Academic stress and emotional exhaustion in university students in the context of virtual education

Estrés académico y agotamiento emocional en estudiantes universitarios en el contexto de la educación virtual

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Abstract

One of the main repercussions of the COVID-19 pandemic in the educational field was the migration from face-to-face to virtual modality, which forced students to adapt to this new scenario. Currently, universities are beginning to gradually return to face-to-face or blended education, however, many of them still continue to provide the educational service virtually, which has favorable aspects, as well as some limitations. In this sense, the present investigation aimed to determine the relationship between academic stress and emotional exhaustion in students of the branch of a Peruvian private university in the context of virtual education. The approach was quantitative, the design was non-experimental and the type was descriptive - correlational with a transectional cut. The sample consisted of 273 students to whom the SISCO Inventory of Academic Stress and the Emotional Tiredness Scale were applied, instruments with adequate psychometric properties (validity based on content and reliability). The results indicate that 31.1% of the students had moderate levels of academic stress, 34.4% had moderate levels of emotional exhaustion and it was determined that Spearman's rho correlation coefficient between both variables was 0.731 with a p -value lower than the level of significance ($p<0.01$). It was concluded that there is a direct and significant relationship between academic stress and emotional exhaustion, which is why it is necessary for the university institution to design and execute preventive and corrective programs that allow students to reduce the prevalence of the problems addressed and improve their levels of psychological well-being, as well as their quality of life.

Keywords: Academic stress, emotional exhaustion, virtual education, students, university education.

Resumen

Una de las principales repercusiones de la pandemia de COVID-19 en el ámbito educativo fue la migración de la modalidad presencial a la virtualidad, lo cual obligó a los estudiantes a adaptarse a este nuevo escenario. En la actualidad, las universidades están empezando a retornar gradualmente a la educación presencial o semipresencial, sin embargo, muchas de ellas todavía continúan brindando el servicio educativo de manera virtual, el cual tiene aspectos favorables, así como algunas limitaciones. En ese sentido, la presente investigación tuvo como objetivo determinar la relación entre el estrés académico y el agotamiento emocional en los estudiantes de la filial de una universidad privada peruana en el contexto de la educación virtual. El enfoque fue cuantitativo, el diseño fue no experimental y el tipo, descriptivo – correlacional de corte transeccional. La muestra fue conformada por 273 estudiantes a quienes se les aplicó el Inventario SISCO del Estrés Académico y la Escala de Cansancio Emocional, instrumentos con adecuadas propiedades psicométricas (validez basada en el contenido y confiabilidad). Los resultados indican que el 31,1% de los estudiantes tenían niveles moderados de estrés académico, el 34,4% presentaban niveles moderados de agotamiento emocional y se determinó que el coeficiente de correlación rho de Spearman entre ambas variables fue de 0,731 con un p-valor inferior al nivel de significancia ($p<0,01$). Se concluyó que existe una relación directa y significativa entre el estrés académico y el agotamiento emocional por lo que es necesario que la institución universitaria diseñe y ejecute programas preventivos y correctivos que permitan que los estudiantes disminuyan la prevalencia de las problemáticas abordadas y mejoren sus niveles de bienestar psicológico, así como su calidad de vida.

Palabras clave: Estrés académico, agotamiento emocional, educación virtual, estudiantes, educación universitaria.

Introduction

In recent years, the use of information and communication technologies (ICT) has become widespread, advancing vertiginously in the educational field[1] and giving rise to virtual education, especially in higher education[2]. However, one of the main repercussions of the COVID-19 pandemic in the educational field was the migration from the face-to-face modality to the virtual one, which forced students to adapt to this new scenario[3]. This modality can be beneficial for students who, due to their occupational responsibilities, cannot access a face-to-face training system, thus becoming an alternative for them to develop their academic activities and achieve their professional goals[4]. However, the abrupt change of modality brought a series of accessibility and connectivity problems, which added to the limited didactic strategies under the virtual environment and the low level of development of digital skills of university teachers caused a series of psychosocial problems, among which academic stress and emotional exhaustion stand out.

Academic stress is a term used to describe the stress that people may experience regarding academic responsibilities[5]. This usually disturbs the emotional balance of the person and, therefore, their emotional well-being and academic performance, which is why it is currently considered one of the main mental health problems due to the high prevalence in the university population[6].

