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Ardiles-Irarrázabal, Rodrigo-Alejandro; Figueroa-Sánchez, Manuel;
Jaramillo-Calderón, Eduardo; Palza-Valck, Romina; Moya-Cruz, María
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Original Article

Academic engagement and burnout in nursing students during the COVID-19 pandemic

Compromiso académico y burnout en estudiantes de enfermería durante la pandemia COVID-19

Engajamento acadêmico e burnout em estudantes de enfermagem durante a pandemia de COVID-19

Rodrigo-Alejandro Ardiles-Irarrázabal  

ardiles1@alumno.uned.es 

Universidad Nacional de Educación a Distancia. Madrid, España.
Universidad de Antofagasta. Antofagasta, Chile.

Manuel Figueroa-Sánchez  

manuel.figueroa@uantof.cl

Universidad de Antofagasta. Antofagasta, Chile.
Universidad Internacional Iberoamericana de México. Campeche, México.

Eduardo Jaramillo-Calderón  

ejaramillo@udd.cl

Faculty of Engineering, Universidad del Desarrollo. Concepción, Chile.
Pontificia Universidad Católica de Chile. Santiago, Chile.

Romina Palza-Valck  

romina.palza@uantof.cl

Project Control and Monitoring Unit, Universidad de Antofagasta.
Antofagasta, Chile.

María Moya-Cruz  

maria.moya@uantof.cl

Universidad de Antofagasta. Antofagasta, Chile.
Universidad Estatal de Maringá. Maringá, Brasil.

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Author Contributions

RAI. Performed Conceptualization, methodology, software, data curation, preparation of original draft, and writing. **EJC.** Data curation, writing, review, and editing. **MMC.** Visualization, research, review. **MFS.** Supervision, review, and editing. **RPV.** Software, validation, review, and editing.

ABSTRACT

Introduction. The COVID-19 pandemic hit various human dimensions. Mental health in Chile was a problem, the second country with the highest rates of emotional conditions. Nursing students are susceptible and have had a high prevalence of burnout syndrome (23%). In this context, universities incorporated distance education strategies, demanding engagement and exposing them to burnout. The objective is to observe the relationship between academic engagement and burnout in times of pandemic. **Methodology.** Quantitative, correlational and transversal research. The sample was 201 students from 1st to 5th year of nursing. Academic burnout (MBI-SS) and engagement (UWES) questionnaires were applied. Statistical analysis was carried out by Kruskal-Wallis test, Games-Howell post-hoc analysis, and Rho Spearman correlation coefficient. **Results.** 100% of the sample presented academic burnout. Moderate negative correlations were observed between the burnout and engagement dimensions, as well as for their total score ($r=-0.320$; $p<0.001$). 5th year students experienced greater depersonalization, despite suffering less emotional exhaustion compared to lower grades. **Discussion.** Engagement was negatively associated with academic burnout; as engagement improved, burnout decreased. Results are consistent with other studies given the nature of the contrast between these variables. **Conclusions.** In the presence of academic burnout, engagement appears as a protective factor against it. It is important that students can be permanently motivated by managing student commitment, which could reduce the symptoms of burnout. In relation to the latter, it is necessary for universities to find early screening strategies in the susceptible population.

Keywords:

Burnout, Psychological; Work Engagement; Students, Nursing; Mental Health; COVID-19.

