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Emotional fatigue, academic engagement, and satisfaction with studies during the return to post-pandemic university attendance

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Introduction: The COVID-19 pandemic has significantly transformed various sectors, including higher education, exposing structural weaknesses and fostering the adoption of innovative teaching methods. This situation has created the need to understand how these changes have affected the academic satisfaction, academic engagement, and mental well-being of university students during the return to in-person education at universities.

Methods: In this explanatory study, 1,321 Peruvian university students (52.1% women) aged between 18 and 35 years old ($M = 20.16$, SD = 3.04) participated. Participants were selected through a non-probabilistic convenience sampling method, recruited from the 3 regions of Peru (88.7% from the highlands, 76.2% from private universities), from faculties such as business sciences, humanities and education, engineering, and health sciences. Data were collected using the Emotional Exhaustion Scale (EES), the Brief Scale of Satisfaction with Studies (BSSS), and the Academic Engagement Scale (UWES S9).

Results: The model relating the study variables showed an adequate fit: $\chi^2(4) = 31.5$, $p < 0.001$, CFI = 0.986, RMSEA = 0.072, SRMR = 0.017. The hypotheses were supported, showing the effect on satisfaction with studies both from emotional exhaustion, $\beta = -0.11$, $p < 0.001$, and from academic engagement, $\beta = 0.61$, $p < 0.001$. Additionally, a 43% variance was explained in satisfaction with studies.

Conclusion: This study evidence that, in the post-pandemic context, emotional exhaustion is a negative predictor of academic satisfaction, while academic engagement is positively associated with it. These findings suggest the need for educational strategies that mitigate emotional exhaustion and promote academic engagement to improve student satisfaction and well-being in the new educational normality.

KEYWORDS

emotional fatigue, academic engagement, satisfaction with studies, in-person instruction, post-pandemic

1 Introduction

The COVID-19 pandemic has revealed the inherent vulnerabilities of our health, economic, and development systems worldwide, emphasizing the inadequate preparation and response to significant health crises (Aristovnik et al., 2020). While conventional technocratic solutions fell short, the demand for a holistic approach encompassing political, economic, and social considerations became apparent (Dhawan, 2020; Leach et al., 2021; Wernli et al., 2023). Concurrently, disruptions in traditional education instigated a swift shift to online modalities, highlighting the adaptability required in such times. This crisis has not only impacted health but has also posed challenges to university education, resulting in significant psychological and pedagogical ramifications (Cai et al., 2020; Deng et al., 2021; Tan, 2021; Yekefallah et al., 2021; Porru et al., 2022).

Since the declaration of the COVID-19 pandemic by the World Health Organization (2020), the return to in-person classes has been one of the primary challenges faced by educational managers in Latin America. Reports from some regions have revealed serious concerns and fears about the situation in territories such as Peru (Cajachagua et al., 2023), Argentina (Anderete, 2022), Brazil, and Paraguay (Leite et al., 2023). Nevertheless, during this period, there have been significant advancements in digital education, with students enhancing their digital skills and educators transitioning to blended learning models, demonstrating the significance of this approach in a post-pandemic scenario (Gregg, 2021; Crew and Martins, 2023). However, these advances have not been without challenges, especially in countries with educational management constraints, where issues like device scarcity, teaching overload, and technological limitations persist, complicating the educational experience (Okoye Ifeanyi, 2023). Moreover, student mental health and well-being have surfaced as critical areas, emphasizing the need to adapt interventions and support services in a post-pandemic context (Arias-Flores et al., 2022; Imran et al., 2023). As we progress in the transition back to face-to-face teaching, it's imperative to address these challenges comprehensively, aiming to foster sustained well-being and ensure academic success in the post-COVID-19 era (Liverpool et al., 2023).

Thus, universities worldwide, which had to immerse themselves in virtual education due to the pandemic (Abumalloh et al., 2021), now face the challenge of resuming in-person classes (Stoian et al., 2022). While the shift to virtuality was a necessary response to the global setting, it brought about significant challenges and insights into the student experience, such as motivational issues, feelings of isolation, and adaptation to new technologies (Caprara and Caprara, 2022). Now, as they return to face-to-face modalities, institutions need to consider integrating lessons learned during remote education and address students' concerns and expectations, who have undergone a significant transformation in their learning approach (Cronje, 2022; Singh et al., 2022). Returning to physical classrooms does not merely mean reverting to old practices but adapting to a new educational normal influenced by the virtual experience (Tilak and Kumar, 2022; Bridges et al., 2023).

In this context, academic satisfaction in higher education has revealed a range of interconnected factors significantly influencing the student experience. Central to these findings is the role of academic satisfaction, defined as the enjoyment and appreciation of academic experiences, which is a key predictor of student retention and completion of studies (Yekefallah et al., 2021; Gadosey et al., 2022). This satisfaction is linked both to the quality of educational service and student loyalty, serving as a tangible indicator of excellence (Rossini et al., 2021). However, adapting to university life and factors like academic and economic pressure can increase student stress, leading to emotional exhaustion, a component of burnout syndrome. This emotional exhaustion, which includes symptoms such as somatization, anxiety, and depression, is linked to a decrease in satisfaction and academic commitment, adversely affecting performance (Caballero et al., 2007; March-Amengual et al., 2022). Therefore, it is crucial to address the factors contributing to stress and depression to prevent their adverse effects (Bahroodi et al., 2023).

In contrast, more satisfied students tend to experience less stress, directly linking satisfaction with progress in academic goals (Cygrymus and Lent, 2023). Moreover, factors such as self-efficacy and emotional competence are crucial for academic satisfaction (Dou et al., 2022). Similarly, the perception of support for autonomy and academic self-efficacy are fundamental elements in students' decisions to remain at university (Froment et al., 2023). Teaching style is another relevant factor. Styles that promote autonomy are positively related to students' academic confidence, while more controlling styles have a negative impact (Granero-Gallegos et al., 2022). Additionally, academic engagement, which involves active participation and interest in learning, is fundamental for student satisfaction (Hensley et al., 2021; Arredondo-Salas et al., 2022). Dimensions of academic commitment such as vigor, dedication, and absorption not only improve performance but also increase satisfaction with studies, as they provide psychological well-being and motivation to effectively face the learning process (López-Aguilar et al., 2021). Finally, factors such as adaptation to the university environment and expectations versus reality have a significant impact on student satisfaction, especially among international students (Merola et al., 2022; Peña-Vázquez et al., 2023). In this context, academic engagement acts as a mediator between emotional intelligence and satisfaction with studies (Urquijo and Extremera, 2017).

