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Effect of emotional exhaustion on satisfaction with studies and academic procrastination among Peruvian university students

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Objective: To examine the effect of emotional exhaustion on satisfaction with studies and academic procrastination among Peruvian university students.

Methods: An explanatory study was conducted with 1,011 Peruvian university students (60.2% women and 39.8% men). The Brief Satisfaction with Studies Scale (EBSE), Emotional Exhaustion Scale (ECE), and the Academic Procrastination Scale (EPA) were used to measure the variables.

Results: The results revealed that the explanatory model had an acceptable fit, $\chi^2(1) = 7.7$, $p = 0.006$, CFI = 0.982, RMSEA = 0.081, SRMR = 0.021. These findings provide evidence that emotional exhaustion negatively affects satisfaction with studies ($\beta = -0.30$, $p < 0.001$) and positively influences academic procrastination ($\beta = 0.15$, $p < 0.001$).

Conclusion: Emotional exhaustion is decisive in satisfaction with studies and academic procrastination.

KEYWORDS

emotional exhaustion, satisfaction with studies, academic procrastination, Peru, university students

1. Introduction

The COVID-19 pandemic has generated a health crisis with global repercussions. Measures to avoid the proliferation of SARS-CoV-2, such as following mandatory social isolation, quarantine protocols, and lockdown, have caused individuals to experience mental exhaustion (Baltà-Salvador et al., 2021). This phenomenon has also been reported as “pandemic fatigue” or “corona depletion” (CORONEX) (Teixeira da Silva, 2021).

In the educational context, it has been observed that students are concerned about their academic present and future (Mejia et al., 2021). The closure of educational institutions and the impossibility of continuing with the traditional teaching-learning process has led to emotional

repercussions in the university population (Aristovnik et al., 2020). Students have had to adapt to the changes and challenges emerging from virtual education, and such demands have affected not only cognitive functioning but also emotional stability (Aguilera-Hermida, 2020), which clearly influences the surge of psychological disorders due to psychic stress overload (Fu et al., 2021).

In this regard, several reports indicate that during the health emergency, university students are a population that has been experiencing tiredness and emotional exhaustion due to educational demands such as having to be connected through virtual platforms like Zoom (Bailenson, 2021), trying to attend classes and understanding different topics (Barreto and Salazar, 2021), and taking virtual exams (Elsalem et al., 2020), as well as perceiving a lack of support and other socioeconomic conditions (Sveinsdóttir et al., 2021).

1.1. Emotional exhaustion among university students

The present paper proposes as an integrated framework the Conservation of Resources (COR) theory, which has become one of the two main explanatory systems for understanding stress (Hobfoll and Ford, 2007). This theoretical model describes the motivation that drives humans to maintain their current resources and to seek new resources; in this case, resources are understood as the psychophysiological conditions that an individual develops to cope with the demands of the environment. Thus, stress occurs when resources are threatened or lost, which is why this theory is considered important in different fields such as burnout and more specifically, student burnout (Buenadicha-Mateos et al., 2022).

Precisely, one of the indicators that has concerned researchers has been student burnout, given that, in some contexts such as health science careers, student burning-out levels demonstrated to be extreme compared to those of traditional occupations with high burnout (Abreu et al., 2022).

Technically, emotional exhaustion (EE) is a component of burnout syndrome, and it corresponds to the manifestation of the initial phase of stress, in which a student experiences emotional and cognitive distance from academic activities (Dominguez Lara, 2013). Thus, it can be defined as a psychological state, where a decrease in energy, a feeling of emotional and physical exhaustion, and a perception of frustration and failure predominate (Barreto and Salazar, 2021).

The literature shows that in the university environment, it is common for students to have psychological manifestations depending on the level of academic demands they face (Chau and Saravia, 2016), especially in the first year, where their ability to adapt to the new student environment is tested (Ion, 2013). However, not everyone can get through and successfully overcome the challenges of higher education. Many students are overloaded with activities and suffer from EE (Asikainen et al., 2022).

