Scientific and technological research article

How to cite: Muñoz Morales, C. D., de Socorro Benavidez, R., & Bustamante Morales, O. E. (2025). Relationship between academic performance and emotional intelligence in Medical students. *Estrategia y Gestión Universitaria*, 13(2), e8817. https://doi.org/10.5281/zenodo.17560298

Received: 24/03/2025
Accepted: 27/05/2025
Published: 08/12/2025

Corresponding author:

obustamante@unflep.edu.ni

Conflict of interest: the authors declare that they have no conflict of interest, which may have influenced the results obtained or the proposed interpretations.

Carlos Danilo Muñoz Morales [1]
Universidad Nacional Francisco Luis Espinoza Pineda
https://orcid.org/0009-0001-1322-624X
cdmles@gmail.com
Nicaragua

Ramona de Socorro Benavidez [2]
Universidad Nacional Francisco Luis Espinoza Pineda
https://orcid.org/0009-0004-2648-336X
benavidcruz@gmail.com
Nicaragua

Oscar Enrique Bustamante Morales [3]
Universidad Nacional Francisco Luis Espinoza Pineda
https://orcid.org/0000-0003-3745-5749
obustamante@unflep.edu.ni
Nicaragua

Relationship between academic performance and emotional intelligence in Medical students

Relación entre el rendimiento académico y la inteligencia emocional en estudiantes de Medicina

Relação entre o desempenho acadêmico e a inteligência emocional em estudantes de Medicina

Abstract

Introduction: the relationship between emotional intelligence (EI) and academic performance plays a central role in medical education, as competencies such as empathy, self-regulation, and emotional awareness shape students' engagement and academic achievement. **Objective:** to analyze the possible association between these variables among first- to third-year medical students at the Universidad Nacional Francisco Luis Espinoza Pineda (UNFLEP) during the first semester of 2022. **Method:** a mixed-methods study was conducted, predominantly quantitative, cross-sectional, and correlational in design. A total of 181 randomly selected students and 22 faculty and administrative staff participated. Emotional intelligence was assessed using the TMMS-24, and academic performance was measured through semester grade point averages. Descriptive statistics, normality tests, and Spearman's correlation were applied. **Results:** findings indicate predominantly moderate mean scores ($\bar{x} = 76.4$), with high proportions of low emotional attention (55.2%) and need for improvement in emotional clarity (53.6%); adequate emotional repair was observed in 43.1% of students. Correlations between EI dimensions and academic performance were low and not statistically significant. **Conclusion:** it is suggested to expand the sample size and consider longitudinal designs to better specify trajectories of change and their effects on academic performance.

Keywords: emotional intelligence, academic performance, medical education, correlation measures, medical students

Resumen

Introducción: la relación entre la inteligencia emocional (IE) y el rendimiento académico adquiere un papel central en la formación médica, pues competencias como la empatía, la autorregulación y la conciencia emocional condicionan la participación del estudiantado y su logro académico.

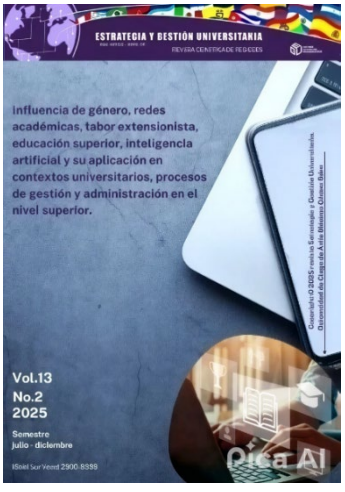
Objetivo: analizar la posible asociación entre ambas variables en estudiantes de Medicina de primero a tercer año de la Universidad Nacional Francisco Luis Espinoza Pineda (UNFLEP) durante el primer semestre de 2022. **Método:** se realizó un estudio mixto, predominante cuantitativo, transversal y correlacional. Participaron 181 estudiantes seleccionados aleatoriamente y 22 docentes y administrativos. La inteligencia emocional se evaluó con el TMMS-24 y el rendimiento académico mediante promedios semestrales. Se aplicó estadística descriptiva, pruebas de normalidad y correlación de Spearman. **Resultados:** muestran promedios mayoritariamente moderados ($\bar{x}$ = 76.4) y proporciones elevadas de baja atención emocional (55.2%) y necesidad de mejora en claridad emocional (53.6%); la reparación adecuada se observó en 43.1% del alumnado. Las correlaciones entre dimensiones de IE y rendimiento resultaron bajas y no significativas. **Conclusión:** se sugiere ampliar el tamaño muestral y considerar diseños longitudinales para precisar trayectorias de cambio y efectos en el desempeño académico.

Palabras clave: inteligencia emocional, rendimiento académico, educación médica, medidas de correlación, estudiantes de medicina

Resumo

Introdução: a relação entre inteligência emocional (IE) e desempenho acadêmico assume papel central na formação médica, uma vez que competências como empatia, autorregulação e consciência emocional condicionam o engajamento discente e seu êxito acadêmico. **Objetivo:** analisar a possível associação entre essas variáveis em estudantes de Medicina do primeiro ao terceiro ano da Universidade Nacional Francisco Luis Espinoza Pineda (UNFLEP) durante o primeiro semestre de 2022. **Método:** realizou-se um estudo de métodos mistos, predominantemente quantitativo, transversal e correlacional. Participaram 181 estudantes selecionados aleatoriamente e 22 docentes e administrativos. A inteligência emocional foi avaliada por meio do TMMS-24 e o desempenho acadêmico mediante médias semestrais. Aplicaram-se estatística descritiva, testes de normalidade e correlação de Spearman. **Resultados:** os achados revelam médias predominantemente moderadas ($\bar{x}$ = 76,4), com proporções elevadas de baixa atenção emocional (55,2%) e necessidade de melhoria na clareza emocional (53,6%); reparação adequada foi observada em 43,1% dos estudantes. As correlações entre dimensões da IE e desempenho acadêmico foram baixas e não significativas. **Conclusão:** sugere-se ampliar o tamanho amostral e considerar delineamentos longitudinais para precisar trajetórias de mudança e seus efeitos sobre o desempenho acadêmico.