In the Peruvian context, satisfaction with studies has been a recurrent area of interest in scientific literature. Previous research has explored its correlation with life satisfaction, mental health, and other psychosocial factors affecting university life (Carranza et al., 2022; Carranza Esteban et al., 2022). Yet, with the transition back to in-person classes, there's a knowledge gap on how this shift has impacted academic satisfaction and its associated variables. Thus, the objective of the research is to explore the relationship between emotional fatigue, academic engagement, and satisfaction with studies

during the return to face-to-face university education in the post-pandemic era.

1.1 Literature review

1.1.1 Emotional fatigue

Traditionally linked to the workplace, emotional fatigue has gained prominence in the academic context, especially among university students. Defined as a profound feeling of exhaustion stemming from intense emotional demands (Bakker et al., 2014; Härtel et al., 2016; Wu et al., 2023), this exhaustion in the academic context manifests as both emotional and cognitive fatigue (Khan, 2023). Students grapple with numerous demands such as role ambiguity, role conflicts, and workload pressures, leading to intense academic interactions and pressures (Lee and Ashforth, 1996; Labrague and Ballad, 2021). The rigorous competition and academic load have exacerbated this perception of burnout. A significant proportion of students, particularly those in medical fields, report high stress levels tied to their studies and a distant attitude toward their academic responsibilities, culminating in feelings of incompetence (Noh et al., 2013; Jagodics and Szabó, 2022). This burnout or student exhaustion syndrome, initially described in the workplace, is characterized by exhaustion due to study demands, a cynical attitude toward learning, and feelings of incompetence. The repercussions of this phenomenon are concerning, as it has been linked to decreased study engagement, shifts in motivation, and a drop in academic performance (Freudenberger, 1974).

Transitioning to university education, especially in the context of the COVID-19 pandemic, has posed unique challenges for students globally (DeCoito and Estaiteyeh, 2022; Aristovnik et al., 2023). The massive adoption of learning modalities has left many students experiencing emotional and academic burnout. In Peru, abrupt learning shifts have intensified symptoms of depression and burnout among students. Recent studies indicate that academic self-efficacy, self-esteem, and study satisfaction are significant predictors of these symptoms. Additionally, academic pressures and high expectations have exacerbated burnout, with alarming levels of students contemplating dropping out or even harboring suicidal thoughts. In contrast, academic engagement emerges as a protective factor, fostering a positive mental state and being linked with optimal personal development and learning in the university context (Carranza Esteban et al., 2022; Liu et al., 2023). As the world witnesses a gradual return to in-person teaching, it is imperative to address these issues to ensure students' well-being and mental health, thereby guaranteeing effective and healthy learning.

1.1.2 Academic engagement

Academic engagement, vital for students' educational experiences, has garnered increasing significance in higher education, especially with the incorporation of innovative technologies and e-learning environments (Kim et al., 2019). This engagement pertains to how students actively engage with and interact in the educational process, leveraging digital benefits to enhance their academic performance. A thorough understanding of academic engagement is crucial to positively influencing educational practices (Hendrick et al., 2023). Academic engagement is conceived as a multidimensional construct comprising three main facets: behavioral engagement, emotional engagement, and cognitive engagement. These dimensions capture the energy, enthusiasm, and focus students invest in their studies (Van der Ross et al., 2023). Additionally, academic engagement is closely tied to motivation (Rahiem, 2021), self-regulation (Kurban et al., 2023), and can fluctuate based on the learning context (Limniou et al., 2022). At the university level, it's associated with factors like self-efficacy, teaching styles of instructors, academic performance, and satisfaction (Khaing and Myint, 2020). Over the past seven decades, interest in academic engagement has surged, viewed as a means to ameliorate dissatisfaction, fend off student boredom, elevate achievement levels, and understand students' positive development (Fatima et al., 2022). It proves invaluable in understanding the gradual process of school dropouts and is considered the primary theoretical model to intervene and comprehend potential dropouts, enhance performance, and encourage school completion (Szabó et al., 2024). In summary, academic engagement is a complex term that underscores the varied patterns of student motivation, cognition, and behavior (Li et al., 2023).

Education, viewed as a foundational pillar in human development, has undergone significant transformations in recent decades, largely due to global shifts and the repercussions of recent events like the pandemic. UNESCO has underscored the importance of academic satisfaction as a central axis in ensuring quality education, emphasizing its role as a link between academic training and entry into the job market (UNESCO, 2020). As educational modalities adapt and evolve, it's crucial to consider not only the quality and content of educational programs but also interpersonal factors, such as the teacher-student relationship. Recent studies have shown that a supportive, credible, and attentive teacher creates an environment where students feel both supported and valued. This, in turn, positively impacts their academic engagement (Amerstorfer and Freiin von Münster-Kistner, 2021). However, transitioning to university life can be fraught with challenges, especially for young adults in the latter stages of adolescence. They grapple with issues such as loneliness, financial hardships, and time management (Pat-Horenczyk et al., 2022). In this scenario, emotional intelligence—essential for perceiving and regulating emotions—becomes paramount and has been linked to academic success and the quality of social relationships (Iqbal et al., 2022). As educational institutions strive to adapt to a post-pandemic "new normal," additional challenges for student mental health and well-being arise, with the return to face-to-face education being one of the most significant (Carranza Esteban et al., 2022). Current research suggests that factors like academic self-efficacy, self-esteem, and the appropriate use of virtual media are key predictors of student well-being. Moreover, academic engagement stands out as a determinative factor in countering burnout and promoting both academic performance and overall well-being (Reyes-de-Cózar et al., 2023). Therefore, it is essential to explore and understand models explaining academic satisfaction by considering variables like emotional fatigue and academic engagement.

Based on the aforementioned insights, the following hypotheses are proposed (Figure 1):

> H1: There is a negative relationship between emotional fatigue and satisfaction with studies.
>
> H2: There is a positive relationship between academic engagement and satisfaction with studies.

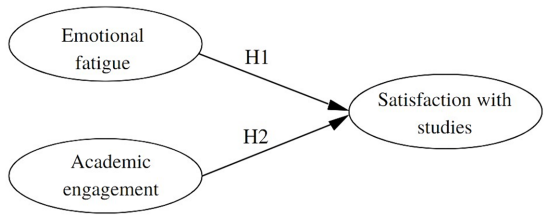

FIGURE 1
Hypothesized model.