This situation has worsened in the critical context of the COVID-19 pandemic, when students were challenged to continue their education through virtual classes (Mamani-Benito et al., 2021), self-regulate their own learning outside the traditional classroom (Berridi and Martínez, 2017), and overcome unconventional distractions such as the excessive use of social networks (Xu et al., 2020). Thus, considering this population's highly vulnerability to stress, in times of COVID-19, studying under cognitive and emotional

overload has become part of a new normal (Hoyt et al., 2021). This fact has led many university students to experience anxiety, depression, and EE (Husky et al., 2020; Charles et al., 2021) because of factors such as uncertainty about the development of the semester, an overload of tasks by teachers, technical connectivity problems, inadequate technological equipment, poor familiarity with virtual tools, and digital gaps in rural areas (Pequeño et al., 2020).

1.2. Relation with other variables

Based on previous research, this report focuses on two variables: satisfaction with studies (SS) and academic procrastination (AP). The study focuses on SS because it is a vital indicator of the educational quality provided by universities (Surdez-Pérez et al., 2018) and on AP because in certain aspects, it represents the failure of students' self-regulation (Wang et al., 2021), which is a situation tested in virtual education (Merino-Soto et al., 2017).

As for the SS variable, it is defined as the pleasure and enjoyment of the experiences lived during the student stage, so it is closely linked to continuing and completing studies at the university level (Merino-Soto et al., 2017). Thus, being academically satisfied has a significant impact on the online learning process (Yekefallah et al., 2021). It also has a direct effect on academic performance (Martínez-Jiménez and Ruiz-Jiménez, 2020), even more so, in contexts where virtual education is the only way to continue with the teaching-learning process (Yawson and Yamoah, 2020).

AP is defined as the delay or postponement in completing academic tasks, although the student is aware of the negative results and consequences it carries (Diotaiuti et al., 2001). This variable is closely related to academic performance, because in the absence of compliance with mandatory activities, student grades tend to be negatively affected (Burgos-Torre and Salas-Blas, 2020). Thus, in academia, AP constitutes a serious barrier to academic success (Hong et al., 2021).

Based on the literature, there is evidence supporting a functional relation between EE and SS. Studies have revealed that the indicators of EE, such as decreased energy, emotional and physical exhaustion, and feelings of frustration and failure, can affect the positive perception students should have when their expectations and academic needs (SS) are met (Capri et al., 2012; Cazan and Năstasă, 2015; Lledó et al., 2017; Carranza-Esteban et al., 2022).

The relation between EE and AP has been studied by various researchers. Most researchers have determined that postponing academic tasks can increase the probability of experiencing a lack of energy and lack of motivation (Khalid et al., 2019; Mercado-Vinces et al., 2021). However, in the present investigation, it is proposed that EE can promote AP. In the context of the health emergency, one of the most common manifestations observed during the transition to virtual education was recurring exhaustion (Seperak-Viera et al., 2021; Estrada and Gallegos, 2022). This exhaustion was often a result of students spending excessive amounts of time connected to virtual academic media (Fauville et al., 2021). Thus, postponing activities emerged as an indirect outcome of the intense fatigue experienced by university students, especially in Peru (Mejia C. R. et al., 2021; Mejia C. et al., 2021). Peru faced considerable digital gaps and had to tackle severe limitations when implementing virtual education nationwide (Anaya-Figueroa et al., 2021).

In short, considering the various activities and demands of virtual education, it is important to recognize that university students need to adapt and respond effectively (Ríos Rísquez et al., 2013). Failure to manage the cognitive or emotional overload, which initially manifests as stress, can have implications for both academic task postponement and the overall enjoyment of the university experience. While it is possible to assume functional relation among the variables of EE, SS, and AP, no explanatory models have proved the impact of EE on AP, with SS acting as part of the explanatory model. Developing such models would help understand the predictors of behaviors such as task postponement in situations of high pressure and extreme situations, such as pandemics and other health emergencies.

1.3. Hypothesis

Consequently, the following hypotheses are proposed (Figure 1):

H1: EE negatively impacts SS among Peruvian university students.

H2: EE positively impacts academic procrastination among Peruvian university students.

H3: SS negatively affects procrastination among Peruvian university students.

1.4. Study objective

Because of the COVID-19 pandemic, universities around the world, including those in Peru, closed their campuses in 2020 and adapted all their face-to-face academic programs to the online format (Bao, 2020). However, Peruvian universities were not prepared for this transition because they lack the technological infrastructure and strategies to transform face-to-face education to fully online education. Moreover, in this country, approximately 70% of universities have no experience of conducting virtual courses (Figallo et al., 2020).