Palavras-chave: inteligência emocional, desempenho acadêmico, educação médica, medidas de correlação, estudantes de medicina



Introduction

Understanding the factors that influence academic performance is crucial for optimizing the teaching-learning processes in higher education. In this context, emotional intelligence (EI) and learning styles stand out for their impact on self-regulation, motivation, and adaptation to curricular demands (Mayer et al., 2004). The proposals of Gardner (1993) on multiple intelligences expanded the understanding of human capabilities beyond IQ, while the theoretical developments by Mayer and Salovey (1997) and the contributions of Goleman (2010) positioned EI as a set of skills related to perceiving, understanding, and managing one's own emotions and those of others. From an educational perspective, these approaches have driven teaching strategies aimed at emotional self-regulation and the strengthening of socio-emotional skills, which can be reflected in academic persistence and evaluative achievements.

Operationally, EI is considered a multidimensional construct that includes, among other components, attention, clarity, and emotional repair. The TMMS-24, a reduced version of the Trait Meta-Mood Scale, has been widely used to estimate these dimensions in university contexts due to its factorial structure and appropriate reliability indicators (Angulo Rincón & Albarracín Rodríguez, 2019a; Rodríguez Peralta, 2018). Concurrently, learning styles have been conceptualized as relatively stable preferences that guide the way information is processed and knowledge is acquired (Alonso et al.,1994; Segura Martín & Cacheiro González, 2018).

Empirical evidence reports heterogeneous results regarding the magnitude of the relationship between EI and academic performance. Low or non-significant associations have been described in university and adolescent populations (Serrano & Andreu, 2016; Arntz Vera & Trunce Morales, 2019; Orejarena Silva, 2020), while other studies have reported moderate correlations with statistical significance, even showing variations by stage of medical training (Mayorga, 2019; Páez Cala & Castaño Castrillón, 2019; León Aragoneses, 2021). Part of this disparity may be attributed to differences in design, measurement instruments, sample sizes, and control of covariates, as well as potential self-report biases associated with the TMMS-24.

In the context of medical education, where intense academic loads, practical demands, and exposure to emotionally challenging situations converge, it is pertinent to analyze how the dimensions of EI relate to academic performance in the early stages of training. In Nicaragua, evidence is still nascent, and studies focus on descriptions of performance or analyses of individual factors, suggesting that expanding the examination of socio-emotional variables may provide insight for pedagogical decision-making and student support.

Based on the above, the objective of this study is to analyze the relationship between grade averages and the dimensions of EI (attention, clarity, and repair) among first to third-year medical students at the National University Francisco Luis Espinoza Pineda (UNFLEP) during the first semester of 2022. A mixed-methods design with a quantitative predominance, cross-sectional nature, and correlational scope is proposed, complemented by qualitative information obtained from interviews with faculty and administrative staff. It is anticipated that the findings will contribute to guiding emotional education strategies and focusing academic support actions in critical courses of the educational trajectory.

Methods and materials

Scope and design

The study was conducted at the Directorate of Health Sciences of the Alejandro Dávila Bolaños University Campus (RUADB). A mixed-methods approach with a quantitative predominance, cross-sectional nature, and correlational scope was adopted (Hernández Sampieri, Fernández-Collado & Baptista, 2014). The qualitative component was utilized in an exploratory manner to contextualize and interpret the quantitative results.

Population and sample

The target population consisted of 334 medical students (first to third year) with recorded grades in the institutional academic system during the first semester of 2022. A sample size of 181 students was calculated using simple random sampling (95% confidence level and 5% error), selected randomly. Additionally, 22 participants were interviewed (10 faculty members, 3 administrative collaborators, and 1 from the academic registration area, among others) selected for convenience, considering their direct involvement in the educational processes.

Students officially enrolled during the study period with complete grade records were included; for the qualitative component, active personnel during the semester linked to teaching or academic management were selected. Institutional permissions were obtained, and informed consent was acquired from all participants. Data collection took place in classrooms, offices, and through institutional contact methods (email, phone, and social media), using a structured questionnaire for students and an interview guide for the staff.

Variables and instruments

Academic performance was operationalized as the average grade for the first semester of 2022 and classified into three levels: high (90–100), medium (70–89), and low (<70). Emotional intelligence was measured using the Spanish version of the TMMS-24, which evaluates attention, clarity, and emotional repair using a Likert scale and has evidence of validity and reliability in educational contexts (Angulo Rincón & Albarracín Rodríguez, 2019a; Rodríguez Peralta, 2018). The reported internal consistency coefficients for its dimensions are in high ranges. In the qualitative component, a semi-structured interview guide was employed to explore perceptions about EI and its pedagogical utility.

Data analysis

Quantitative data were processed in SPSS v.25 using descriptive statistics (frequencies and percentages), normality tests (Kolmogorov-Smirnov and Shapiro-Wilk), and Spearman's correlation coefficient (ρ), as the variables did not meet normality assumptions ($p \leq 0.05$). A significance threshold of $p \leq 0.05$ was considered, along with standard interpretation intervals for correlation magnitude (low, moderate, and high). For the presentation of results, tables and figures were created in Microsoft Excel, and texts were systematized in Microsoft Word. Interviews were organized using coding matrices by themes and keywords, to support

the interpretation of the quantitative findings.

Results and discussion

Academic performance in Medicine, a typically demanding field, is influenced by personal and institutional factors such as emotional intelligence (EI), learning preferences, course load, family context, socioeconomic status, and the support provided by the university. The data from this study illustrate how these elements intertwine, offering useful evidence for designing pedagogical strategies more aligned with student needs.

This study presents findings that demonstrate the connection between emotional intelligence, learning styles, and academic performance among first to third-year medical students. The results obtained allow for an interpretation of how these factors interrelate, providing empirical evidence useful for guiding the design of pedagogical strategies that better fit the characteristics of the student body.