2 Methods

2.1 Design and participants

Similar to other studies conducted in the context of the COVID-19 pandemic (Carranza et al., 2022), the present research is classified as an explanatory cross-sectional study (Ato et al., 2013). This means an associative strategy was employed (allowing exploration of the functional relationship between variables) under a design that tests theoretical models about the relationships among a set of variables, as derived from an underlying theory. Utilizing non-probabilistic convenience sampling, 1,321 Peruvian university students participated (52.1% women), ranging in age from 18 to 35 ($M = 20.16$, SD = 3.04). Of these, 76.2% attend a private university, while 23.8% attend a state university. The majority, 88.7%, reside in the highlands. Students' fields of study include 25.3% in business science, 24.1% in engineering and architecture, 22.4% in health sciences, and 14.8% in humanities and education.

Given the nature of the sample, inclusion criteria for this study were set as being a student at a private university, of Peruvian nationality, and providing consent (participating voluntarily). Participants were contacted through social networks (Facebook and WhatsApp); in this case, there was no incentive to participate in the study. Instead, the invitation was open, and voluntary participation was sought.

2.2 Instruments

2.2.1 Emotional fatigue

The Emotional Fatigue Scale (EFS; Dominguez Lara, 2013) was used. The EFS consists of 10 items with Likert response options ranging from strongly disagree to strongly agree. In this study, the EFS demonstrated good internal consistency (ω = 0.91). In this study, the EFS showed good internal consistency (ω = 0.91). This instrument has been used in studies within the context of the COVID-19 pandemic (Carranza et al., 2023).

2.2.2 Satisfaction with studies

The Brief Satisfaction with Studies Scale (BSSS; Merino-Soto et al., 2017) was used. The BSSS assesses student satisfaction with their study habits and academic performance. It has 3 items with a 1 to 5 Likert response format (strongly disagree, disagree, neither agree nor disagree, agree, strongly agree). In the current research, the Cronbach's alpha coefficient value estimating reliability was good (ω = 0.82). This instrument has also been used in studies related to the COVID-19 pandemic (Carranza et al., 2022).

2.2.3 Academic engagement

Academic Engagement Scale (UWES S9), adapted to Peru by Dominguez-Lara et al. (2020) consists of 9 items distributed across two factors. It offers 7 Likert response options ranging from never to always. In this study, the UWES S9 displayed good internal consistency (ω = 0.89). This instrument has been utilized in studies concerning the COVID-19 pandemic (Dominguez-Lara et al., 2023).

2.3 Procedure

The COVID-19 pandemic necessitated the use of technological resources. In this light, to reach a broader range of students (engaging a large number of participants), ensure ease of use, and facilitate rapid communication, a virtual survey was set up using Google Forms. The link was disseminated via social networks (Facebook and WhatsApp) and was active between March and April 2023. The informed consent was presented at the beginning of the questionnaire along with the study's objective, stating that participation was voluntary and anonymous. Furthermore, all ethical research principles involving humans, as outlined in the Helsinki declaration, were adhered to.

2.4 Data analysis

The study model was analyzed using structural equation modeling with the MLR estimator, which is employed for numerical variables and is robust to inferential normality deviations (Muthén and Muthén, 2017). The fit evaluation was conducted using the Comparative Fit Index (CFI), the Root Mean Square Error of Approximation (RMSEA), and the Standardized Root Mean Square Residual (SRMR). CFI values >0.90 (Bentler, 1990), RMSEA <0.080, and SRMR <0.080 (Browne and Cudeck, 1992) were used. For reliability analysis, the internal consistency alpha (α) method was employed. The data analysis and calculations were conducted using the "R" software version 4.2.1, utilizing the "lavaan" library version 0.6–12 (Rosseel, 2012).

2.5 Ethical considerations

The research was approved by the Ethics Committee of the Peruvian Union University (Reference: 2023-CEUPeU-0016).

3 Results

3.1 Preliminary analysis

The scores of the study variables were scaled to values between 0 and 30 to facilitate their visualization, with the understanding that this procedure does not affect the correlation values between the variables. Table 1 presents the descriptive results, including skewness (A), and the correlation results that range between −0.33 and 0.77 for the study variables. Additionally, in this table, the internal consistency alpha

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

Variables	*M*	*SD*	A	α	1	2	3	4	5
1. Emotional fatigue	12.3	5.9	0.1	0.88	–				
2. Vigor	18.3	6.1	0.0	0.74	−0.31	–			
3. Dedication	20.5	6.5	−0.4	0.79	−0.33	0.77	–		
4. Absorption	20.5	6.0	−0.4	0.75	−0.25	0.65	0.76	–	
5. Satisfaction with Studies	19.7	6.4	−0.4	0.83	−0.32	0.56	0.58	0.56	–

M, mean; SD, standard deviation; A, skewness; α, Cronbach's alpha.

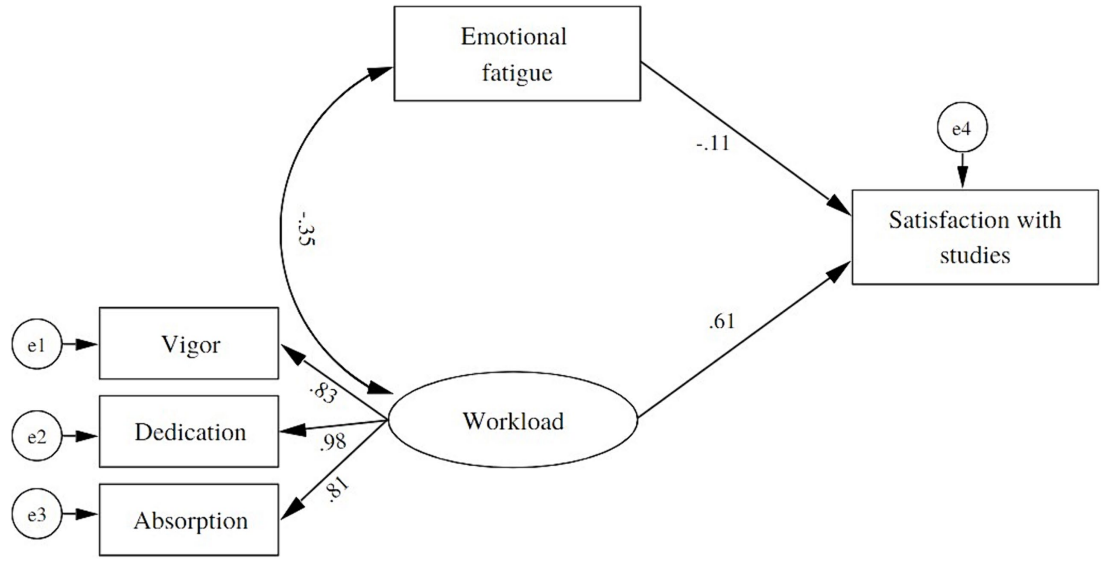

FIGURE 2
Results of the explanatory structural model for satisfaction with studies. Standardized estimated parameters are displayed.

coefficients can be observed, which were found to range between 0.74 and 0.88.