In this scenario, the shift from face-to-face learning to online learning has affected students, teachers, and performance in general (Ustun and Tracey, 2020). These factors have led to emotional distress (Xiong et al., 2020), which, in turn, has led to different compulsory activities being postponed (Unda-López et al., 2022). Therefore, the

study aims to determine the effect of EE on satisfaction with studies and AP among Peruvian university students.

2. Materials and methods

2.1. Study design

Explanatory and cross-sectional design (Ato et al., 2013) has been proposed for evaluating a model that examines the existing relations among a set of variables and where the causality is derived from underlying theoretical frameworks.

2.2. Study participants

A total of 1,011 Peruvian university students of both sexes (609 women and 402 men), aged between 17 and 39 years ($M=20.56$; $SD=3.77$), studied in private (72.9%) and public (27.1) universities. Among the participants, 34.8% were studying at the School of Business Sciences. The selection of university students for the study was done by non-probability convenience sampling.

2.3. Instruments

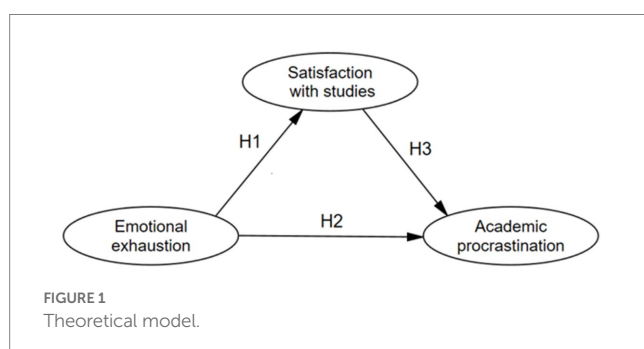
Emotional Exhaustion Scale (ECE in Spanish; Dominguez-Lara et al., 2014): The ECE contains 10 items to which participants respond using a Likert-type scale ranging from *strongly disagree* to *strongly agree*. The scale proved to be valid ($KMO=0.91$, Bartlett's test of sphericity $p<0.01$). The ECE showed good internal consistency ($\omega=0.88$) in this study.

Brief Satisfaction with Studies Scale (EBSE in Spanish; Merino-Soto et al., 2017): The EBSE analyzes student satisfaction with their study method and their academic performance. It presents three items with Likert-type response options with scores ranging from 1 to 5, corresponding to *strongly disagree*, *disagree*, *neither agree nor disagree*, *agree*, and *strongly agree*, respectively. The scale proved to be valid ($CFI=0.92$, $GFI=0.99$, and $RMSR=0.053$). The omega coefficient value to estimate reliability was good ($\omega=0.86$) for this study.

Academic Procrastination Scale (EPA in Spanish; Dominguez-Lara et al., 2014): The EPA evaluates procrastinating behavior related to postponing activities and academic self-regulation. It consists of 14 items using a Likert-type scale of five options; the scale ranges from *strongly disagree* to *strongly agree*. The scale was valid ($CFI=1$, $GFI=0.97$, and $RMSEA=0.078$). In this study, the reliability of the scale was acceptable (Academic self-regulation $\omega=0.63$, Postponing activities $\omega=0.86$).

2.4. Study procedure

The study was approved by the Ethics Committee of the Universidad Peruana Unión (Reference: 2022-CEUPeU-0031). A virtual questionnaire was designed through Google Forms and shared via social networks (Facebook and WhatsApp). An informed consent form was presented in the first section of the questionnaire, along with the study's objectives and a declaration stating that participation was



voluntary and anonymous. The approximate time to complete the online form was 15 min, and the information was collected in March and May of 2022.

2.5. Statistical analysis

First, the factor structure of the instruments was analyzed using confirmatory factor analysis for the three scales included in the study. Considering the ordinal nature of the items, the polychoric correlation matrix and the WLSMV estimator were used; this is deemed more suitable for ordinal variables (Lei and Wu, 2012). The theoretical study model was analyzed by modeling structural equations with an MLR calculator, which is appropriate for numerical variables and for being robust to inferential normality deviations (Muthen and Muthen, 2017). Fit assessment was performed using the comparative fit index (CFI), root mean square error of approximation (RMSEA), and standardized residual root mean square (SRMR) < 0.050 (Schumacker and Lomax, 2016). The following values were used: CFI > 0.90 (Bentler, 1990), RMSEA < 0.080 or about 0.080, and SRMR < 0.080 (Browne and Cudeck, 1992). For the reliability analysis, the omega internal consistency method was used (ω). For dimensions with correlated errors in their factor structure, the corresponding corrected formula was applied to calculate the omega (Raykov, 2004).