RESUMEN

Introducción. La pandemia por COVID-19 golpeó diversas dimensiones humanas. La salud mental en Chile era un problema, el segundo país con los mayores índices de afecciones emocionales. Los estudiantes de enfermería son susceptibles y han presentado altas prevalencias en el síndrome de burnout (23%). En este contexto, las universidades incorporaron estrategias de educación a distancia, exigiendo compromiso (*engagement*) y exponiéndolos a desgaste (burnout). El objetivo es observar la relación entre el *engagement* y burnout académicos en tiempos de pandemia. **Metodología.** Investigación cuantitativa, correlacional y transversal. La muestra fue de 201 estudiantes de 1° a 5° año de enfermería. Se aplicaron cuestionarios de burnout (MBI-SS) y *engagement* (UWES) académicos. El análisis estadístico se llevó a cabo la prueba Kruskal-Wallis, análisis post-hoc de Games-Howell, y el coeficiente de correlación de Rho Spearman. **Resultados.** El 100% de la muestra presentó burnout académico. Se observaron correlaciones negativas moderadas entre las dimensiones de burnout y *engagement*, así como para el puntaje total de estas ($r=-0.320$; $p<0.001$). Los estudiantes de 5° año experimentaron mayor despersonalización, a pesar de sufrir menor agotamiento emocional en comparación a cursos inferiores. **Discusión.** El *engagement* se asoció negativamente con el burnout académico, a medida que el *engagement* mejoró, disminuyó el burnout. Resultados concordantes con otros estudios dada la naturaleza de contraposición entre estas variables. **Conclusiones.** Ante la presencia de burnout académico, el *engagement* aparece como factor protector contra el mismo. Es importante que los estudiantes sean motivados permanentemente gestionando el compromiso estudiantil, lo cual podría disminuir la sintomatología del burnout. En relación con este último, es necesario que las universidades encuentren estrategias de pesquisa precoz en la población susceptible.

Palabras clave:

Agotamiento Psicológico; Compromiso Laboral; Estudiantes De Enfermería; Salud Mental; COVID-19

RESUMO

Introdução. A pandemia de COVID-19 atingiu várias dimensões humanas. A saúde mental no Chile era um problema, o segundo país com os maiores índices de problemas emocionais. Os estudantes de enfermagem são suscetíveis e apresentam alta prevalência de síndrome de burnout (23%). Nesse contexto, as universidades incorporaram estratégias de educação a distância, exigindo engajamento (*engagement*) e expondo os estudantes ao esgotamento (burnout). O objetivo é observar a relação entre engajamento

e burnout acadêmicos em tempos de pandemia. **Metodologia.** Pesquisa quantitativa, correlacional e transversal. A amostra foi de 201 estudantes do 1º ao 5º ano de enfermagem. Foram aplicados questionários de burnout (MBI-SS) e engajamento (UWES) acadêmicos. A análise estatística foi realizada pelo teste de Kruskal-Wallis, análise post-hoc de Games-Howell e coeficiente de correlação de Rho Spearman. **Resultados.** 100% da amostra apresentou burnout acadêmico. Foram observadas correlações negativas moderadas entre as dimensões de burnout e engajamento, bem como para a sua pontuação total ($r=-0.320$; $p<0.001$). Os alunos do 5º ano experimentaram maior despersonalização, apesar de sofrerem menos desgaste emocional em comparação com as fases iniciais. **Discussão.** O engajamento foi negativamente associado ao burnout acadêmico; à medida que o engajamento melhorou, o esgotamento diminuiu. Os resultados são consistentes com outros estudos dada a natureza do contraste entre estas variáveis. **Conclusões.** Na presença do burnout acadêmico, o engajamento aparece como fator de proteção contra ele. É importante que os alunos estejam permanentemente motivados através da gestão do comprometimento estudantil, o que poderia reduzir os sintomas de burnout. Em relação a este último, é necessário que as universidades encontrem estratégias de triagem precoce na população suscetível.

Palavras-chave:

Esgotamento Psicológico; Engajamento no Trabalho; Estudantes de Enfermagem; Saúde Mental; COVID-19.

Introduction

The pandemic hit multiple areas of life. In this context, universities had to develop new distance education (DE) strategies. Likewise, mental health (MH) was one of the areas that caused the most concern during the pandemic, as it tends to be ignored or underestimated (1).

In Chile, the problem of MH is very complex; Before COVID-19 it was one of the countries with the highest rates of affective disorders (2); presenting an even higher incidence in university students (3), becoming a public health problem. Health sciences students showed higher rates of psychological disorders, such as academic burnout syndrome (ABS), understood as a series of sensations of “not being able to give more of oneself” (4–7). Students with MH problems have lower academic performance and higher risk behaviors (8). Thus, the question arose: what happens with MH and specifically with ABS in nursing students (NE) during the pandemic and DE?

MH problems in the pandemic increased; as was the case of depression. The pandemic confinement had a high impact on students’ MH (9). Several articles report that nursing education increases levels of stress and burnout (10–12). In contrast, academic engagement (AE) appears, understood as emotional commitment or a positive mental state related to academic work (13). If the situation was worrying before the pandemic, during it, the ABS and the AE could become relevant factors of this DE model in these students and their MH.