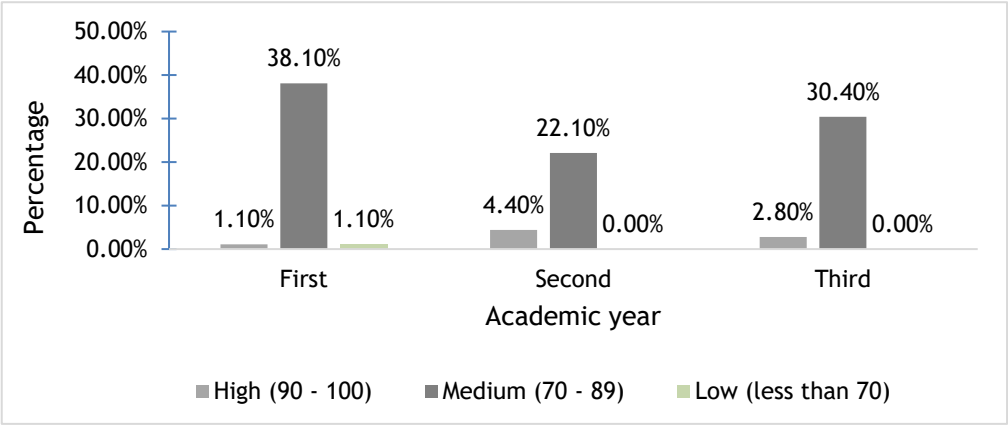
The combined influence of internal and external factors appears to significantly impact the observed evolution of academic performance in the sample. As shown in Figure 1, a decrease in average performance levels (22.10%) is recorded during the second year compared to the first year (38.10%), accompanied by a slight increase in high performance (from 1.10% to 4.40%). However, in the third year, high values decline again (2.80%), while average grades show a recovery (30.40%). This behavior suggests adaptation difficulties in response to the increased academic demands characteristic of the second year. Consequently, it is recommended to implement both academic and emotional support actions during the most critical stages to maintain stable performance.

These results align with previous research. Puig Lagunes et al. (2020) identified that first-year medical students tend to achieve average grades ranging from good to excellent, while Grasso (2020) argues that university students with better performance are often found in the early semesters of their studies. Both studies support the notion that the initial stages of the educational process constitute a decisive period for academic success.

Among the institutional determinants that may explain the performance curve, it is noteworthy that the second-year curriculum incorporates more complex subjects, unlike the third year, which has a lighter academic load. This distribution contributes to increased stress and overload among second-year students. Therefore, it is essential for faculty and administrative staff to recognize academic performance as a fundamental indicator of the quality of the educational process and to actively engage in creating learning environments that promote improvement.

Figure 1

Academic performance and year of study among first to third-year medical students, first semester, UNFLEP; 2022



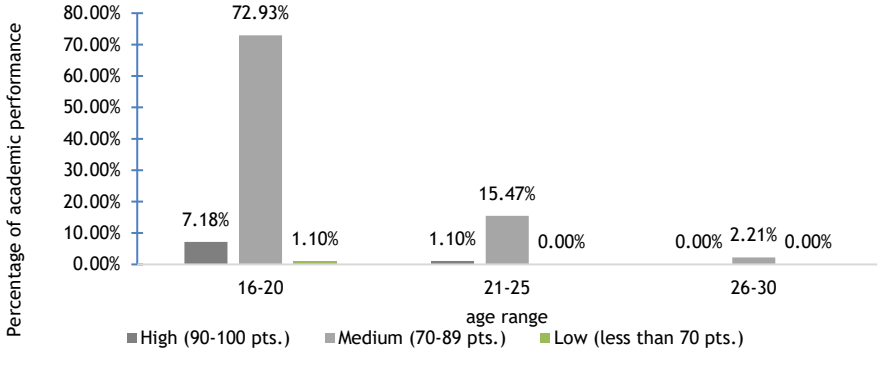
Source: Authors' own elaboration.

According to Figure 2, medium and high grades prevail across all ages, with the highest percentage among those aged 16 to 20 years (72.93% and 7.18%, respectively). This age range corresponds to first to third-year students in Latin American universities, according to Mayorga (2019), evidencing the trend toward starting higher education at younger ages, particularly in Medicine (Campillo Labrandero et al., 2021). Additionally, the predominance of average performance within this age group aligns with the academic level they are pursuing.

Nationally, Mora (2021) reported that most medical students aged 20 or younger present performance categorized as good or regular, with scores between 70–79 and 60–69, respectively. Among those over 20, the trend continues, albeit less frequently. These results coincide with those of the current study, despite different categories being applied to measure academic performance. Overall, the data suggest that younger students achieve higher grades. However, this pattern may be mediated by additional factors such as motivation levels, family support, economic conditions, access to study materials, and the learning strategies employed by each age group, as indicated by the consulted faculty and administrative staff.

Figure 2

Academic performance according to the age of first to third-year medical students, first semester, UNFLEP; 2022



Source: Authors' own elaboration.

The increase in access to higher education for women has represented a profound change in the composition of the university student body. Both nationally and internationally, there is a growing female participation in higher education (Mayorga, 2019), even surpassing male enrollment in various fields of knowledge (Campillo Labrandero et al., 2021), particularly in Medicine (Martínez Pérez et al., 2020).

In line with this trend, the results shown in Figure 3 reflect better academic averages in the female group, with 60.22% in the medium level and 5.52% in the high level. This behavior may be partially attributed to the larger number of women participating in the study (66.3%) compared to 33.7% of men, a proportion that aligns with national patterns noted in previous research. For example, Mora (2021), in an analysis involving 450 medical students from three public universities in Nicaragua, identified that women achieved higher average grades than men, especially during the first two years of the program. Additionally, data from the National Council of Universities (CNU, 2024) show that women constitute a growing majority in health-related fields and tend to achieve higher academic performance averages.

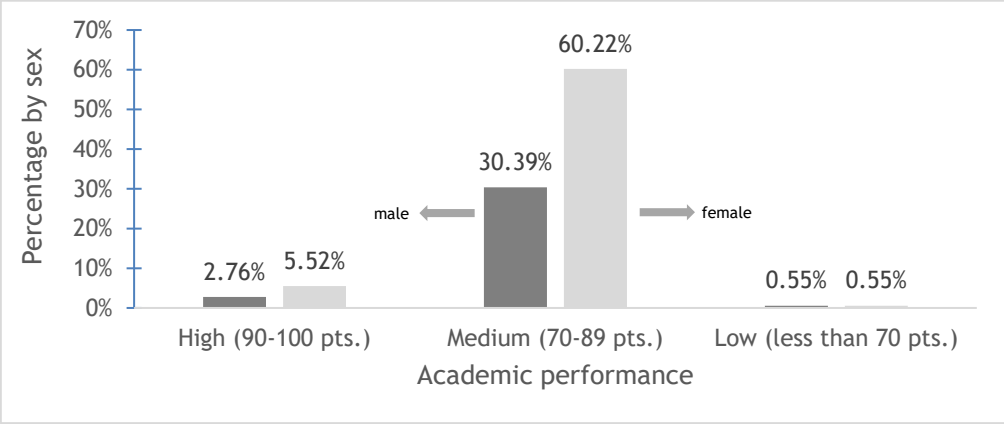
In this research, men also exhibited a significant percentage in medium performance levels (30.39%). However, when conducting a comparative analysis, it is observed that this trend aligns with findings reported in various national studies, which reflect similar patterns in different educational contexts and regions of the country.