3.2 Model analysis

In the analysis of the proposed model, an adequate fit was obtained: $\chi^2(4) = 31.5$, $p < 0.001$, CFI = 0.986, RMSEA = 0.072, SRMR = 0.017. Consequently, H1 and H2 were confirmed regarding the effect on satisfaction with studies by emotional fatigue, $\beta = -0.11$, $p < 0.001$, and academic engagement, $\beta = 0.61$, $p < 0.001$. Lastly, a 43% explained variability in satisfaction with studies was also found. These results can be visualized in Figure 2.

4 Discussion

Starting in September 2022, university students began to gradually return to in-person classes (Estrada and Paricahua, 2023), adhering to biosecurity protocols (Farfán-Latorre et al., 2023). This led to experiencing critical and stressful changes (Cajachagua et al., 2023), presenting a delicate situation for student health as they had to adapt to a new post-pandemic context (Arias-Flores et al., 2022). In light of this, the aim of this research was to establish the relationship between emotional fatigue, academic engagement, and satisfaction with studies among university students in post-pandemic times.

The findings of this research confirm H1, which demonstrates a negative relationship between emotional fatigue and satisfaction with studies. This indicates that university students experiencing high emotional exhaustion tend to have lower levels of satisfaction with their studies. This is reflected in the theory where the consequences of emotional exhaustion are manifested as a decrease in commitment, changes in motivation, and a drop in academic performance (Freudenberger, 1974). Prior research suggests that more satisfied students experience less stress as they feel they are making progress in their academic goals (Cygrymus and Lent, 2023). On the other hand, students are more vulnerable and face mental health challenges due to educational pressure, exam anxiety, and emotional issues that increase emotional fatigue and impact their well-being (Bahroodi et al., 2023). Evidence has shown that emotional fatigue is linked to students' performance and well-being (March-Amengual et al., 2022). Furthermore, studies indicate that emotional fatigue affects students' relationships with their universities and reduces their interest in continuing their studies (Sanjari et al., 2023). Another study on higher education students revealed that emotional fatigue negatively predicted satisfaction with studies, emphasizing the importance of

enhancing confidence and coping styles in the face of academic stress (Dou et al., 2022).

The results also support the positive relationship between academic engagement and satisfaction with studies, suggesting that students with greater academic engagement display higher levels of satisfaction. Previous studies have shown academic engagement as a factor that promotes positive mental health and comprehensive student development (Carranza Esteban et al., 2022; Liu et al., 2023), in addition to influencing educational practices (Hendrick et al., 2023). Academic engagement is associated with factors such as academic performance and academic satisfaction (Khaing and Myint, 2020; Fatima et al., 2022). Research on 637 Spanish students reported a direct relationship between academic engagement and study satisfaction (Froment et al., 2023). Additionally, academic engagement is directly linked to the quality of university education (Granero-Gallegos et al., 2022) and positively associated with study satisfaction (Hensley et al., 2021; Arredondo-Salas et al., 2022). Furthermore, research confirms that dimensions of academic engagement enhance academic performance and satisfaction with studies (López-Aguilar et al., 2021). Moreover, most students facing adaptation challenges in the university environment display low academic engagement and are not very satisfied with the educational process (Peña-Vázquez et al., 2023). Another study revealed that international students were less satisfied with their academic experience and engagement, emphasizing that research should consider the unique experiences of students in educational planning (Merola et al., 2022). In the context of COVID-19, studies confirm the mediating role of academic commitment in satisfaction with studies (Teuber et al., 2021).

Lastly, the results of this study clearly indicate that emotional fatigue and academic engagement together account for 43% of the variance in students' satisfaction with their studies. This outcome aligns with findings from Colombian students, where students who perceive higher emotional fatigue reported lower satisfaction with their studies (Caballero et al., 2007). However, the post-pandemic period has its distinct characteristics, such as a new balanced and semi-presential educational approach, which students perceive positively and enhances their learning (Sharma and Shree, 2023). Furthermore, this form of semi-presential education is considered as the "new normal" (Megahed and Hassan, 2022). Yet, some reports state that this mode of education has led, in certain cases, to lower levels of student engagement (Banihashem et al., 2023). It's worth noting the positive manner in which students perceive this hybrid digital education (Christabel and Prawira, 2023), underscoring the need to continue analyzing the factors influencing academic satisfaction.

4.1 Implications

This research presents several significant implications. For example, students during their return after the pandemic period have adapted relatively easily to the university academic environment. This modality has not only reduced emotional fatigue but has also had positive impacts on academic engagement and satisfaction with studies. It is vital that educational institutions and policymakers continue to support and refine these hybrid modes, capitalizing on their potential to merge the best of both worlds. Additionally, emotional exhaustion or fatigue is directly tied to academic satisfaction and possibly to academic performance. Although it is important that institutions continue to improve their educational quality informed by students' perceptions, as well, students can change their perspective in such a way that they become actively involved in their academic satisfaction and can opt for courses that help improve that perception. Moreover, the findings suggest that academic engagement correlates positively with satisfaction in studies. It's crucial to implement teaching methods that foster a more engaged classroom environment, such as peer teaching, active student participation, and the integration of practical applications of theoretical knowledge. These strategies can enhance the educational process and allow for greater student connection and involvement (Fredricks and McColskey, 2012). Finally, given the evidence of the profound impact of emotional fatigue on student satisfaction, institutions should bolster their focus on mental health. More robust mental health frameworks should be established, emphasizing early detection, support, and potential therapeutic interventions for those students struggling with emotional burnout.

4.2 Limitations

Among the main limitations is the fact that this research used a correlational and cross-sectional design, so it is not possible to make causal inferences. Therefore, the use of longitudinal models is recommended to lead to a better understanding of the relationships between predictor and dependent variables. Also, the measures were based on self-reports, which could introduce some bias, even though most similar studies analyze data through self-reports. Additionally, data collection was done virtually, so some participants might have had motivations that influenced how they responded to the questionnaires. These motivations could be related to an individual's tendency to respond in a certain way without doubting the question (Lanz et al., 2022) and could be related to some particular individual experience that no other participant has had (Eisele et al., 2020).