DE is no longer an alternative method in the new educational environment induced by COVID-19, but rather a necessary and valid strategy in universities. Autonomy regarding learning is becoming an essential prerequisite for this strategy, given the physical separation

of students and instructors (14). Considering the above, how did this educational strategy affect the MH of the NE, associated with the ABS and AE?

The benefit of psychological capital, in the context of DE, has been shown to significantly predict ABS and AE (15); These variables and their dimensions are moderately and negatively correlated (16). Amid all the psychological maladjustment in the pandemic, AE appeared as an important protective factor, since students see their active participation as a duty in their learning process, it seems to be a catalyst that “promotes learning, performance, interest and psychological well-being of students” (17). Engagement and motivation are part of MH in relation to the stimulation of students, and the nursing career is not excluded from these phenomena.

An investigation analyzed whether the pandemic had a relationship with people’s “motivation”; evidencing significant differences in motivation during 2020 compared to previous years, the pandemic had a great influence on this construct (18). This evidence in work environments sheds light on the effect of the pandemic on “motivation”, but introduces the following question: Has learning at all levels, including undergraduate, been influenced by demotivation secondary to the COVID-19 pandemic?

Chinese NE in the pandemic presented ABS. AE played a partial mediating role in the relationship between psychological capital and ABS and was able to reduce the latter (19). In the West, studies relating these variables in NE are scarce in the pandemic. In the pandemic, these students may have been affected, so AE is likely to have been a protective factor against ABS.

In Chile, there are few studies on the ABS and AE variables during COVID-19, as well as their relationship with the virtual education strategy in the north of the country. Our hypotheses (H) propose: **H1** the existence of correlations between the ABS and AE totals and their dimensions. **H2** presence of associations with their ABS dimensions: depersonalization with the three EA dimensions: vigor, dedication and absorption. **H3** the dimensions of EA with emotional exhaustion. And finally, **H4** the AE dimensions with personal fulfillment, despite the pandemic and DE context. The objective of the present study is to observe the statistical relationship between ABS and EA and their dimensions in times of pandemic and ED in a sample of NE.

Methodology

It's a quantitative correlational study with a cross-sectional and non-probabilistic sample. The inclusion criterion was being a student with the status of a regular student from the 1st to the 5th year of the nursing program at a public university in northern Chile, with their corresponding accepted informed consent. As an exclusion criterion, questionnaires with no response were considered. They were virtually applied between May and June of 2021, with a duration of 20 minutes.

The population was a total of 317 NE. The sampling was non-probabilistic by convenience; the minimum sample was calculated with a 95% confidence and a margin of error of 5%, estimating the minimum number of 175 students. However, 201 surveys were applied to obtain more considerable statistical power.

The data was analyzed by SPSS®V.26 software, and the descriptive analysis of the variables was realized. The normality of the data was assessed using the Kolmogorov-Smirnov test. For the multiple comparison analysis between the career years, the Kruskal-Wallis test was used (for non-parametric samples, considering the smaller sample sizes per course), and those with a p-value ≤ 0.05 were considered to establish the statistical significance of the associations. After determining the differences between the averages, a post-hoc analysis was used by the statistical (H) de Games-Howell (20). Confidence intervals were calculated with a 95% confidence (95%). The correlation of the variables was calculated using the correlation coefficient Rho Spearman.

Instruments

1) The Maslach Burnout *Inventory Students Survey* (MBI-SS) questionnaire, validated for Chile, measures the manifestations of Maslach's trifactorial model

applied to academic activities. The original questionnaire was modified for students, focusing on psychosocial disturbances associated with educational tasks. The items were replaced towards the studies, and patients were replaced with peers or people. This version consists of 22 items presenting various descriptions to which the subject must respond according to the frequency they have experienced them. The answers were classified as never=0; sometime in the year or less=1; once a month or less=2; Few times in a month=3; once a week=4; Few times a week=5; everyday=6. A more significant score indicates higher levels of burnout; eight items need to be recorded inversely (4,7,9,12,17,18,19 y 21). The 22 items get together in three dimensions, consistent with Maslach's trifactorial model: emotional exhaustion (assesses the experience of being emotionally exhausted by academic demands), depersonalization (assesses the degree of recognition in attitudes of coldness and detachment), and lack of personal fulfillment (evaluates self-efficacy and personal fulfillment in studying) (21). The alpha Cronbach reported was $\alpha = 0.78$, and the Omega ω coefficient =0.77.