On the other hand, some studies, such as that of García-Ros et al. (2012), have reported better performance among males, although such results are often related to retention or completion rates rather than to achieving high grades. In contrast, Campillo Labrandero et al. (2021) found no statistically significant differences between the sexes or reported only minimal variations.

From this, it can be inferred that academic performance does not depend exclusively on sex, but is conditioned by additional factors such as family environment, gender expectations, motivation levels, and the availability of academic and emotional support—issues that are also highlighted in the work of Gaeta González (2018). Further exploration of the interaction between these variables would allow for a more precise understanding of the results obtained in the correlations presented in this study.

Figure 3

Academic performance according to the sex of first to third-year medical students, first semester, UNFLEP; 2022



Source: Authors' own elaboration

According to Goleman (2010), emotional intelligence (EI) is defined as the capacity to recognize and understand one's own emotions and those of others, as well as to effectively motivate and manage interpersonal and intrapersonal relationships. In this context, the results presented in Figure 4 reveal a significant finding: more than half of the participating students show difficulties in two essential dimensions of EI. In the Attention dimension, 55.2% demonstrate low emotional awareness, indicating limitations in identifying and making sense of their feelings. Meanwhile, in the Clarity dimension, 53.6% require improvement in their ability to recognize, differentiate, and understand their emotions.

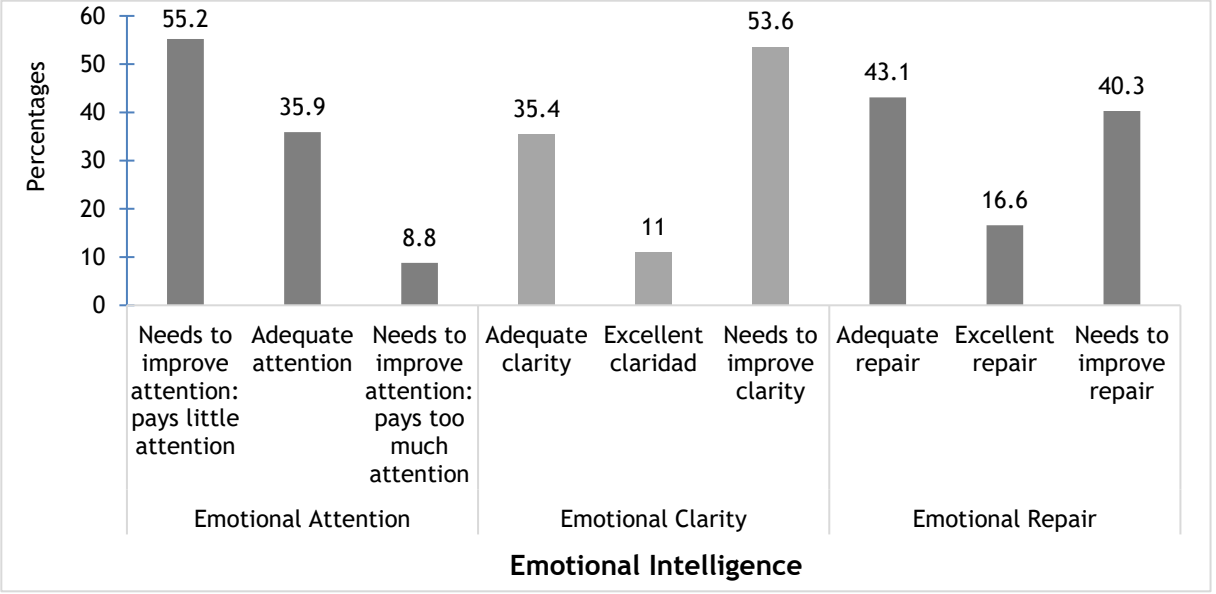
Conversely, the results in the Repair dimension show a somewhat different trend. About 43.1% of students are able to adequately regulate their emotional states, both positive and negative, while 40.3% still need to enhance their ability to manage emotions constructively.

These findings contrast with expectations for medical students, as literature indicates that this profile typically exhibits medium levels of emotional intelligence (Barrera-Gálvez et al., 2019). However, several authors have documented recurring deficiencies in emotional clarity, even in contexts where emotional awareness is acceptable, and similar levels of emotional repair are observed.

Such findings suggest the need to analyze underlying factors, including academic stress, which has been shown to exert an indirect influence on student performance (Ayala-Servín et al., 2021). This aligns with recent evidence regarding the mediating role of perceived stress among medical students (Gutiérrez-Cobo et al., 2022). Additionally, it is pertinent to examine how these factors affect faculty, as although teachers report having theoretical knowledge about emotional intelligence, there is still a need to deepen its practical application within the educational process (Pérez-Benítez & Zamora, 2024).

Figure 4

Categorization of Emotional Intelligence in first to third-year medical students, first semester, UNFLEP; 2022



