology used, the results obtained, a discussion of the findings, and finally, the conclusions.

2. Literature Review
2.1 Stress
Stress is a natural response of the body to situations perceived as challenging or threatening. In fact, the World Health Organization (WHO) defines it as a state of mental worry caused by a complicated situation (WHO, 2023, para. 1). When this state becomes permanent, it can have significant negative effects on physical and mental health, making it difficult to concentrate and increasing anxiety levels in daily activities.

On the other hand, focused specifically on the educational field, academic stress is defined as "the discomfort that the student experiences due to physical or emotional factors that exert significant pressure, affecting their academic performance and their metacognitive

ability to solve problems" (Zárate et al., 2018, p. 155). Given the multiple demands and pressures inherent in university life, stress has become a recurring problem among students.

2.2 Academic Stressors

According to Estrada et al. (2024), "academic stressors are factors linked to the educational environment that cause stress in students, which can have various adverse effects on their physical and mental health, as well as on their academic performance" (p. 1132). Therefore, academic stressors are considered to be the causes that negatively influence students. Ovalle mentions that stressors arise from a mixture of individual, social, and academic factors that interact with each other within the school environment. These factors can include insufficient time for submitting assignments, the workload, assessments, teacher demands, unclear assignments, and teacher attitudes, among others (Ovalle (2024, p. 44).

These factors, when combined, generate anxiety and stress for students at university. According to Olmedo and Cabezas (2021), the stressors that university students experience are "excessive homework, assessments, and group work, internal competition within their peer groups, and poor teaching practices by some teachers; these are some of the factors that affect students' emotional and academic stability" (p. 784).

2.3 Consequences of stress in university students

University students play different roles in their daily lives, whether in the academic, family, social, and even professional spheres. This burden of responsibilities generates stress, causing various problems such as lack of concentration, fatigue, poor nutrition, carelessness, sadness, poor academic performance, nervousness, feelings of anger, and aggression. On the other hand, Gusqui and Galárraga (2023) mention that "stress directly affects students' cognitive development because it decreases the level of learning, attention, concentration, and memory" (p. 4), which is the cause of poor academic performance.

> Other consequences of academic stress include individual physical manifestations such as increased heart rate, perspiration, and muscle tension in the arms and legs; shortness of breath and teeth grinding, sleep disorders, chronic fatigue, headaches, and digestive problems. The most relevant behavioral reactions are deterioration in performance, a tendency to argue, isolation, discouragement, smoking, alcohol or other consumption, absenteeism, nervousness, increased or decreased appetite, and sleep (Silva et al., 2020, p. 77).

2.4 Strategies to cope with stress

Stress coping strategies are the procedures or methods students use to reduce stress and achieve emotional, social, and cognitive balance.

Likewise, coping strategies are essential for managing stressful situations, as they influence how a person responds to stress. These strategies include being assertive in expressing needs, planning to address problems, assessing oneself to maintain resilience, and seeking information to understand the problem (Linares & Mescua, 2022, p. 4). Together, these practices help reduce stress and improve responses to challenges.

> The effective use of coping strategies reduces stress and anxiety levels, improves self-esteem and quality of life. It also improves academic performance and the ability to learn and apply knowledge and skills in practice (Sierra and Moreno, 2023, p. 80).

Therefore, coping strategies are crucial for psychological well-being, mitigating stress and anxiety and boosting self-esteem. Beyond the personal, their impact extends to the educational sphere, directly improving academic performance and the ability to apply knowledge in practice. This underscores the need to integrate the development of these competencies as a fundamental pillar of students' comprehensive education.

2.5 Academic Performance

Academic performance reflects the level of understanding and application of knowledge acquired by university students in different areas of study, constituting a key indicator of their learning outcomes (Gutiérrez et al., 2021, p. 14). In this sense, it allows us to assess how students understand and apply the knowledge taught in the educational environment.