It is usually evidenced descriptively in three moments[7]: At first, it involves a set of factors, such as excessive academic demands that generate stress. A second moment involves the stressful situation, where the stressors cause a systemic imbalance, manifesting itself in a set of symptoms. Finally, the third moment is characterized by the presence of coping actions to restore the previous systemic balance[8].

However, academic stress usually manifests itself in different ways, and can be identified through three indicators: physical, psychological and behavioral[9]. Physical indicators include nail biting, muscle tremors, headaches, sleep problems, exhaustion, and drowsiness. As for the psychological indicators, they involve concentration problems, restlessness, depression, anxiety, as well as memory problems. Regarding the behavioral indicators, isolation, discussions, absenteeism in classes, problems with food consumption (increase or decrease) and little desire to carry out academic activities are found[10].

The prevalence of academic stress in university students is determined by a set of stressors, the main ones being the demands caused by the tasks and the short time for them to develop them, academic overload, exams, exhibitions, research work, as well as the number of hours per day devoted to academic activities[11].

Regarding emotional exhaustion, it was considered together with depersonalization and achievement dissatisfaction as the factors that make up academic burnout[12], however, it was the most predominant factor, since the other two previously mentioned factors were not detected recurrently or significantly in the students[13]. It was defined as the wear and tear of energy, as well as the tiredness, whether physical or psychological, that people show[14] and is caused by the excessive demands existing in the environment and that could cause a feeling that the resources to meet these demands are running out[15].

Emotional exhaustion can affect the functionality of the people who suffer from it, however, it can be regulated by the coping capacity that they have developed, which implies a dynamic process that responds to the objective demands and subjective evaluations that people experience and can allow an adequate management of emotions in the face of a situation perceived as stressful[16]. However, when people do not have the necessary coping strategies, they may have problems academically, vocationally, personally, and socially. In this regard, there is evidence indicating that emotional exhaustion is directly associated with problems of anxiety, depression, self-blame, rumination, catastrophic and suicidal ideation[17-19]. Likewise, it was determined that it is inversely associated with self-esteem, self-efficacy, academic commitment and emotional intelligence[20].

The above could cause attitudes of indifference and distancing (emotional or cognitive) of the students in the development of their academic activities, for which the approach is imperative, as well as the timely detection of the people who suffer from it with the purpose of mitigating the repercussions on their physical health, academic performance and emotional well-being[21].

Based on the above, the general objective of this research was to determine the relationship between academic stress and emotional exhaustion in students of a Peruvian private university branch in the context of virtual education.

Materials and methods

Project

The research was characterized by having a quantitative approach, since it was based on numerical measurement to determine behavior patterns in the study sample[22]. Regarding the design, it was non-experimental, since the academic stress and emotional exhaustion variables were not manipulated intentionally, but were observed as they occurred in their environment[23]. Regarding the type, it was descriptive – correlational of transectional cut, since the characteristics and properties of the study variables were analyzed, it was sought to determine if both were related and the data collection was carried out in a single moment, respectively[24].

Population and sample

The study population consisted of 937 students from the branch of a private university located in the city of Puerto Maldonado, Peru. As for the sample, it was made up of 273 students, an amount determined by probabilistic sampling with a confidence level of 95% and a significance level of 5%. Table 1 describes their sociodemographic characteristics and it can be seen that more female students participated, who were between 16 and 20 years old and belonged to the professional career of Law.

Table 1. Sociodemographic characteristics of the sample.			
Sociodemographic characteristics		n= 273	%
Gender	Men	142	52.0
	Women	131	48.0
Age	Between 16 and 20 years old	169	61.9
	Between 21 and 25 years old	70	25.6
	Between 26 and 30 years old	24	8.8
	Over 30 years old	10	3.7
Professional career	Management	76	27.8
	Accounting	96	35.2
	Law	101	37.0