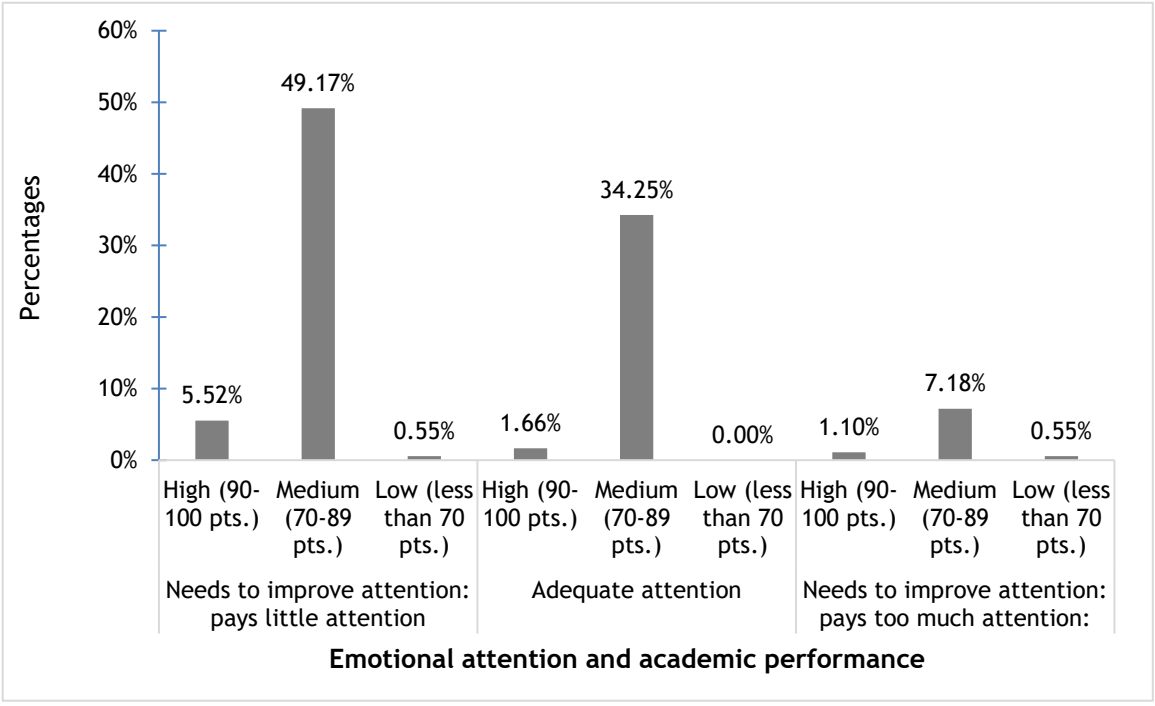
Source: Authors' own elaboration.

In Figure 5, it is observed that while most students need to strengthen their emotional attention, 49.17% achieved medium-level grades, while 5.52% reached high performance. According to Mora (2021), this behavior is common among medical university students. However, León Aragoneses (2021) found that students with low emotional attention tend to receive lower grades, while those maintaining adequate attention achieve better results, which contrasts with the findings of the present study. Nonetheless, it is noted that 34.25% of students with medium performance exhibit adequate emotional attention, allowing them to recognize and understand both their own emotions and those of others, constituting a significant academic advantage. However, 7.18% of participants still show difficulties arising from excessive attention to emotional states, which may interfere with their performance.

These aspects should be considered by the participating teaching and administrative staff. However, as previously noted, possessing theoretical knowledge about emotional intelligence does not necessarily imply its application in educational practice, class planning, or evaluation processes. Therefore, it is essential for teachers to incorporate emotional attention into their pedagogical strategies so that they can detect and address the emotional needs of students. Only through a systematic and conscious approach will it be possible to strengthen this competence and, consequently, improve academic performance (Mendoza-García & Ortiz, 2025).

Figure 5

Relationship between Academic Performance and Emotional Attention of Emotional Intelligence among first to third-year medical students, first semester, UNFLEP; 2022



Source: Authors' own elaboration

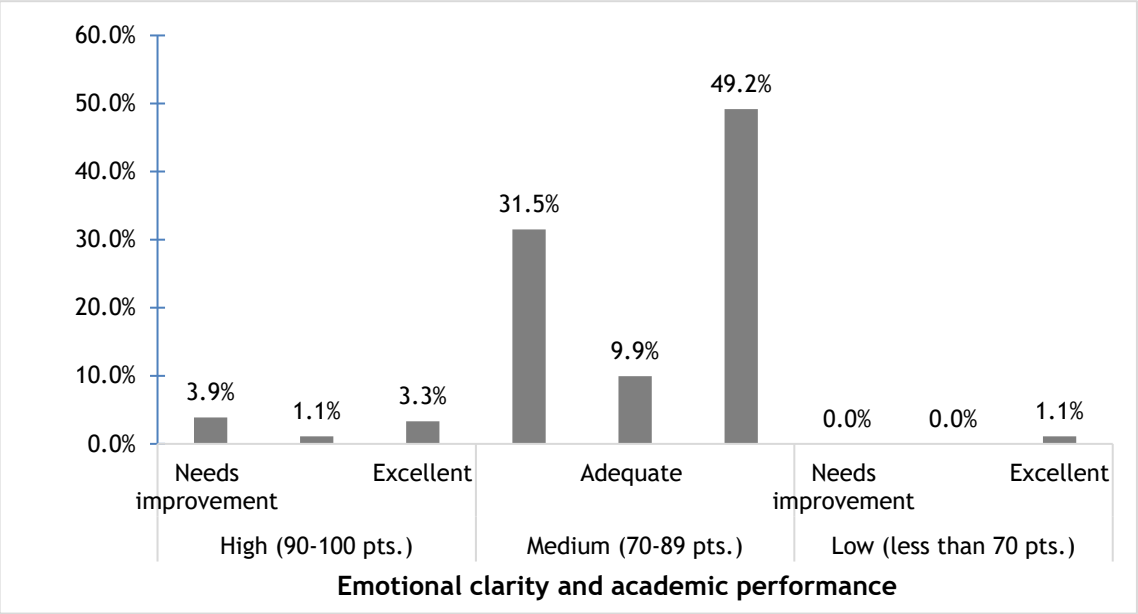
Various studies indicate that individuals with adequate or outstanding emotional clarity are capable of identifying, understanding, and distinguishing their own emotions and those of others (Martínez Pérez et al., 2020), which is associated with a positive impact on academic performance. In Figure 6, the results obtained reinforce this assertion, as 49.2% of students with excellent emotional clarity achieved medium academic performance. This percentage exceeds that reported in previous research, where medical students with grades ranging from good to excellent demonstrated adequate emotional clarity, while those with low clarity tended to have poorer grades (León Aragoneses, 2021).

Furthermore, other authors have identified that health sciences students, regardless of sex, tend to exhibit high levels of emotional clarity, which aligns with the results of this study (Rodríguez Rodríguez et al., 2020). However, it is still evident that 31.5% of those with medium performance and 3.9% with high performance need to strengthen this emotional competence. These data indicate that emotional clarity, while important, is not the only determinant of academic performance, as other elements such as motivation, study habits, and prior preparation also play a crucial role, particularly for medical students (Martínez Pérez et al., 2020).