Zárate et al. (2018) mentions that "students enter university lacking study habits, which affects their academic performance. They lack adequate reading and note-taking techniques, and lack time management skills, and they also lack concentration" (p. 154). In this sense, teachers must use different methodologies to motivate students to constantly improve their learning. Students' academic performance progressively improves over time because they acquire different skills, attitudes, and knowledge at university. Students learn to allocate and organize their time, manage their resources, use effective study techniques, and be self-taught; these are key factors for students to achieve good performance.

3. Methodology

3.1 Type of Research

The research adopted a quantitative approach to obtain numerical data and calculate the stress level of students in the Basic Education program. This approach, as Belloso and Lizardo point out, allows for the quantification of data, behaviors, and opinions regarding the study variables (Belloso and Lizardo, 2023, p. 254).

The design was descriptive, non-experimental, and cross-sectional. Manterola et al. (2023) explain that cross-sectional research "is conducted at a specific time during the event of interest" (p. 146). In this study, data were collected at a single point in time, specifically during the 2024-2024 academic year. The descriptive and non-experimental nature of these studies is justified, according to Sousa et al., by the fact that these studies "allow the researcher to observe, describe, and substantiate various aspects of the phenomenon. There is no manipulation of variables. Descriptive designs describe what exists, determine the frequency with which this event occurs, and classify the information" (Sousa et al., 2007, p. 504).

Therefore, a complete and accurate description of academic stressors, the consequences of stress, and the coping strategies used by university students to mitigate their daily stress levels was provided, without manipulating the variables.

3.2 Research Method

The deductive method was used, which, according to Prieto (2018), "bases its foundations on certain theoretical foundations, until it configures particular facts or practices" (p. 11). This approach allowed conclusions to be drawn from existing theories and judgments, thus facilitating a deep understanding and interpretation of the data collected on the subject of study.

3.3 Technique and Instrument

The research used a survey using the Sisco SV-21 Inventory questionnaire developed by Arturo Barraza in 2018, which measures the stress level of university students. This questionnaire has 23 items, including a filter question that determines whether or not the participant is eligible to answer the questionnaire. Another question identifies the intensity of students' academic stress. Finally, the third, fourth, and fifth questions contain different items, which identify the stressors, symptoms, or reactions participants experience when experiencing stress, and the strategies they use to cope with stress.

All questions are on a Likert scale: never, almost never, rarely, sometimes, almost always, and always. For analysis, these options were quantified by assigning a numerical value from 0 to 5, respectively. From this, SPSS software was used to calculate the standard deviation and the overall mean. Subsequently, this average was transformed into a percentage to determine the level of stress that the students present according to the measurement scale proposed by (Barraza, 2018), which classifies the level of stress as follows: mild stress (0-48%), moderate stress (49-60%) and severe stress (61-100%).

3.3.1 Reliability level

Reliability was verified using Cronbach's alpha ($\alpha = .78$) performed in the SPSS program as shown in Table 1, considered acceptable (George and Mallery, 2019). Content validity was established by expert judgment.

Reliability statistics	
Cronbach's alpha	N of elements
.780	23

Table 1. Reliability of the questionnaire

3.4 Population and Sample

The population consisted of students from the In-Person Basic Education Program at the Central University of Ecuador. Stratified probability sampling was used. According to Otzen and Manterola, this sampling consists of dividing a population into homogeneous subgroups, called strata, and then randomly selecting the individuals who will form the sample according to different inclusion and exclusion criteria (Otzen and Manterola, 2017, p. 228). In this research, stratified probability sampling was carried out by semesters, whose inclusion and exclusion criteria are established in Table 2.

Inclusion criteria	**Exclusion Criteria**
Students enrolled in the in-person Basic Education program during the 2024-2024 period	Students enrolled in the blended learning program and during other academic periods
Students who have provided informed consent	Students who do not have informed consent
Students who answered "Yes" to the first question	Students who answered No to the first question

Table 2. Inclusion and exclusion criteria of the sample

After applying the inclusion and exclusion criteria in the stratified probability sampling by semester, the following sample was obtained: first semester (n=67), second semester (n=70), third semester (n=90), fourth semester (n=59), fifth semester (n=65), sixth

semester (n=65), seventh semester (n=50), eighth semester (n=52), and ninth semester (n=68), for a total of 586 students.