2) Utrecht Work Engagement Scale (UWES), validated for Chile. The items were based on the Maslach Burnout Inventory and adapted in the inverse form, contextualized into the academic environment. After a series of psychometric studies (22), a final version of 17 items remained distributed in three dimensions: vigor (high levels of energy and mental resilience), dedication (high academic involvement), and absorption (high state of concentration and immersion). To answer the items, response options are presented in Likert format (0 = never; 1 = a few times a year; 2 = once a month or less; 3 = a few times a month; 4 = once a week; 5 = a few times a week; 6 = every day) (23). The reported Cronbach's alpha was $\alpha = 0.86$, and the Omega coefficient $\omega = 0.84$.

The proposed ethical protocol was approved by the Scientific Research Ethics Committee of the sponsoring institution, and these criteria were safeguarded with informed consent.

Results

Of 201 people surveyed, 83.1% belonged to the feminine gender; 40.8% were in their fifth year of career (Table 1).

The ABS dimensions highlight that 25% of the sample presents depersonalization with 3 points, emotional exhaustion with 18 points, and personal fulfillment with 11 points, interpreting that symptoms are exhibited at least in one of the dimensions that compose the ABS (Table 2).

Table 1. Sociodemographic variables of 1st to 5th-year nursing students (N= 201).

Sociodemographic variables		Fr	%
Gender	Female	167	83.1
	Male	33	16.4
	Non-binary	1	0.5
	Total	201	100
Level of study	1°	44	21.9
	2°	13	6.5
	3°	24	11.9
	4°	38	18.9
	5°	82	40.8
	Total	201	100
Age	17-19	46	22.9
	20-22.	96	47.8
	23-25	54	26.9
	26 y más	5	2.4
	Total	201	100
With whom do you live?	Family	182	90.5
	Couple	12	6
	Alone	7	3.5
	Total	201	100
Support networks	Family	184	91.5
	Friends	4	2
	Couple	13	6.5
	Total	201	100
Marital status	Married	2	1
	Engaged	2	1
	Couple	4	2
	Single	193	96
	Total	201	100

Source: prepared by authors.

Table 2. Descriptive statistics of Academic Burnout Syndrome (ABS) dimensions in nursing students (N = 201).

	Average	SD	Median	Interquartile Range	Mode	Minimum	Maximum	Percentiles		
								25	50	75
Depersonalization	8.34	6.098	7	5	7	0	34	3	7	12
Emotional exhaustion	23.41	8.059	23	13	30	3	42	18	23	29
Personal fulfillment	14.87	6.543	14	8	12	1	39	11	14	19
Total	46.62	15.297	46	21	47	11	105	36.5	46	57

Source: prepared by authors.

As for the percentage distribution, 100% of the sample exhibited ABS; 52.7% and 9.5% showed moderate and severe ABS, respectively. As for the severity distribution

of SBA, it was observed that the first year showed a more significant number of students with severe ABS (Figure 1).