Technique and instruments

The technique used was the survey while the instruments were the SISCO Inventory of Academic Stress and the Emotional Tiredness Scale. The SISCO Academic Stress Inventory was designed by Barraza[25], it consists of 31 items, of which the first is dichotomous (yes and no) and the others are Likert-type (never, rarely, sometimes, almost always and always) and is divided into 4 dimensions: level of self-perceived stress, stressors, stress symptoms and stress coping strategies. Its psychometric properties were determined through the process of validity based on content and reliability. In this sense, it was established through the expert judgment technique that the inventory had an adequate level of content validity (Aiken's V= 0.826). On the other hand, the reliability was found through a pilot test carried out on 20 students and through it was determined that the inventory had an adequate level of reliability (α= 0.843). Regarding the Emotional Tiredness Scale, it was developed by Gonzales and Landero[26], it is single-factor and consists of 10 Likert-type items (never, very rarely, rarely, often, and always). The score obtained on the aforementioned scale ranges between 10 and 50 points. Its psychometric properties were also determined through the content-based validity and reliability process, and it was found that the scale had an adequate level of content validity (Aiken's V= 0.897) and reliability (α= 0.870).

Procedure

The data collection process took place in March 2022, for which authorization was requested from the corresponding university authority. Subsequently, the students were contacted through their institutional emails to indicate the purpose of the research and share the link of the instrument, which was structured in the Google® form. Later, the students accessed the aforementioned form, read the specifications, gave their consent and proceeded to answer the items, which lasted approximately 25 minutes. Access to the form was closed upon receipt of the 273 responses and they were later consolidated in a database to proceed to qualify them according to their assessment scales.

Analysis of data

In order to carry out the statistical analysis, SPSS® version 25 software was used. The descriptive results were systematized through frequency and percentage tables, while the inferential results were obtained through the non-parametric Spearman's rho test, which allowed knowing if the study variables were significantly related. Additionally, the non-parametric Chi-Square test (X^2) was used to determine if the study variables academic stress and emotional exhaustion were significantly related to the sociodemographic variables (gender, age and professional career).

Results

Table 2 shows that 31.1% of the students presented a moderate level of academic stress, 23.8% a high level, 22.7% a low level, 15.4% a very low level. level and 7% a very high level. As can be seen, the predominant level of academic stress in the students was moderate, which indicated that on several occasions they presented physical and emotional discomfort caused by the pressure that existed in the university context and the virtual teaching modality, which could limit their performance, decrease their interest in continuing their studies and have inadequate control of their emotions and actions.

Regarding emotional exhaustion, it was determined that 34.4% of the students had a moderate level, 24.9% a low level, 22.3% a high level, 13.6% a very low level and the 4.8% a very high level. The data described show that students sometimes felt very tired, both physically and mentally, when they finished their virtual classes, some days they found themselves without energy to be concentrated and worried about the limited time they had to carry out their academic responsibilities. This could be mainly caused by tech fatigue, hyperconnection and some connectivity issues.

Table 2. Descriptive results of the academic stress and emotional exhaustion variables.					
Academic stress			Emotional exhaustion		
Nivel	n	%	Nivel	n	%
Very low	42	15.4	Very low	37	13.6
Low	62	22.7	Low	68	24.9
Moderate	85	31.1	Moderate	94	34.4
High	65	23.8	High	61	22.3
Very high	19	7.0	Very high	13	4.8
Total	273	100.0	Total	273	100.0

Table 3 shows that Spearman's rho correlation coefficient between the academic stress and emotional exhaustion variables was 0.731 with an asymptotic significance below the confidence level ($p<0.01$). Based on the above, it can be stated that both variables are directly and significantly related, which implies that high levels of academic stress correspond to high levels of emotional exhaustion and vice versa.

Table 3 also shows that Spearman's rho correlation coefficients between the dimensions self-perceived stress levels, stressors and stress symptoms and the emotional exhaustion variable were 0.745; 0.719 and 0.729, respectively, with an asymptotic significance below the confidence level ($p<0.01$). This indicated that there was a direct and significant relationship between the dimensions of academic stress and the emotional exhaustion variable, which meant that, to the extent that the level of self-perceived academic stress is higher, there are more stressors and a greater presence of associated symptoms. to stress, levels of

emotional exhaustion will also be higher. On the other hand, it was found that the correlation coefficient between the coping strategies dimension and the emotional exhaustion variable was -0.798 and the asymptotic significance was also lower than the confidence level ($p<0.01$). The above means that the dimension and variable analyzed were related in an inverse but significant way, which implied that as soon as more coping strategies are executed, the levels of emotional exhaustion will be lower.