Because this is a research project involving human participants, the data provided was guaranteed to be anonymous and confidential. Furthermore, participants were informed that they were free to withdraw at any time without harming the researchers.

4. Results

4.1 Results of the questionnaire applied to the students

SPSS was used to process the data, and the following results were obtained for items 4, 5, and 6 of the questionnaire, which are used to determine students' stress levels. The items listed detail the stressors, symptoms, and coping strategies used by university students. Table 3 shows the stressors that are the reasons why students experience academic stress.

Stressors	N	Media	Standard Deviation
4.1 The overload of homework and schoolwork I have to do every day	586	**3.68**	0.50
4.2 The personality and character of my teachers	586	2.12	0.79
4.3 The way my teachers evaluate me (through essays, research papers, internet searches, etc.)	586	**3.17**	0.65
4.4 The level of demands my teachers place on me	586	2.28	0.78
4.5 The type of work my teachers ask me to do (topic review, worksheets, essays, concept maps, etc.)	586	**3.58**	0.89
4.6 Having limited time to complete the work my teachers assign me	586	**3.10**	0.65
4.7 The lack of clarity I have about what my teachers want	586	2.86	1.03

Table 3. Results of the questionnaire applied to students regarding academic stressors

According to Table 3, the most frequent stressors that university students present are the following: the most frequent being the overload of tasks and schoolwork that I have to do every day (M=3.68), followed by the type of work that the professors ask me to do (M=3.58), the way my professors evaluate me (M=3.17) and the limited time to do the work (M=3.10). Finally, the least frequent are the level of demand from my professors (M=2.28) and the personality and character of the professors who teach me (M=2.12).

Symptoms	N	Media	Standard Deviation
5.1 Chronic fatigue (permanent tiredness)	586	**3.68**	0.84
5.2 Feelings of depression and sadness (low mood)	586	**3.77**	0.79
5.3 Anxiety, anguish, or despair	586	2.69	0.75
5.4 Trouble concentrating	586	**4.10**	0.78
5.5 Feeling aggressive or increased irritability	586	3.41	1.08
5.6 Conflicts or a tendency to argue or argue	586	3.12	1.00

5.7 Reluctance to do schoolwork	586	**3.55**	1.19

Table 4. Result of the questionnaire applied to students regarding the symptoms presented by students of the Basic Education career

Table 4 shows the symptoms university students present when they are stressed. The most frequent are concentration problems (M=4.10), feelings of depression and sadness (low mood) (M=3.77), chronic fatigue (permanent tiredness) (M=3.68), and reluctance to complete schoolwork (M=3.55). Finally, the least frequent are: conflicts or tendency to argue or argue (M=3.12), and anxiety, anguish, or despair (M=2.69).

Strategies	N	Media	Standard Deviation
6.1 Focus on resolving the situation that worries me	586	**3.38**	0.64
6.2 Establish concrete solutions to resolve the situation that worries me	586	2.93	0.52
6.3 Analyze the positive and negative aspects of the solutions considered to resolve the situation that worries me	586	3.08	0.70
6.4 Maintain control over my emotions so that I am not affected by what stresses me	586	**3.86**	0.79
6.5 Recall similar situations that have occurred previously and think about how to resolve them	586	2.85	0.62
6.6 Develop a plan to address what stresses me and carry out its tasks	586	3.09	0.86
6.7 Focus on or try to obtain the positive aspects of the situation that worries me	586	**3.62**	1.40

Table 5. Result of the questionnaire applied to students regarding coping strategies

On the other hand, Table 5 shows the coping strategies used by university students when they are stressed, the most frequent being: Keeping control over my emotions so that I am not affected by what stresses me out (M=3.86), Focusing on or trying to obtain the positive aspects of the situation that worries me (M=3.62), and Concentrating on solving the situation that worries me (M=3.38). Finally, the least frequent are: Establishing concrete solutions to resolve the situation that worries me (M=2.93) and Remembering similar situations that have occurred previously and thinking about how to solve them (M=2.85).