4.3 Conclusion

Despite these limitations, we view this research as a contribution to the understanding of satisfaction with studies. It introduces emotional fatigue and academic engagement as predictors of satisfaction with studies among university students in the post-pandemic era. We conclude that the study reported a negative relationship between emotional fatigue and satisfaction with studies and a positive relationship between academic engagement and satisfaction with studies. Moreover, emotional fatigue and academic engagement explain the variability in satisfaction with studies.

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 the Ethics Committee of the Peruvian Union University (Reference: 2023-CEUPeU-0016). The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

OM-B: Conceptualization, Investigation, Supervision, Visualization, Writing – original draft, Writing – review & editing. RFCE: Formal analysis, Investigation, Methodology, Validation, Visualization, Writing – review & editing, Writing – original draft. MVH-M: Funding acquisition, Investigation, Methodology, Visualization, Writing – review & editing. RC-B: Data curation, Formal analysis, Software, Visualization, Writing – review & editing. JTC: Investigation, Resources, Validation, Visualization, Writing – review & editing. WCMG: Investigation, Methodology, Resources, Validation, Visualization, Writing – review & editing.

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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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References

Abumalloh, R. A., Asadi, S., Nilashi, M., Minaei-Bidgoli, B., Nayer, F., Samad, S., et al. (2021). The impact of coronavirus pandemic (COVID-19) on education: The role of virtual and remote laboratories in education. *Technol. Soc.* 67:101728. doi: 10.1016/j.techsoc.2021.101728

Amerstorfer, C. M., and Freiin von Münster-Kistner, C. (2021). Student perceptions of academic engagement and student-teacher relationships in problem-based learning. *Front. Psychol.* 12:713057. doi: 10.3389/fpsyg.2021.713057

Anderete, M. (2022). Confinement and return to classes in Argentina: teachers' stories about inequality in a pandemic. *Texto Livre* 15:e38009. doi: 10.35699/1983-3652.2022.38009

Arias-Flores, H., Guadalupe-Lanas, J., Pérez-Vega, D., Artola-Jarrín, V., and Cruz-Cárdenas, J. (2022). Emotional state of teachers and university administrative staff in the return to face-to-face mode. *Behav. Sci.* 12:240. doi: 10.3390/bs12110420

Aristovnik, A., Karampelas, K., Umek, L., and Ravšelj, D. (2023). Impact of the COVID-19 pandemic on online learning in higher education: a bibliometric analysis. *Front. Educ* 8:1225834. doi: 10.3389/feduc.2023.1225834

Aristovnik, A., Keržič, D., Ravšelj, D., Tomaževič, N., and Umek, L. (2020). Impacts of the COVID-19 pandemic on life of higher education students: a global perspective. *Sustainability* 12, 1–34. doi: 10.3390/su12208438

Arredondo-Salas, A. Y., Vargas-Vizcarra, M. E., Ccorisapra-Quintana, J., Bustamante-Carpio, J. A., and Ccorisapra-Quintana, F. M. (2022). Engagement y satisfacción académica: rol mediador del compromiso afectivo en estudiantes de negocios. *Comuni@cción* 13, 117–126. doi: 10.33595/2226-1478.13.2.689

Ato, M., López, J. J., and Benavente, A. (2013). A classification system for research designs in psychology. *Anales Psicol* 29, 1038–1059. doi: 10.6018/analesps.29.3.178511

Bahroodi, P., Zeighami, R., and Sheidaei, A. (2023). Path analysis of factors affecting depression in medical students. *Psychol. Sch.* 60, 1249–1261. doi: 10.1002/pits.22830

Bakker, A. B., Demerouti, E., and Sanz-Vergel, A. I. (2014). Burnout and work engagement: the JDR approach. *Annu. Rev. Organ. Psych. Organ. Behav.* 1, 389–411. doi: 10.1146/ANNUREV-ORGPSYCH-031413-091235

Banihashem, S. K., Noroozi, O., den Brok, P., Biemans, H. J. A., and Kerman, N. T. (2023). Modeling teachers' and students' attitudes, emotions, and perceptions in blended education: towards post-pandemic education. *Int. J. Manage. Educ.* 21:100803. doi: 10.1016/j.ijme.2023.100803

Bentler, P. (1990). Comparative fit indices in structural models. *Psychol. Bull.* 107, 238–246. doi: 10.1037/0033-2909.107.2.238

Bridges, S. M., Chan, C. K. Y., Ceperkovic, R., Nguyen, U. N. T., Prosser, M., Bone, E., et al. (2023). "International perspectives on the transformation of teaching in the new normal," in *Adapting to online and blended learning in higher education*. eds. D. Kember, R. A. Ellis, S. Fan and S. A. Trimble (Singapore: Springer).

Browne, M. W., and Cudeck, R. (1992). Alternative ways of assessing model fit. *Sociol. Methods Res.* 21, 230–258. doi: 10.1177/0049124192021002005

Caballero, C., Abello, R., and Palacios, J. (2007). Relación del burnout y el rendimiento académico con la satisfacción frente a los estudios en estudiantes universitarios. *Avances Psicol Latinoam.* 25, 98–111.

Cai, Z., Cui, Q., Liu, Z., Li, J., Gong, X., Liu, J., et al. (2020). Nurses endured high risks of psychological problems under the epidemic of COVID-19 in a longitudinal study in Wuhan China. *J. Psychiatr. Res.* 131, 132–137. doi: 10.1016/j.jpsychires.2020.09.007

Cajachagua, M., Miranda, K., Chávez, J. V., and Huancahuire-Vega, S. (2023). Concern about returning to face-to-face classes after the pandemic: importance of emotional intelligence and stress coping strategies in health science students. *Adv. Med. Educ.* 14, 937–945. doi: 10.2147/FAMEP.S415187

Caprara, L., and Caprara, C. (2022). Effects of virtual learning environments: a scoping review of literature. *Educ. Inf. Technol.* 27, 3683–3722. doi: 10.1007/s10639-021-10768-w

Carranza Esteban, R. F., Mamani-Benito, O., Morales-García, W. C., Caycho-Rodríguez, T., and Ruiz Mamani, P. G. (2022). Academic self-efficacy, self-esteem, satisfaction with studies, and virtual media use as depression and emotional exhaustion predictors among college students during COVID-19. *Heliyon* 8:e11085. doi: 10.1016/j.heliyon.2022.e11085