Table 3. Relationship between academic stress and emotional exhaustion.

Variable and dimensions		Emotional exhaustion
Academic stress	Spearman's rho correlation coefficients	0.731
	P-value	0.000
	N	273
Self-perceived stress levels	Spearman's rho correlation coefficients	0.745
	P-value	0.000
	N	273
Stressors	Spearman's rho correlation coefficients	0.719
	P-value	0.000
	N	273
Stress symptoms	Spearman's rho correlation coefficients	0.729
	P-value	0.000
	N	273
Coping strategies	Spearman's rho correlation coefficients	-0.798
	P-value	0.000
	N	273

According to Table 4, gender and professional career were the sociodemographic variables that were significantly related to academic stress ($p<0.05$). In this sense, it was found that female students and those who belonged to the professional Law career presented higher levels of academic stress than males and Administration and Accounting students, respectively. On the other hand, it was determined that gender and age were significantly related to emotional exhaustion ($p<0.05$). Thus, female and younger students were also found to have slightly higher levels of emotional exhaustion than male and 20-year-old students, respectively.

Table 4. Relationship between academic stress and emotional exhaustion and sociodemographic variables.

Sociodemographic variables	Academic stress		Sociodemographic variables	Emotional exhaustion	
	X^2	p-value		X^2	p-value
Gender	20.148	0.007	Gender	14.781	0.001
Age	6.266	0.058	Age	18.340	0.045
Professional career	32.395	0.021	Professional career	9.549	0.072

Discussion

The pandemic caused by COVID-19 has caused notorious changes and repercussions on people's mental health due to the modification of many behavior patterns associated with confinement and virtualization of academic, work, social activities, etc. In this sense, the present investigation sought to determine the relationship between academic stress and emotional exhaustion in the students of the branch of a Peruvian private university in the context of virtual education.

In the first place, it was determined that the students were characterized by presenting a moderate level of academic stress, evidenced mainly by the presence of physical and emotional discomfort due to the pressure that existed in the university context and the virtual teaching modality, which could negatively affect their performance, decrease their interest in continuing their studies and limit the control of their emotions and actions. The finding described partially coincides with what was reported in a study carried out on students from a Peruvian public university, where it was sought to determine the prevalence of academic stress and it was found to be high, due to the fact that it was characterized by the presence of stressors, causing a set of physical and behavioral symptoms associated with the few coping strategies that students had[27]. These differences with respect to the findings are mainly due to the fact that during these last month's teachers have developed digital and didactic skills associated with virtual education through the multiple trainings they received, which would have improved the quality of the learning sessions they provided.

The transition through higher education (university and non-university) is subject to a series of stressors that arise from academic pressure, family and personal problems[28], however, if students do not adequately deal with such situations, they could have problems with their health, academic performance, and emotional well-being[29]. Therefore, these institutions must encourage the development of coping strategies, as well as academic self-regulation so that students know how to deal with this problem in the educational context and, later, in the workplace.

Another revealing finding indicates that the students were also characterized by presenting moderate levels of emotional exhaustion, since they felt very tired, both physically and mentally, when they finished their virtual classes, some days they found themselves without the energy to be concentrated and, on the other on the other hand, they worried about the limited time they had to carry out their academic responsibilities. This could be mainly caused by techno-fatigue, hyperconnection and some connectivity problems associated with virtuality[30]. The finding described coincides in part with that reported by an investigation carried out during the pandemic on university students in the Peruvian Amazon, which determined that the students had high levels of emotional exhaustion, which could be evidenced through a set of somatic disorders, such as tension, insomnia, as well as headaches, and behavioral, such as stress, anxiety, frustration and tension[21].

Emotional exhaustion is considered a response to stress[31], it is the product of the mismatch between the academic demands and the resources that students have[32] and it has serious repercussions, since it affects the expectations of success and professional maturity, decreases the expectations of completing studies and increases university desertion[33]. In this sense, it is also important to know the prevalence of emotional exhaustion in students so that intervention programs are carried out, especially in cases that require it[34].

A relevant finding shows that there is a direct and significant relationship between academic stress and emotional exhaustion in students of a Peruvian private university branch in the context of virtual education. In this sense, Spearman's rho correlation coefficient between both variables was 0.731 with an asymptotic significance below the confidence level ($p<0.01$). Based on the above, it can be stated that both variables are directly and significantly related, which implies that high levels of academic stress correspond to high levels of emotional exhaustion and vice versa.