4.2 Level of Stress presented by students

Figure 1 shows the stress level of students in the In-Person Basic Education program according to the semester they are enrolled in during the 2024-2024 period. It can be seen that the first, seventh, eighth, and ninth semesters have a severe stress level, ranging from 61% to 100%; the second, third, fourth, and fifth semesters have a moderate stress level, ranging from 49% to 60%. Finally, sixth-semester students have a mild stress level, ranging from 0% to 48%.

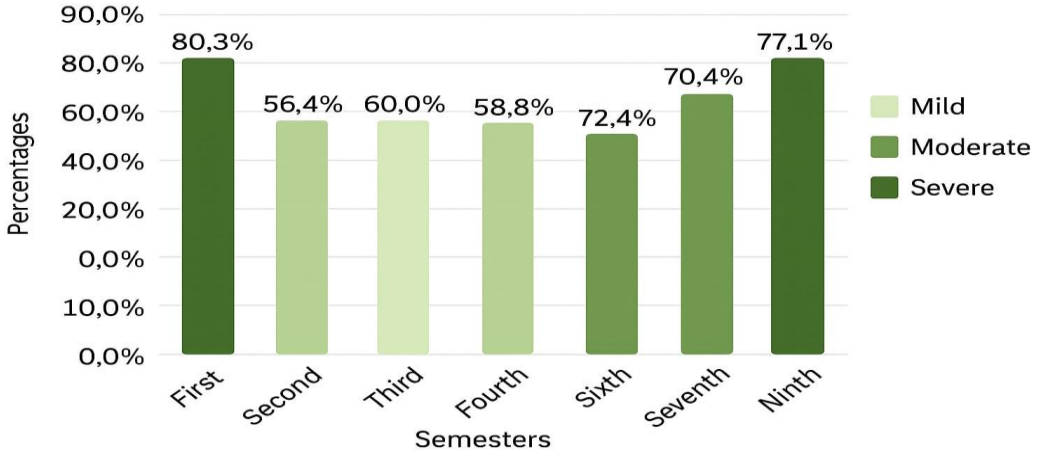

Figure 1. Stress level presented by students of the Basic Education Degree

4.3 Statistical Modeling

A Chi-square (χ^2) statistical analysis was performed with a 95% confidence level and a maximum error of 5% ($p < .05$) to evaluate the relationship between the semester the student is taking and the stress level. According to Hernández et al., the Chi-square analysis is a statistical test developed by Carl Pearson, which uses the analysis of two or more groups of categorical variables to determine whether or not there is a correlation and in turn the null hypothesis is discarded or the alternative hypothesis is accepted. If the result of the Chi-square coefficient is greater than 0.05, the null hypothesis is approved, therefore, there is no relationship between variables, while if the result of the Chi-square coefficient is less than 0.05, the alternative hypothesis is approved, therefore, there is a correlation between variables (Hernández et al., 2017, p. 294).

Chi-square tests			
	Value	**df**	**Asymptotic significance (bilateral)**
Pearson's Chi-square	150. 530[a]	32	.000
Likelihood ratio	169.473	32	.000
Linear by linear association	98.556	1	.000
N of valid cases	586		

Table 6. Relationship between the semester the student is taking and the stress level

In Table 6, the Chi-square analysis yielded a significant value of 0.000, indicating statistical significance as it was less than the critical level of 0.05. This allows us to reject the null hypothesis and confirm that there is a significant relationship between the semester completed and the student's stress level, demonstrating that progress in the academic career directly influences reported stress levels.

The influence of the semester on stress levels can be explained by the structure of the curriculum and the demands inherent to each academic stage. At initial levels, students must adapt to a new university environment and adjust to the change in academic processes compared to high school. At intermediate levels, students have already acquired some

familiarity with academic dynamics, so they tend to present mild or moderate stress levels. However, in the final semesters, students face a considerable workload, including courses, internships, community engagement, and graduation hours, which contributes to a high level of stress in the later semesters. This progression shows that both the beginning and end of the university journey are associated with greater emotional and academic demands.