The data analysis was performed with R software in version 4.0.5 (R Development Core Team, 2007), and the lavaan library was used in version 0.6–9 (Rosseel, 2012).

3. Results

Initially, the internal structure of the scales of the study variables was analyzed. The initial adjustment ($\chi^2(35) = 428.9$, $p < 0.001$, CFI = 0.960, RMSEA = 0.106, SRMR = 0.043) for EE was not good. Correlation errors were identified for item 1 “Exams cause me excessive tension” with item 9 “Studying while thinking about exams causes me stress” and item 5 “I have headaches and other aches and pains that affect my academic performance” with item 6 “There are days when I notice more fatigue and I do not have any energy to concentrate.” Thus, by covarying these errors, adequate adjustment of the scale was achieved ($\chi^2(33) = 211.4$, $p < 0.001$, CFI = 0.982, RMSEA = 0.073, SRMR = 0.032). In satisfaction with studies, having only three items, no adjustment indices were obtained in the confirmatory factor analysis given the model’s identification ($gl = 0$). Finally, in AP, the results were $\chi^2(53) = 657.7$, $p < 0.001$, CFI = 0.944, RMSEA = 0.106, and SRMR = 0.066. According to the value of the factor loadings, item 4 “I regularly attend class” was removed because it has a small factor loading, $\lambda = 0.36$. The limited relationship observed may be attributed to the fact that the responses are influenced by the evaluation context where attendance is mandatory. Consequently, participants may feel compelled to respond in a way that aligns with normative expectations, rather than reflecting their true tendency toward AP; further, item 7 “I procrastinate in studying the courses that I do not like” was removed because it is similar to “I procrastinate the work of the courses that I do not like.” This was detected through the modification indexes. The adjustment of this

TABLE 1 Descriptive statistics, internal consistencies, and correlations for the study variables.

Variables	<i>M</i>	<i>DE</i>	<i>A</i>	ω	1	2	3	4
1. Emotional exhaustion	13.7	6.1	0.1	0.88	–			
2. Satisfaction with studies	18.3	5.8	–0.5	0.86	–0.30	–		
3. Academic self-regulation	8.4	4.3	0.4	0.63	0.20	–0.39	–	
4. Postponing activities	10.1	6.2	0.3	0.86	0.22	–0.25	0.46	–

All correlations are statistically significant ($p < 0.001$). The correlations between the study variables are highlighted.

last scale is an adequate value ($\chi^2(34) = 273.9$, $p < 0.001$, CFI = 0.958, RMSEA = 0.084, SRMR = 0.045).

The scores from the study variables were scaled between the values, between 0 and 30, to facilitate their reading. Table 1 shows descriptive results such as skewness (*A*) and correlation results between 0.20 and 0.46 in absolute value for the study variables. Further, this table also shows the omega internal consistency coefficients that were found between the values of 0.63 and 0.88.

On analyzing the model, an adequate fit was obtained ($\chi^2(1) = 7.7$, $p = 0.006$, CFI = 0.982, RMSEA = 0.081, SRMR = 0.021). Given this last result, H1 is supported on the inverse relationship between EE and satisfaction with life is confirmed ($\beta = -0.30$, $p < 0.001$); H2 on the relationship between EE and AP is confirmed ($\beta = 0.15$, $p < 0.001$); and H3 on the inverse relationship between satisfaction with studies and AP is also confirmed ($\beta = -0.42$, $p < 0.001$). These results can be seen in Figure 2.

4. Discussion

The study aimed to test a model to determine the effect of EE on SS and AP among Peruvian university students. The hypothesized model indicated relations among EE, AP, and SS. The study findings suggest that higher levels of procrastination are associated with increased EE and decreased SS. In this sense, engaging in unpleasant and routine tasks may contribute to higher levels of EE and lower levels of SS. Procrastination could potentially serve as a coping mechanism for students to regulate negative emotions (Balkis and Duru, 2016). Thus, the presence of procrastination behavior and its association with fatigue and satisfaction may also be related to students’ adaptation to social isolation and confinement measures to mitigate the spread of COVID-19 (Unda-López et al., 2022). This suggests that college students with high levels of EE may need effective strategies to manage their negative feelings. Therefore, improving emotional regulation skills can help students cope with procrastination and increase their level of satisfaction with studies (Pietrzak and Tokarz, 2016).