The finding described coincides with a study carried out in Mexico, where a group of researchers sought to know how academic stress is associated with emotional affectations in higher education students and determined that students with academic stress were more likely to be emotionally exhausted, and experience low academic self-efficacy, which would limit their desire to continue studying and could even increase the likelihood that they will drop out of school[35]. Similarly, it is related to a study carried out in India, where they investigated academic stress in undergraduate students at a university in Karnataka and determined that perceived stress from the pandemic and lack of social interactions due to greater online exposure put pressure on students, increasing levels of emotional exhaustion and creating a perception of incompetence or frustration[36].

On the other hand, it will be prolonged that emotional exhaustion was directly and significantly related to the dimensions of academic stress (self-perceived stress levels, stressors and stress symptoms). This meant that, to the extent that the level of self-perceived academic stress is higher, there are more stressors and a greater presence of symptoms associated with stress, the levels of emotional exhaustion will also be higher. Similarly, coping strategies will be shown to be inversely but significantly related to emotional exhaustion. In this sense, as soon as more strategies for coping with academic stress are executed, the levels of emotional exhaustion will be lower. The finding described partially coincides with what was reported in an investigation carried out in Colombia with the purpose of describing emotional exhaustion in university students and they were able to determine that the prevalence of said condition was moderate, which affected their academic performance and was caused by the few coping strategies they put into practice.

Another emerging finding indicates that gender was a sociodemographic variable that was significantly related to academic stress and emotional exhaustion ($p<0.05$). Regarding academic stress, various investigations support this result, since they indicate that women are more stressed because they tend to externalize more, both emotional and physiological manifestations of stress and are more vulnerable to it[27,37-39] and in terms of emotional exhaustion, various studies point out that women present higher levels because they take on additional tasks, such as family responsibility, childcare and other domestic activities[21,40-42].

As can be seen, this research was important, however, it was not exempt from limitations, such as the limited number of participants, as well as the characteristics of the instrument (being self-completed), which does not allow significant generalizations and could generate biases of social desire or subjective assessments by students. For this reason, it is suggested that in future research the sample be increased, including state universities, and other data collection techniques and instruments be used that allow giving much more objectivity to the process in question.

Conclusion

In the present investigation it is prolonged that there is a direct and significant relationship between academic stress and the emotional exhaustion of the students of the branch of a Peruvian private university in the context of virtual education. Spearman's rho coincidence coefficient between these variables was 0.731 with an asymptotic significance lower than the confidence level ($p<0.01$), which implied that high levels of academic stress correspond to high levels of emotional exhaustion and vice versa.

In the same way, the existence of a direct and significant relationship between emotional exhaustion and the dimensions self-perceived stress levels (rho= 0.745; $p<0.01$), stressors (rho= 0.719; $p<0.01$) will continue. and stress symptoms (rho= 0.729; $p<0.01$), which was that, to the extent that the level of self-perceived academic stress is higher, there were more stressors and a greater presence of symptoms associated with stress, the levels of emotional exhaustion will also be greater. On the other hand, it was found that the correlation coefficient between the coping strategies dimension and the emotional exhaustion variable was -0.798 with an asymptotic significance also lower than the confidence level ($p<0.01$). Lo wants to expose that the dimension and variable analyzed were related in an inverse but significant way, which implied that as soon as more coping strategies are executed, the levels of exhaustion will be emotionally lower.

On the other hand, it was found that gender and professional career were the sociodemographic variables that were significantly related to academic stress ($p<0.01$), in this sense, it was found that female students who belonged to the career Law professionals presented higher levels of academic stress than men and Administration and Accounting students, respectively. In addition, it will be prolonged that sex and age are significantly related to emotional exhaustion ($p<0.01$), also finding that female students and those who were younger had slightly higher levels of emotional exhaustion than men and boys. students who are over 20 years old, respectively.

By virtue of the foregoing, it is necessary for the university institution to design and execute preventive and corrective programs that allow students to develop protective factors against adverse situations and reduce the prevalence of the problems addressed (academic stress and emotional exhaustion) and improve their levels. of psychological well-being, as well as their quality of life.

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