5. Discussion of Results

The results show that the main stress-generating factors for students in the Basic Education program are related to homework overload (M=3.68), the type of work assigned by teachers (M=3.58), the way teachers evaluate them (M=3.17), and the limited time to complete assignments (M=3.10). These findings support the study by Infantas and Heredia (2023), which indicated that 40.6% of students feel stressed due to an overload of academic activities and assignments. Furthermore, 38.35% of students are stressed by the type of work their teachers assign, as it is long and unclear. Finally, 45.11% of students feel stressed due to the assessment methods used by teachers.

These results are consistent with the research by Tirado et al. (2023), which highlights that more than 40% of students always and almost always felt stressed by work overload, teacher evaluations, and limited time to complete activities. This allows us to corroborate the information with the results obtained.

Regarding the consequences of academic stress, the most frequently identified consequences were concentration problems (M=4.10), feelings of depression and sadness (M=3.77), persistent fatigue (M=3.68), and a lack of enthusiasm for completing university assignments (M=3.55). These results align with the findings of Velasco and Barraza, who observed that students had moderate to severe symptoms (80%), characterized mainly by anxiety (2.6) and restlessness (2.45). Among the physical symptoms (74.5%), chronic fatigue (2.45) and drowsiness (2.44) stand out. Finally, among behavioral symptoms (69.5%), there is a lack of enthusiasm for schoolwork (Velasco & Barraza, 2024, p. 41). This allows us to reaffirm the results obtained and emphasize that the prevalence of these symptoms highlights the urgent need for effective strategies for managing academic stress.

Due to the consequences experienced by students, it is necessary to identify the coping strategies used by university students, which are the following: maintaining control over my emotions (M=3.86), focusing on or trying to find the positive aspects of the worrying situation (M=3.62), and focusing on resolving the situation that worries me (M=3.38). In addition, Arpi et al. (2024) suggest implementing wellness and psychological support programs to improve students' mental health and academic performance. Likewise, it is mentioned that first-semester students and students in higher levels have a severe level of stress, that is, high, due to the different activities they have to present, as stated by Gusqui and Galárraga (2023) where the highest percentage of academic stress was in the most advanced educational level, with 90.2% and in the first level with 89.6% of students. Finally, Martínez et al. (2023) conclude in their research that "if the level of academic stress increases, academic performance will be reduced" (p. 3316). Similarly, Martínez (2018) obtained similar results in his study on the influence of stress on academic performance, which allows corroborating the results obtained within the research.

6. Conclusions

The absence of stress in students is essential for leading a healthy, productive, and balanced life, both personally and professionally. Academic stress has a negative impact on student

performance, affecting not only their ability to concentrate and solve problems, but also their emotional well-being, causing depression, sadness, and depression. This makes it impossible to carry out daily activities effectively, as students with high stress levels are more likely to obtain lower grades. In this sense, the main factors that affect students' physical, emotional, and cognitive health are: work overload, the type of work teachers assign, limited time to complete assignments, and unclear instructions from teachers.

The results obtained show that students in the in-person Basic Education program at the Central University of Ecuador present different levels of stress depending on the semester they are enrolled in. In particular, students in the first, seventh, eighth, and ninth semesters are in the severe stress range; those in the second, third, fourth, and fifth semesters present moderate levels of stress; While sixth-semester students report a mild level of stress. Controlling stress is crucial because it allows for maintaining emotional stability, which facilitates a balance between responsibilities and free time. When this balance is achieved, it is easier to face daily challenges with a positive and resilient attitude. To achieve this state, it is necessary to apply coping strategies such as identifying concrete solutions to solve problems, controlling emotions, and developing an action plan to address worries. These actions not only reduce stress levels but also strengthen the ability to adapt to the demands of everyday life. Keeping in mind that, in any adverse situation, it is essential to capture the learning that arises from difficulty, since even mistakes represent an opportunity to grow. In this sense, we persevere in trying, since continued dedication is a fundamental pillar for achieving goals and making dreams come true.