In this sense, it becomes essential for teaching and administrative staff to promote pedagogical strategies aimed at enhancing academic performance, especially for those students who still need to develop greater emotional clarity.

Figure 6

Emotional Clarity of the Emotional Intelligence Test and academic performance among first to third-year medical students, first semester, UNFLEP; 2022



Source: Authors' own elaboration

In Figure 7, it is evident that when comparing the results of this study with prior research, there is a predominance of students needing to strengthen their emotional repair capacity, with 38.7% at medium performance levels, 3.9% at high levels, and only 0.6% at low levels. These results are consistent with those reported by Rodríguez Rodríguez et al. (2020), who found emotional repair levels between medium and low among health sciences students, noting statistically significant differences based on sex and age: women demonstrated greater repair capacity than men, while students under 21 tended to exhibit more significant difficulties in this dimension.

However, that study did not establish a direct relationship between academic performance and emotional repair nor analyze the results based on the field of study. This aspect highlights the need to incorporate this dimension as a transversal component in academic support programs directed at medical students.

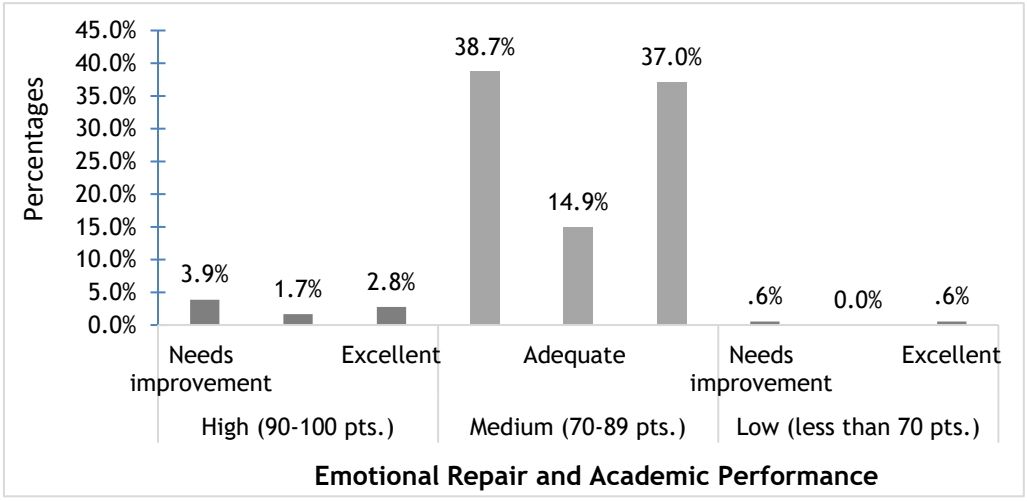
On the other hand, the results partially contrast with those obtained by Ayala-Servín et al. (2021), who reported that half of the evaluated medical students reached adequate emotional repair levels, with differences by sex, although without relating it to academic performance. Similarly, León Aragoneses (2021) found that students with grades from good to excellent exhibited greater mastery of emotional regulation, while those needing improvement in this dimension recorded lower evaluations.

In this study, it is confirmed that although the group needing to strengthen their emotional regulation predominates, a considerable proportion of these

students maintains medium or high performance. Emotional repair, understood as the ability to manage and restore emotional balance after negative experiences, constitutes a key factor in this adaptive process. It is noteworthy that the best academic results were primarily achieved by those who demonstrated adequate emotional regulation, with 14% at medium performance and 1.7% at high. Additionally, a significant fraction of those with excellent emotional skills attained medium (37%), low (6%), and high (2.8%) performance levels. These results align with findings reported by León Aragoneses (2021) and Liang and Chen (2024). Similar results have also been documented in international contexts (Sánchez-Álvarez et al., 2023; Silva-Junior & Almeida, 2023).

Figure 7

Emotional Repair from the Emotional Intelligence Test and academic performance among first to third-year medical students, first semester, UNFLEP; 2022



Source: Authors' own elaboration

Despite the previously described results, the data presented in Table 1 show low and positive correlation coefficients between academic performance and the dimensions of emotional intelligence: Attention (r = 0.062), Clarity (r = 0.107), and Repair (r = 0.033). Since these values fall within the range of –1 to 1, coefficients close to zero reflect weak or practically non-existent relationships. Consequently, the association between the analyzed variables is minimal, suggesting a slight connection that lacks sufficient strength to be considered statistically relevant.

Moreover, none of the dimensions showed statistical significance (Attention: p = 0.408; Clarity: p = 0.150; Repair: p = 0.658), indicating that the results may respond to random variations rather than a consistent or generalizable relationship. These findings align with part of the reviewed literature, where contradictory results have also been observed. For example, Serrano and Andreu (2016) did not identify a direct relationship between emotional intelligence dimensions and academic performance among adolescents, although they highlighted the presence of indirect

effects, albeit weak, partially corresponding with findings in the present work.

Similarly, Arntz Vera and Trunce Morales (2019) observed that university students of nutrition showed no significant differences in levels of attention, understanding, and emotional regulation concerning their average grades, nor correlations with curriculum advancement. In line with this, Orejarena Silva (2020) reported very low correlation indices between emotional intelligence dimensions and academic performance, without reaching statistical significance.

In contrast, some studies have shown opposing results. Mayorga (2019) reported a moderate positive correlation that was statistically significant among university students, while Páez Cala and Castaño Castrillón (2019) identified a more substantial significant association in the clinical cycle than in the basic cycle of Medicine, additionally finding it higher than in other fields. Subsequently, León Aragoneses (2021) documented a high and significant correlation between emotional intelligence and academic performance among first-year medical students, for both men and women.

The lack of uniformity in results may be attributed, as several authors suggest, to conceptual differences regarding the emotional intelligence construct, the diversity of instruments used for its measurement, and the influence of external variables such as traditional cognitive intelligence or prior performance. Therefore, it is imprudent to draw definitive conclusions based on the obtained data. Furthermore, some researchers have warned of possible biases in perception and memory associated with the use of the TMMS-24, as this instrument relies on individual self-evaluation, which may affect the validity of the findings (Taylor et al., 2024; Gómez & Torres, 2025).