Carranza, R., Mamani, O., Castillo, R., Caycho, T., Villafuerte, A., and Davila, R. (2023). Effect of emotional exhaustion on satisfaction with studies and academic procrastination among Peruvian university students. *Front. Educ.* 8:1015638. doi: 10.3389/feduc.2023.1015638

Carranza, R. F., Mamani-Benito, O., Castillo-Blanco, R., Lingan, S. K., and Cabrera-Orosco, I. (2022). Influence of family and academic satisfaction on life satisfaction among Peruvian university students in the times of COVID-19: the mediating role of self-esteem. *Front. Educ.* 7, 1–9. doi: 10.3389/feduc.2022.867997

Christabel, H., and Prawira, I. (2023). Practical study of digital learning and virtual Laboratory in Post-Pandemic era. *E3S Web Conferences* 388:04012. doi: 10.1051/e3sconf/202338804012

Crew, T., and Martins, O. (2023). Students' views and experiences of blended learning and employability in a post-pandemic context. *Soc. Sci. Human. Open* 8:100583. doi: 10.1016/j.ssaho.2023.100583

Cronje, J. C. (2022). From face-to-face to distance: towards flexibility in five dimensions of blended learning: lessons learnt from the COVID-19 pandemic. *Electron. J. E Learn.* 20, 436–450. doi: 10.34190/ejel.20.4.2201

Cygrymus, E. R., and Lent, R. W. (2023). Social cognitive predictors of music majors' academic well-being and persistence intentions. *J. Career Assess.* 31, 282–297. doi: 10.1177/10690727221113287

DeCoito, I., and Estaiteyeh, M. (2022). Transitioning to online teaching during the COVID-19 pandemic: an exploration of STEM teachers' views, successes, and challenges. *J. Sci. Educ. Technol.* 31, 340–356. doi: 10.1007/s10956-022-09958-z

Deng, J., Zhou, F., Hou, W., Silver, Z., Wong, C. Y., Chang, O., et al. (2021). The prevalence of depressive symptoms, anxiety symptoms and sleep disturbance in higher education students during the COVID-19 pandemic: a systematic review and meta-analysis. *Psychiatry Res.* 301:113863. doi: 10.1016/j.psychres.2021.113863

Dhawan, S. (2020). Online learning: a panacea in the time of COVID-19 crisis. *J. Educ. Technol. Syst.* 49, 5–22. doi: 10.1177/0047239520934018

Dominguez Lara, S. (2013). Psychometric analysis of the emotional exhaustion scale of private university students. *RIDU* 7, 45–55. doi: 10.19083/ridu.7.186

Dominguez-Lara, S., Gravini-Donado, M., Moreta-Herrera, R., and León, S. (2023). Influencia de la autoeficacia académica sobre la adaptación a la universidad: rol mediador del agotamiento emocional académico y del engagement académico. *Campus Virtuales* 12, 99–112. doi: 10.54988/cv.2023.2.1213

Dominguez-lara, S., Sánchez-villena, A. R., and Fernández-arata, M. (2020). Propiedades psicométricas de la UWES-9S en estudiantes universitarios peruanos. *Acta Colomb. Psicol.* 23, 7–39. doi: 10.14718/ACP.2020.23.2.2

Dou, D., Shek, D. T. L., and Wong, T. (2022). Ecological predictors of academic satisfaction in senior secondary school students in Hong Kong: the mediating role of academic confidence. *Front. Psychol.* 13:1041873. doi: 10.3389/fpsyg.2022.1041873

Eisele, G., Vachon, H., Lafit, G., Kuppens, P., Houben, M., Myin-Germeys, I., et al. (2020). The effects of sampling frequency and questionnaire length on perceived burden, compliance, and careless responding in experience sampling data in a student population. *Assessment* 29, 136–151. doi: 10.1177/1073191120957102

Estrada, E. G., and Paricahua, J. N. (2023). Compromiso académico en los estudiantes universitarios de la Amazonía Peruana durante el contexto pospandemia. *Revist. Digit. Investig. Docencia Universit.* 17:e1664. doi: 10.19083/ridu.2023.1664

Farfán-Latorre, M., Estrada-Araoz, E. G., Lavilla-Condori, W. G., Ulloa-Gallardo, N. J., Calcina-Álvarez, D. A., Meza-Orue, L. A., et al. (2023). Mental health in the post-pandemic period: depression, anxiety, and stress in Peruvian university students upon return to face-to-face classes. *Sustain. For.* 15:11924. doi: 10.3390/su151511924

Fatima, S., Waheed, S., Daud, S., and Aslam, S. (2022). Gratitude, self-regulation, and academic motivation during COVID-19 in university students: differential associations for earning and non-earning students. *Webology* 19, 8461–8481.

Fredricks, J. A., and McColskey, W. (2012). "The measurement of student engagement: A comparative analysis of various methods and student self-report instruments," in *Handbook of research on student engagement*. eds. S. Christenson, A. Reschly and C. Wylie (Boston, MA: Springer).

Freudenberger, H. J. (1974). Staff Burn-Out. *J. Soc. Issues* 30, 159–165. doi: 10.1111/j.1540-4560.1974.tb00706.x

Froment, F., De-Besa Gutiérrez, M., and Gil Flores, J. (2023). Efecto del apoyo a la autonomía sobre la satisfacción académica. *Revist. Investig. Educ.* 41, 479–499. doi: 10.6018/rie.546251

Gadosey, C. K., Grunschel, C., Kegel, L. S., Schnettler, T., Turhan, D., Scheunemann, A., et al. (2022). Study satisfaction among university students during the COVID-19 pandemic: longitudinal development and personal-contextual predictors. *Front. Psychol.* 13:918367. doi: 10.3389/fpsyg.2022.918367

Granero-Gallegos, A., Escaravajal, J. C., López-García, G. D., and Baños, R. (2022). Influence of teaching styles on the learning academic confidence of teachers in training. *J. Intelligence* 10:71. doi: 10.3390/jintelligence10030071

Gregg, S. S. J. (2021). Why we will not return to exclusively face-to-face tutoring post-COVID: improving student engagement through technology. *Learn. Assist. Rev.* 26, 53–79.