This study has certain limitations, so the results should be interpreted with caution. First, this study’s sample was limited to university students selected through non-probability sampling. Therefore, the generalizability of the results is limited, and it should be applied specifically to university settings. Second, it is a

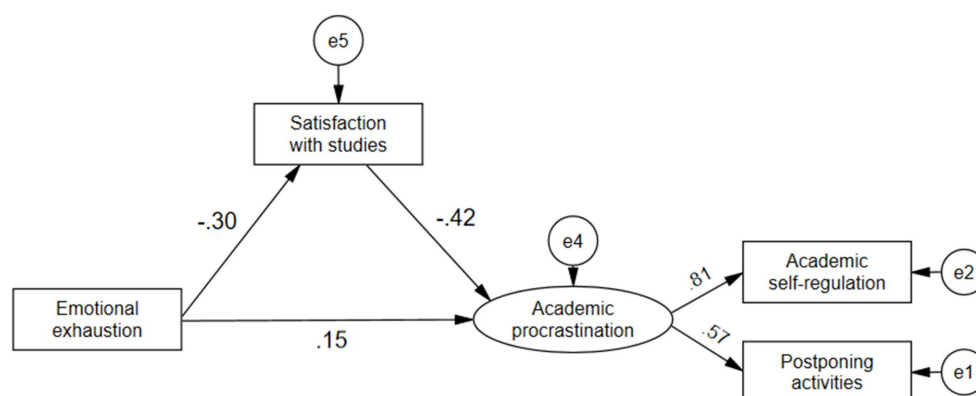


FIGURE 2

Results of the explanatory structural model of satisfaction with life. Standardized parameter calculations are shown.

cross-sectional study, so it is not possible to analyze the relationships between the variables over time. Thus, the use of longitudinal designs in larger and more diverse samples would increase the validity of the findings. Further, the application of qualitative research designs, such as in-depth interviews or case studies, could help better understand the role of EE in relation to satisfaction with studies and procrastination. Third, all variables were assessed using self-reporting measures, raising the possibility of social desirability bias. Fourth, satisfaction with studies was assessed using a three-item measure in this study. A measure with more indicators of satisfaction could provide a clearer picture than a measure with few indicators. Fifth, more participants were women, so it is important to assess whether this model is valid for a more balanced sample with regard to gender, also allowing for a comparison between groups. This would clarify whether how the variables are related may change in relation to gender.

In conclusion, the results confirm the initial hypotheses that students demonstrate procrastination behaviors as they experience greater EE and less academic satisfaction. Despite the limitations, the findings highlight the importance of EE in satisfaction with studies and AP and have valuable implications for future practices in higher education. Thus, the results provide information to higher education professionals on the individual predictors of satisfaction with studies and AP for developing strategies that may correct any underlying behaviors negatively associated with such variables. For example, educators play a crucial role in shaping student satisfaction and reducing procrastination levels. By implementing socio-emotional strategies, educators can establish affective bonds with their students and adequately manage emotions (Boscan, 2011). The development of programs that promote adaptive approaches related to emotions have proven effective in increasing student satisfaction in university studies (Sanchez-Ruiz and El Khoury, 2019). From the viewpoint of neuroscience, designing innovative teaching spaces that incorporate emotional content can have significant benefits. Such environments can trigger the release of dopamine, adrenaline, noradrenaline, and glucocorticoids, thereby enhancing awareness, attention, and learning (Tacca et al., 2019). Moreover, teachers can develop activities wherein a greater incidence of interactions between peers (partners) is essential. Collaborative activities that require increased peer interactions serve as academic support resources, facilitating the exchange of opinions and clarification of

doubts during the course of study (Segovia-García, and Said-Hun, 2021).

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving humans were approved by Comité de Ética de la Universidad Peruana Union. The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation in this study was provided by the participants' legal guardians/next of kin.

Author contributions

RC, OM-B, and RC-B conceived and designed the experiments, performed the experiments, analyzed and interpreted the data, and wrote the paper. TC-R and AV contributed reagents, materials, analysis tools, or data and wrote the paper. All authors contributed to the article and approved the submitted version.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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