Table 1

Spearman Correlation Index between Academic Performance and Components of Emotional Intelligence

	Components	**Academic Performance**		
		Correlation Coefficient	Sig. (two-tailed)	N
Emotional Intelligence	Emotional attention	0.062	0.408	181
	Emotional clarity	0.107	0.150	181
	Emotional repair	0.033	0.658	181

Source: Authors' own elaboration

Note: Correlations between 0.00 and 0.399 are considered low; between 0.400 and 0.699 indicate moderate correlation; between 0.700 and 1 signify high correlation; a correlation of 1 indicates perfect positive correlation. The same criteria apply to negative correlations. The ρ value is statistically significant when ≤ 0.05.

Conclusions

The results indicate that the dimensions of emotional attention and clarity among the students predominantly reflect low levels of attention to emotions, highlighting the need to strengthen both emotional attention and repair. However, there is a relatively greater prevalence of adequate emotional repair compared to those who still need to improve in this area. No significant differences were identified among age groups, which likely relates to the limited age variability within the analyzed sample. This aspect constitutes a limitation of the study, as it reduces the ability to generalize results to other populations or educational contexts.

The average academic performances (70–89 points) are present across all three evaluated dimensions of emotional intelligence, primarily among students who need to improve their emotional attention, those who exhibit excellent emotional clarity, and those who display low levels of emotional repair. Based on these findings, it is recommended to implement intervention strategies aimed at strengthening emotional competencies, with an emphasis on the recognition and self-regulation of emotions. Systematic emotional education, self-care workshops, and teacher training in socio-emotional support are identified as effective actions to improve both student well-being and academic performance.

The teaching, administrative, and academic registration personnel generally demonstrate a basic understanding of emotional intelligence theory; however, conceptual inaccuracies in the understanding of some of its components have been identified. Regarding the relationship between emotional intelligence and academic performance, the Spearman correlation coefficients show positive but low relationships across the three analyzed dimensions, without reaching statistical significance. Therefore, the data do not conclusively support the hypothesis of a direct relationship between these two variables.

References

Alonso, C. M., Gallego, D. J., & Honey, P. (1994). *Los estilos de aprendizaje: Procedimientos de diagnóstico y mejora.* Ediciones Mensajero.

Angulo Rincón, R., & Albarracín Rodríguez, Á. P. (2019a). Validez y confiabilidad de la escala rasgo de metaconocimiento emocional (TMMS-24) en profesores universitarios. *Revista Lebret, 10*, 61–72. https://doi.org/10.15332/rl.v0i10.2197

Angulo Rincón, R., & Albarracín Rodríguez, M. (2019b). Inteligencia emocional y su relación con el rendimiento académico. *Revista Electrónica Educare, 23*(2), 1–15. https://doi.org/10.15359/ree.23-2.6

Arntz Vera, J., & Trunce Morales, S. (2019). Inteligencia emocional y rendimiento académico en estudiantes universitarios de nutrición. *Investigación en Educación Médica, 31*, 82–91. https://doi.org/10.22201/facmed.20075057e.2019.31.18130

Ayala-Servín, Nicolás, Duré Martínez, Marcia Antonella, Urizar González, César Andrés, Insaurralde-Alviso, Ariel, Castaldelli-Maia, João Mauricio, Ventriglio, Antonio, Almirón-Santacruz, José, García, Oscar Enrique, & Torales, Julio César. (2021). Emotional intelligence associated with levels of anxiety and depression in medical students of a public university. *Anales de la Facultad de Ciencias Médicas (Asunción), 54*(2), 51–60. https://doi.org/10.18004/anales/2021.054.02.51

Barrera-Gálvez, R., Solano-Pérez, D., Arias-Rico, J., Oa-Díaz, M., & Jiménez-Sánchez, J. M. (2019). La inteligencia emocional en estudiantes. *Educación y Salud: Boletín Científico de Ciencias de la Salud del ICSa*, 14(14), 50-55. https://repository.uaeh.edu.mx/revistas/index.php/ICSA/article/view/4141

Bisquerra, R. (2009). *Educación emocional y competencias básicas para la vida*. Centro de Estudios Ramón Areces.

Cabas-Hoyos, K., González-Bracamonte, Y., & Hoyos-Regino, P. (2017). Teorías de la inteligencia y su aplicación en las organizaciones. *Clío América, 11*(22), 254-270. https://doi.org/10.21676/23897848.2445

Campillo Labrandero, M., et al. (2021). Academic performance and graduation rates in medical students. *Educación Médica, 22*(2), 67–72. https://doi.org/10.1016/j.edumed.2019.05.003

CNU (Consejo Nacional de Universidades). (2024). *Mapa interactivo de la educación superior nicaragüense*. https://mapa.cnu.edu.ni/

Fernández-Lasarte, O., & Axpe Sáez, E. (2019). Academic performance, social support and emotional intelligence at the university. *European Journal of Investigation in Health, Psychology and Education, 9*(1), 39–49. https://doi.org/10.30552/ejihpe.v9i1.315

Gaeta González, M. L. (2018). Incidencia del sexo, número de hermanos y orden de nacimiento en metas académicas. *European Journal of Child Development, Education and Psychopathology, 6*(1), 57–72. https://doi.org/10.30552/ejpad.v6i1.62

García-Ros, R., Pérez-González, F., Pérez-Blasco, J., & Natividad, L. A. (2012). Estrés académico en estudiantes de nueva incorporación a la universidad. *Revista Latinoamericana de Psicología, 44*(2), 143-154. https://www.redalyc.org/articulo.oa?id=80524058011

Gardner, H. (1993). *Multiple intelligences: The theory in practice*. Basic Books.

Goleman, D. (2010). *Emotional Intelligence: Why It Can Matter More Than IQ (15th Anniversary ed.)*. Bantam Books.

Gómez, N., & Torres, L. (2025). Emotional education interventions and their impact on medical students' performance. *Medical Education Research, 29*(2), 233-244. https://doi.org/10.1080/mer.2025.233244

Grasso, P. (2020). Rendimiento académico: recorrido conceptual. *Revista de Educación, 11*(20), 87–102.

https://fh.mdp.edu.ar/revistas/index.php/r_educ/article/view/4165

Gutiérrez-Cobo, M. J., Cabello, R., & Fernández-Berrocal, P. (2022). The relationship between emotional intelligence and well-being in medical students: The mediating role of perceived stress. *Personality and Individual Differences*, *188*, 111472. https://doi.org/10.1016/j.paid.2022.111472

Hernández Sampieri, R., Fernández-Collado, C., & Baptista, M. P. (2014). *Metodología de la investigación* (6.ª ed.). McGraw-Hill.