Härtel, C. E. J., Hsu, A. C. F., and Boyle, M. V. (2016). "A conceptual examination of the causal sequences of emotional labor, emotional dissonance, and emotional exhaustion: The argument for the role of contextual and provider characteristics," in *Managing emotions in the workplace*. eds. N. Ashkanasy, W. Zerbe and C. Hartel (New York: Routledge).

Hendrick, L., Opdenakker, M.-C., and Van der Vaart, W. (2023). Students' academic engagement during COVID-19 times: a mixed-methods study into relatedness and loneliness during the pandemic. *Front. Psychol.* 14:1221003. doi: 10.3389/fpsyg.2023.1221003

Hensley, A., Hampton, D., Wilson, J. L., Culp-Roche, A., and Wiggins, A. T. (2021). A multicenter study of student engagement and satisfaction in online programs. *J. Nurs. Educ.* 60, 259–264. doi: 10.3928/01484834-20210420-04

Imran, R., Fatima, A., Elbayoumi Salem, I., and Allil, K. (2023). Teaching and learning delivery modes in higher education: looking back to move forward post-COVID-19 era. *Int. J. Manag. Educ.* 21:100805. doi: 10.1016/j.ijme.2023.100805

Iqbal, J., Qureshi, N., Azeem, M., and Faiz, S. (2022). The effect of emotional intelligence and academic social networking sites on academic performance during the COVID-19 pandemic. *Psychol. Res. Behav. Manag.* 14, 905–920. doi: 10.2147/PRBM.S316664

Jagodics, B., and Szabó, É. (2022). Student burnout in higher education: a demand-resource model approach. *Trends Psychol.* 31, 757–776. doi: 10.1007/s43076-021-00137-4

Khaing, N. N., and Myint, K. M. (2020). Factors influencing academic engagement of university students: a meta-analysis study. *J. Myanmar Acad. Arts Sci.* 18, 185–199.

Khan, A. N. (2023). Tudents are at risk? Elucidating the impact of health risks of COVID-19 on emotional exhaustion and academic performance: role of mindfulness and online interaction quality. *Curr. Psychol.*, 1–14. doi: 10.1007/s12144-023-04355-0

Kim, H. J., Hong, A. J., and Song, H.-D. (2019). The roles of academic engagement and digital readiness in students' achievements in university e-learning environments. *Int. J. Educ. Technol. High. Educ.* 16, 1–18. doi: 10.1186/s41239-019-0152-3

Kurban, K., Acar, S., Sahin, A., Yildirim, Y., and Taban, F. (2023). College students' academic online engagement, creative self-efficacy, self-regulation and wellbeing during the pandemic. *Eur. J. Educ. Pedagog.* 4, 83–92. doi: 10.24018/ejedu.2023.4.6.701

Labrague, L. J., and Ballad, C. A. (2021). Lockdown fatigue among college students during the COVID-19 pandemic: predictive role of personal resilience, coping behaviors, and health. *Perspect. Psychiatr. Care* 57, 1905–1912. doi: 10.1111/ppc.12765

Lanz, L., Thielmann, I., and Gerpott, F. (2022). ¿Son deseables las escalas de deseabilidad social? Un meta-prueba analítica dela validez de las escalas de deseabilidad social en el contexto de la prosocialidadcomport. *J. Pers.* 90, 203–221. doi: 10.1111/jopy.12662

Leach, M., MacGregor, H., Scoones, I., and Wilkinson, A. (2021). Post-pandemic transformations: how and why COVID-19 requires us to rethink development. *World Dev.* 138:105233. doi: 10.1016/j.worlddev.2020.105233

Noh, H., Shin, H., and Lee, S. M. (2013). Developmental process of academic burnout among Korean middle school students. *Learn. Individ. Differ.* 28, 82–89. doi: 10.1016/j.lindif.2013.09.014

Lee, R. L., and Ashforth, B. E. (1996). A meta-analytic examination of the correlates of the three dimensions of job burnout. *J. Appl. Psychol.* 81, 123–133. doi: 10.1037/0021-9010.81.2.123

Leite, M., Fernandes, J., Carvalho, K., Pina-Zallio, M., Verza, R., and Gonçalves, M. P. (2023). Fear of returning to face-to-face classes in times of COVID-19: a cross-country comparison. *J. School Educ. Psychol.* 3, 49–65. doi: 10.47602/josep.v3i1.25

Li, L., Zhang, R., and Piper, A. (2023). Predictors of student engagement and perceived learning in emergency online education amidst COVID-19: a community of inquiry perspective. *Comput. Hum. Behav. Rep.* 12:100326. doi: 10.1016/j.chbr.2023.100326

Limniou, M., Sedghi, N., Kumari, D., and Drousiotis, E. (2022). Student engagement, learning environments and the COVID-19 pandemic: a comparison between psychology and engineering undergraduate students in the UK. *Educ. Sci.* 12:671. doi: 10.3390/educsci12100671

Liu, Z., Xie, Y., Sun, Z., Liu, D., Yin, H., and Shi, L. (2023). Factors associated with academic burnout and its prevalence among university students: a cross-sectional study. *BMC Med. Educ.* 23:317. doi: 10.1186/s12909-023-04316-y

Liverpool, S., Moinuddin, M., Aithal, S., Owen, M., Bracegirdle, K., Caravotta, M., et al. (2023). Mental health and wellbeing of further and higher education students returning to face-to-face learning after COVID-19 restrictions. *PLoS One* 18:e0280689. doi: 10.1371/journal.pone.0280689

López-Aguilar, D., Álvarez-Pérez, P. R., and Garcés-Delgado, Y. (2021). El engagement académico y su incidencia en el rendimiento del alumnado de grado de la Universidad de La Laguna. *RELIEVE* 27:5. doi: 10.30827/relieve.v27i1.21169

March-Amengual, J.-M., Cambra Badii, I., Casas-Baroy, J.-C., Altarriba, C., Comella Company, A., Pujol-Farriols, R., et al. (2022). Psychological distress, burnout, and academic performance in first year college students. *Int. J. Environ. Res. Public Health* 19:3356. doi: 10.3390/ijerph19063356

Megahed, N., and Hassan, A. (2022). A blended learning strategy: reimagining the post-Covid-19 architectural education. *Archnet IJAR* 16, 184–202. doi: 10.1108/ARCH-04-2021-0081

Merino-Soto, C., Dominguez-Lara, S., and Fernández-Arata, M. (2017). Validación inicial de una Escala Breve de Satisfacción con los Estudios en estudiantes universitarios de Lima. *Educ. Medica* 18, 74–77. doi: 10.1016/j.edumed.2016.06.016

Merola, R. H., Hofman, W. H. A., Jansen, E. P. W. A., and Coelen, R. J. (2022). Making the grade: do International branch campuses and their home campuses differ in international student satisfaction with the academic experience? *J. Stud. Int. Educ.* 26, 472–492. doi: 10.1177/1028315321995524

Muthén, L. K., and Muthén, B. (2017). *MPlus user' guide*. 8th Edn. Los Angeles, CA: Muthén & Muthén.