Academic Burnout Syndrome (ABS) Severity Levels by Year Completed

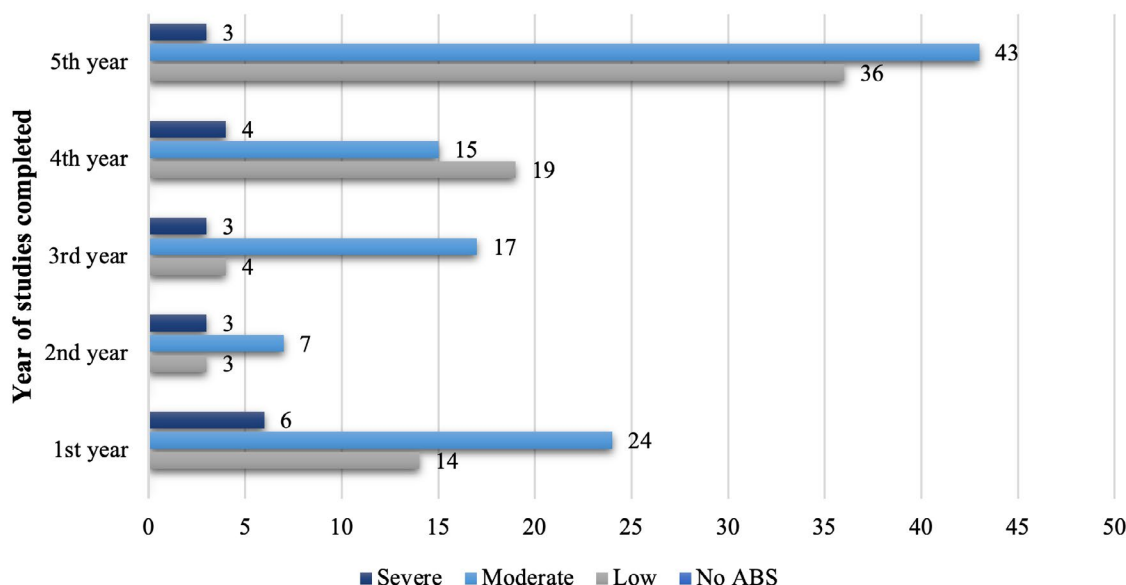


Figure 1. Distribution of Academic Burnout Syndrome (ABS) severity level by year completed (N=201).

Source: prepared by authors.

In the dimensions of AE, it is noteworthy that 25% of the sample exhibits vigor with 14 points, dedication with 23 points, and absorption with 17 points. The levels obtained according to the total AE indicate that 75% show it with 76 points (Table 3).

In the results of the Kruskal-Wallis test, the influence was identified in the dimensions of ABS; both depersonalization (Games-Howell H) $H(4)=9.667$; $p=0.046$, and emotional exhaustion $H(4)=17$; $p=0.002$, influenced by the student's year of study. Post-hoc analyses conducted with the

Games-Howell statistic showed that 5th-year students, for the dimension of depersonalization, obtained a higher score (median) (Mdn=9.50) (Interquartile Range) (IQR=6.5) than 3rd-year students (Mdn=5.0) (IQR=4.3); $p=0.008$, 95% CI [0.68; 6.53]. For emotional exhaustion, it was found that 5th-year students scored lower (Mdn=20.00) (IQR=11) than 1st-year students (Mdn=24.00) (IQR=11.3); ($p=0.017$), 95% CI [0.57; 8.62], as well as 2nd-year students (Mdn=30.00) (IQR=13.0); ($p=0.021$), 95% CI [-15.08; -1.00].

Table 3. Descriptive statistics of Academic Engagement (AE) dimensions in nursing students (N = 201)

	Average	SD	Median	Interquartile Range	Mode	Minimum	Maximum	Percentiles		
								25	50	75
Vigor	18.8	6.425	19	9.0	19 ^a	2	35	14	19	24
Dedication	25.11	4.106	26	5.0	27	9	30	23	26	28
Absorption	21.18	6.508	21	9.0	19	5	35	17	21	26
Total	65.09	14.76	64	20	57 ^a	24	100	56	64	76

Source: prepared by authors.

The results of the Kruskal-Wallis test identified influence in the dimensions of AE; both vigor $H(4)=23.867$; $p<0.001$; as well as absorption $H(4)=20.556$; $p<0.001$; and total AE $H(4)=20.022$; $p<0.001$; all concerning the student's year of study. Post-hoc analyses conducted with the Games-Howell statistic showed that 1st-year students, for the dimension of vigor, scored higher (median) (Mdn=23.00) (Interquartile Range) (IQR=6.5) than 5th-year students (Mdn=16.00) (IQR=8.8); ($p<0.001$), 95% CI [2.63; 8.72]. Similarly, for absorption, it was found that 5th-year students scored lower (Mdn=19.00) (IQR=8.0) than 1st-year students (Mdn=25.00) (IQR=6.5); ($p<0.001$), 95%

CI [1.90; 8.23]. For total AE, 1st-year students scored higher (Mdn=73.50) (IQR=17.8) than 5th-year students (Mdn=58.50) (IQR=17.8); ($p<0.001$), 95% CI [4.21; 18.92].