Bibliographic references

Arpi, E., Geronimo, A., Huertas, G., Torres, N., & Guerrero, J. (2024). Estrés académico en la conducta de salud en estudiantes universitarios de Lima Metropolitana. *Revista San Gregorio*, *1(58)*, 78–86. https://doi.org/10.36097/rsan.v1i58.2508

Barraza, A. (2018). *Inventario Sistémico Cognoscitivista para el estudio del estrés académico,* (2ª versión, 21 ítems). ECORFAN. http://upd.edu.mx/PDF/Libros/Estres.pdf

Belloso, G., & Lizardo, A. (2023). El proceso de investigación científica en las ciencias políticas: enfoque cualitativo, cuantitativo y mixto. *Revista de Artes y Humanidades UNICA*, *24(51)*, 250–266. https://doi.org/10.5281/zenodo.10059973

Estrada, E., Ayay, G., Cruz, E., & Paricahua, J. (2024). Estresores académicos y los estilos de vida de los estudiantes universitarios: Un estudio predictivo en una universidad pública *Retos*, *59*, 1132–1139. https://doi.org/10.47197/retos.v59.109410

George, D., & Mallery, P. (2019). *IBM SPSS Statistics 26 Step by Step* [IBM SPSS Statistics 26 paso a paso]. Routledge. https://doi.org/10.4324/9780429056765

Gusqui, K., & Galárraga, A. (2023). Analisis de disparidad en los niveles de estrés académico entre estudiantes universitarios de primer y último nivel. *Prometeo Conocimiento Científico*, *3(2)*, 1–12. https://doi.org/10.55204/pcc.v3i2.e49

Gutiérrez, J., Garzón, J., & Segura, A. (2021). Factores asociados al rendimiento académico en estudiantes universitarios. *Formación Universitaria*, *14(1)*, 13–24. http://dx.doi.org/10.4067/S0718-50062021000100013

Hernández, Y., Moreno, V., Batista, N., & Tejada, E. (2017). ¿Chi cuadrado o Ji cuadrado? *Medicentro*, *21(4)*, 294–295. https://medicentro.sld.cu/index.php/medicentro/article/view/2500/2073

Infantas, S., & Heredia, F. (2023). Estrés académico y el rendimiento académico de los estudiantes de un instituto de educación. *REVISTA VERITAS ET SCIENTIA - UPT*, *12*(1), 7-22. https://doi.org/10.47796/ves.v12i01.774

Linares, J., & Mescua, C. (2022). *Estrés académico y estrategias de afrontamiento en estudiantes de secundaria de una institución educativa privada de Lima Norte.* [Tesis de licenciatura, Universidad San Ignacio de Loyola] Repositorio Institucional USIL. https://hdl.handle.net/20.500.14005/12468

Manterola, C., Hernández, M., Otzen, T., Espinoza, M., & Grande, L. (2023). Estudios de corte transversal. Un diseño de investigación a considerar en ciencias morfológicas. *Int. J. Morphol*, *41*(1), 146–155. http://dx.doi.org/10.4067/S0717-95022023000100146

Martínez, E. (2018). *Estrés académico y su influencia en el rendimiento académico en estudiantes de los cursos del tercer año del departamento académico de microbiología y patología, Facultad de Medicina de la Universidad Nacional de San Agustín–2018* [Tesis de licenciatura, Universidad Nacional de San Agustín de Arequipa]Repositorio Institucional UNSA. https://repositorio.unsa.edu.pe/items/eb647a60-c9a7-4e40-9b41-9095d1e06e5f

Martínez, J., Ortíz, Y., & Bermúdez, L. (2023). Niveles de estrés y rendimiento académico en estudiantes del segundo año de Medicina. *Revista Electrónica Dr. Zoilo E. Marinello Vidaurreta*, *48*(1), 3311–3319. https://revzoilomarinello.sld.cu/index.php/zmv/article/view/3311