Okoye Ifeanyi, F. (2023). Barriers to learning linger into post-pandemic for multi-campus institutions in developing nations: a case of the University of the Free State. *Soc. Sci. Human. Open* 7:100438. doi: 10.1016/j.ssaho.2023.100438

Pat-Horenczyk, R., Schiff, M., Arënliu, A., Zasiekina, L., Kagialis, A., Ferreira, N., et al. (2022). Challenges faced by university students during the COVID-19: an international study in five countries during the early phase of the pandemic. *Int. J. Psychol.* 57, 547–558. doi: 10.1002/ijop.12846

Peña-Vázquez, R., González-Morales, O., Álvarez-Pérez, P.-R., and López-Aguilar, D. (2023). Construyendo el perfil del alumnado con intención de abandono de los estudios universitarios. *Revist. Española Pedagog.* 81, 291–315. doi: 10.22550/REP81-2-2023-03

Porru, F., Schuring, M., Bültmann, U., Portoghese, I., Burdorf, A., Suzan, J., et al. (2022). Associations of university student life challenges with mental health and self-rated health: a longitudinal study with 6 months follow-up. *J. Affect. Disord.* 296, 250–257. doi: 10.1016/j.jad.2021.09.057

Rahiem, M. (2021). Remaining motivated despite the limitations: university students' learning propensity during the COVID-19 pandemic. *Child Youth Serv. Rev.* 120:105802. doi: 10.1016/j.childyouth.2020.105802

Reyes-de-Cózar, S., Merino-Cajaraville, A., and Salguero-Pazos, M. R. (2023). Avoiding academic burnout: academic factors that enhance university student engagement. *Behav. Sci.* 13:989. doi: 10.3390/bs13120989

Rosseel, Y. (2012). Lavaan: an R package for structural equation modeling. *J. Stat. Softw.* 48, 1–93. doi: 10.18637/jss.v048.i02

Rossini, S., Bulfone, G., Vellone, E., and Alvaro, R. (2021). Nursing students' satisfaction with the curriculum: an integrative review. *J. Prof. Nurs.* 37, 648–661. doi: 10.1016/j.profnurs.2021.02.003

Sanjari, E., Majidian Dehkordi, F., and Raeisi Shahraki, H. (2023). Clustering undergraduate students based on academic burnout and satisfaction from the field using partitioning around Medoid. *Comput. Math. Methods Med.* 2023, 1–7. doi: 10.1155/2023/8898939

Sharma, L., and Shree, S. (2023). Exploring the online and blended modes of learning for post-COVID-19: a study of higher education institutions. *Educ. Sci.* 13:142. doi: 10.3390/educsci13020142

Singh, J., Evans, E., Reed, A., Karch, L., Qualey, K., Singh, L., et al. (2022). Online, hybrid, and face-to-face learning through the eyes of faculty, students, administrators, and instructional designers: lessons learned and directions for the post-vaccine and post-pandemic/COVID-19 world. *J. Educ. Technol. Syst.* 50, 301–326. doi: 10.1177/00472395211063754

Stoian, C. E., Fărcașiu, M. A., Dragomir, G. M., and Gherheș, V. (2022). Transition from online to face-to-face education after COVID-19: the benefits of online education from students' perspective. *Sustainability* 14:12812. doi: 10.3390/su141912812

Szabó, L., Zsolnai, A., and Fehervari, A. (2024). The relationship between student engagement and dropout risk in early adolescence. *Int. J. Educ. Res. Open* 6:100328. doi: 10.1016/j.ijedro.2024.100328

Tan, C. (2021). The impact of COVID-19 pandemic on student learning performance from the perspectives of community of inquiry. *Asian Educ. Develop. Stud.* 21, 1215–1228. doi: 10.1108/CG-09-2020-0419

Teuber, Z., Jia, H., and Niewöhner, T. (2021). Satisfying students' psychological needs during the COVID-19 outbreak in German higher education institutions. *Front. Educ.* 6:679695. doi: 10.3389/feduc.2021.679695

Tilak, J. B. G., and Kumar, A. G. (2022). Policy changes in global higher education: what lessons do we learn from the COVID-19 pandemic? *High Educ. Pol.* 35, 610–628. doi: 10.1057/s41307-022-00266-0

UNESCO (2020). International Institute for Higher Education in Latin America and the Caribbean (IESALC). COVID-19 and higher education: Today and tomorrow. Impact analysis, policy responses and recommendations. Available at: https://education4resilience.iiep.unesco.org/index.php/resources/2020/covid-19-and-higher-education-today-and-tomorrow-impact-analysis-policy-responses

Urquijo, I., and Extremera, N. (2017). Satisfacción académica en la universidad: relaciones entre inteligencia emocional y engagement académico. *Electron. J. Res. Educ. Psychol.* 15, 553–573. doi: 10.25115/ejrep.43.16064

Van der Ross, M. R., Olckers, C., and Schaap, P. (2023). Crossover of engagement among academic staff and students during COVID-19. *Psychol. Res. Behav. Manag.* 16, 3121–3137. doi: 10.2147/PRBM.S416739

Wernli, D., Böttcher, L., Vanackere, F., Kaspiarovich, Y., Masood, M., and Levrat, N. (2023). Understanding and governing global systemic crises in the 21st century: a complexity perspective. Global. *Policy* 14, 207–228. doi: 10.1111/1758-5899.13192

World Health Organization. (2020). WHO director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020. Available at: https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020

Wu, Q., Chi, P., and Zhang, Y. (2023). Association between pandemic fatigue and subjective well-being: the indirect role of emotional distress and moderating role of self-compassion. *Int. J. Public Health* 68:1605552. doi: 10.3389/ijph.2023.1605552

Yekefallah, L., Namdar, P., Panahi, R., and Dehghankar, L. (2021). Factors related to students' satisfaction with holding e-learning during the Covid-19 pandemic based on the dimensions of e-learning. *Heliyon* 7:e07628. doi: 10.1016/j.heliyon.2021.e07628