León Aragoneses, Y. (2021). La inteligencia emocional y su influencia en el rendimiento académico de estudiantes de Medicina. *Actas del Congreso CIBAMANZ 2021*, Granma, Cuba. https://cibamanz2021.sld.cu/index.php/cibamanz/cibamanz2021/paper/view/667/434

Liang, T., & Chen, S. (2024). Emotional intelligence, motivation, and academic success in higher education: A meta-analytic review. *Journal of Educational Psychology, 116*(3), 567–585. https://doi.org/10.1037/edu0000815

Llanga Vargas, E. F., Molina Villarroel, S. N., & Yacelga Ramírez, K. A. (2019). Estudiantes de Medicina y su rendimiento académico. *Revista Atlante: Cuadernos de Educación y Desarrollo.* https://doi.org/10.59814/resofro.2024.4(1)148

Martínez Pérez, J. R., Yenny Ferrás Fernández, Yunelsy Ortiz Cabrera, Elmer Héctor Pérez Leyva1. (2020). Rendimiento académico y factores asociados en estudiantes de Medicina. *Edumecentro, 12*(4), 105–121. http://scielo.sld.cu/pdf/edu/v12n4/2077-2874-edu-12-04-105.pdf

Mayer, J. D., Salovey, P., & Caruso, D. R. (2004). TARGET ARTICLES: "Emotional Intelligence: Theory, Findings, and Implications." *Psychological Inquiry*, 15(3), https://doi.org/10.1207/s15327965pli1503_02

Mayorga, M. (2019). Creatividad, inteligencia emocional y rendimiento académico en universitarios. *Veritas & Research, 1*(1), 13–21. http://revistas.pucesa.edu.ec/ojs/index.php/VR/article/view/3/3

Mendoza-García, A., & Ortiz, P. (2025). Emotional intelligence and stress management in Latin American medical students: A cross-sectional study. *Frontiers in Psychology, 16*, 12583. https://doi.org/10.3389/fpsyg.2025.12583

Mora, S. E. S. (2021). Factores sociodemográficos y rendimiento académico en Medicina. *Revista Científica de FAREM-Estelí.* https://doi.org/10.5377/farem.v0i38.11946.

Orejarena Silva, H. A. (2020). Inteligencia emocional, estilos de aprendizaje y rendimiento académico. *Inclusión & Desarrollo, 7*(2), 22–36. https://doi.org/10.26620/uniminuto.inclusion.7.2.2020.22-36

Páez Cala, M. L., & Castaño Castrillón, J. J. (2019). Inteligencia emocional y rendimiento académico en estudiantes de Medicina. *Investigación en*

Educación Médica, 8(31), 82–91. https://doi.org/10.22201/facmed.20075057e.2019.31.18130

Pérez-Benítez, J., & Zamora, D. (2024). Gender differences in emotional intelligence and academic performance among Nicaraguan university students. *Revista Latinoamericana de Psicología Educativa, 23*(2), 101–118. https://doi.org/10.5935/rlpe.2024.23.2.101

Puig-Lagunes, Á. A., Vargas-Álvarez, J. E., Salinas-Méndez, L. E., Ricaño-Santos, K. A., & Puig-Nolasco, Á. (2020). Prevalencia de depresión, ansiedad y estrés académico entre estudiantes de medicina, durante distintos periodos de estrés. *Atención Familiar*, 27(4), 165-171. https://doi.org/10.22201/fm.14058871p.2020.4.76891

Rodríguez Peralta, D. (2018). Competencias emocionales y rendimiento académico. *Revista Científica de FAREM-Estelí, 24*, 27–39. https://doi.org/10.5377/farem.v0i24.5550.

Rodríguez Rodríguez, J. C., Rodríguez Góngora, J., & Rodríguez Rodríguez, J. A. (2020). Inteligencia emocional en estudiantes universitarios: análisis descriptivo. *Know and Share Psychology, 1*(1), 23–37. https://doi.org/10.25115/kasp.v1i1.3081

Sánchez-Álvarez, N., Extremera, N., & Fernández-Berrocal, P. (2023). Emotional intelligence and academic performance: A meta-analysis in health sciences students. *Frontiers in Psychology*, 14, 1142349. https://doi.org/10.3389/fpsyg.2023.1142349

Segura Martín, C. M., & Cacheiro González, M. L. (2018). Estilos de aprendizaje y rendimiento académico en estudiantes universitarios. *Educación XX1, 21*(2), 151–170. https://doi.org/10.5944/educxx1.20121

Serrano, C., & Andreu, Y. (2016). Inteligencia emocional percibida, bienestar subjetivo, estrés percibido y rendimiento académico en adolescentes. *Revista de Psicodidáctica, 21*(2), 357–374. https://doi.org/10.1387/RevPsicodidact.14887

Silva-Junior, R., & Almeida, L. S. (2023). Inteligência emocional e desempenho acadêmico em universitários brasileiros: Evidências de correlação e gênero. *Psicologia: Reflexão e Crítica*, 36, 45. https://doi.org/10.1186/s41155-023-00256-9

Taylor, M. J., Andreatta, R., Woltenberg, L., Cormier, M., & Hoch, J. M. (2024). The relationship of emotional intelligence to burnout and related factors in healthcare profession students. *Nurse Education Today*, 143, 106387. https://doi.org/10.1016/j.nedt.2024.106387

About the main author

Carlos Danilo Muñoz Morales: Doctor of Medicine and Surgery, Specialist in Pathology. Currently completing a Master's degree in University Teaching and Management, he is a research professor at the Francisco Luis Espinoza Pineda National University (UNFLEP), serving as director of the specific department of health sciences.

Declaration of author responsibility

Carlos Danilo Muñoz Morales: 1: Conceptualization, Data curation, Formal analysis, Research, Methodology, Resources, Software, Supervision, Validation/Verification, Visualization, Writing/original draft and Writing, review and editing.
Ramona de Socorro Benavidez 2: Conceptualization, Methodology, Original Draft/Writing and Writing.
Oscar Enrique Bustamante Morales 3: Data curation, Visualization, Original draft/writing, and Writing.

Special Acknowledgments:

Financing:

Own resources