Moscoso, C., & Barzallo, J. (2018). Estudio Transversal: Prevalencia de Estrés Académico en Estudiantes de Medicina, Asociado al Rendimiento Académico, Universidad de Cuenca, Cuenca – Ecuador, 2015. *Revista Médica HJCA*, *10*(2), 88–92. https://revistamedicahjca.iess.gob.ec/ojs/index.php/HJCA/article/view/72

Olmedo, R., & Cabezas, E. (2021). Los niveles de estrés; diagnóstico teórico – práctico en los alumnos de la Carrera de Gastronomía del Instituto Universitario Internacional, en tiempos de Covid-19. *Dominio de Las Ciencias*, *7(4)*, 781–796. https://dominiodelasciencias.com/ojs/index.php/es/article/view/2449

Organización Mundial de la Salud. (2023). *Estrés*. https://www.who.int/es/news-room/questions-and-answers/item/stress

Otzen, T., & Manterola, C. (2017). Técnicas de muestreo sobre una población a estudio. *Int. J. Morphol*, *35(1)*, 227-232. http://dx.doi.org/10.4067/S0717-95022017000100037

Ovalle, S. (2024). *Estresores académicos en los estudiantes de enfermería durante la enseñanza semi presencial de una universidad pública. Lima, 2022.* [Tesis de licenciatura, Universidad Nacional Mayor de San Marcos] Cybertesis UNMSM. https://cybertesis.unmsm.edu.pe/backend/api/core/bitstreams/87c4eee4-aec3-4ad7-9be7-a320a08021f5/content

Prieto, B. (2018). El uso de los métodos deductivo e inductivo para aumentar la eficiencia del procesamiento de adquisición de evidencias digitales. *Cuadernos de Contabilidad*, *18*(46), 1-27. https://doi.org/10.11144/Javeriana.cc18-46.umdi

Programa de las Naciones Unidas para el Desarrollo (PNUD). (2022). *Informe sobre desarrollo humano 2021/2022. Tiempos inciertos, vidas inestables*. https://hdr.undp.org/system/files/documents/global-report-document/hdr2021-22sp1.pdf

Sierra, P., & Moreno, A. (2023). *Estrategias de afrontamiento frente al estrés académico en estudiantes de odontología práctica clínica* [Tesis de licenciatura, Universidad Cooperativa de Colombia]. Repositorio Institucional Universidad Cooperativa de Colombia. https://hdl.handle.net/20.500.12494/52124

Silva, M., López, J., & Meza, M. (2020). Estrés académico en estudiantes universitarios. *Investigación y Ciencia de La Universidad Autónoma de Aguascalientes*, *28(79)*, 75–83. https://investigacion.uaa.mx/RevistaIyC/archivo/revista79/Articulo%208.pdf

Sousa, V., Driessnack, M., & Mendes, I. (2007). Revisión de diseños de investigación resaltantes para enfermería. Parte 1: diseños de investigación cuantitativa. *Revista Latino-Americana de Enfermagem*, *15(3)*, 502–507. https://doi.org/10.1590/S0104-11692007000300022

Tirado, L., Morales, J., Vargas, E., & Arce, J. (2023). Estrés académico autopercibido y factores relacionados en una escuela privada de odontología en Cartagena, Colombia. *Universidad y Salud*, *25*(1), 1–7. https://doi.org/10.22267/rus.232501.294

Velasco, Á., & Barraza, Y. (2024). *Estrés académico en estudiantes de la Facultad de Ciencias Sociales y Humanas de la Universidad de Antioquia sede Medellín, 2023* [Tesis de licenciatura, Universidad de Antioquia]. Repositorio Institucional UA. https://hdl.handle.net/10495/41603

Zárate, N., Soto, M., Martínez, E., Castro, M., García, R., & López, N. (2018). Hábitos de estudio y estrés en estudiantes del área de la salud. *FEM: Revista de La Fundación Educación Médica*, *21*(3), 153–157. https://doi.org/10.33588/fem.213.948

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