The association between total AE and Abs is moderate negative ($r=-.320$; $p<0.001$). Significant correlations are noted between the dimensions of depersonalization and dedication, between personal fulfillment and vigor, dedication, absorption, and total engagement, as well as between dedication and total SBA, all moderate negative (Table 4).

Table 4. Relationship between total Academic Engagement (AE) and total Academic Burnout Syndrome (ABS), and its dimensions.

EA	ABS			
	Depersonalization	Emotional exhaustion	Personal fulfillment	Total ABS
Vigor	$r=-0.189^{**}$	$r=-0.06$	$r=-0.06$	$r=-0.264^{**}$
Dedication	$r=-0.316^{**}$	$r=-0.103$	$r=-0.103$	$r=-0.357^{**}$
Absorption	$r=-0.174^{*}$	$r=-0.063$	$r=-0.063$	$r=-0.256^{**}$
Total EA	$r=-0.237^{**}$	$r=-0.073$	$r=-0.073$	$r=-0.320^{**}$

** Correlation is significant at the 0.01 level (bilateral). * $p<0.05$. ** $p<0.01$.

Hypotheses: (H1) Total AE-ABS and its dimensions. (H2) Depersonalization, with the three dimensions of engagement: vigor, dedication, and absorption. (H3) Emotional exhaustion with vigor, dedication, and absorption. (H4) Personal fulfillment with vigor, dedication, and absorption.

Source: prepared by authors.

Discussion

The findings demonstrated the relationship between ABS and EA variables in EE and their dimensions during the pandemic and distance education. Our hypotheses are partially accepted, as moderate negative correlations were observed between total ABS and AE and their dimensions (H1). Similarly, weak to moderate negative correlations were found between the variables of depersonalization, vigor, dedication, and total EA (H2). Furthermore, personal fulfillment was moderately and negatively associated with

the three dimensions of EA (H4), and no correlations were observed between emotional exhaustion and the dimensions of engagement, rejecting our hypothesis (H3).

These findings are consistent with another study conducted on EE during the pandemic and distance education, which showed strong negative correlations between ABS and AE variables (19). They also align with another pre-pandemic study (24), reaffirming that AE serves as a potential protector against ABS and associated emotional problems.

The present study reported that NE was affected by the dimensions of personal fulfillment and the presence of emotional exhaustion concerning ABS, consistent with previous research in similar populations (13). Additionally, this research indicated that 100% of the population presented ABS. This percentage is elevated compared to other pre-pandemic studies, where NE presented 18.8% and 10.5% ABS (11,25), and very high compared to a recent systematic review on ABS in the same population (23%) (26). Another pandemic study on ABS in students reported similar results to those presented here, highlighting the exhaustion of this population (27), suggesting that ABS has been a mental health issue both before and during the pandemic in this susceptible population.

These results are similar to another pre-pandemic study in Chile, where 100% of the sample presented ABS, with a “mild” severity level of 73.4% (28). However, our study revealed alarming figures, with 52.7% presenting moderate levels and 9.5% severe. These figures could be related to changes in academic activities during the pandemic: virtual classes, suspension of simulated laboratories, and clinical practices, which negatively impacted the students. Additionally, it is noted that first-year students exhibited greater vulnerability to ABS (28). It is noteworthy that the first-year students show high prevalence rates of SBA, although they have already been subjects of study due to associated emotional risks (29), which can be related to the new university demands and their transition from adolescence to adulthood, a crisis that can also be a risk factor for MH.

Regarding the results by the ABS dimension and year of study, the influence of depersonalization and emotional exhaustion dimensions was identified. Fifth-year students showed higher scores than third-year students; this finding aligns with other studies that determined that students in advanced courses had higher ABS scores (11,24). In the depersonalization dimension, it coincides that the more advanced the course, the greater the ABS symptoms. This may be due to the new academic responsibilities during the COVID-19 pandemic, the pressure to adapt to DE (19), and uncertainty about the academic future, associated with the suspension of laboratories, clinical practices, and postponement of graduation, among other factors.

However, our study differs in the dimension of emotional exhaustion, as fifth-year students ($Mdn=20.00$)($Rq=11$) presented lower scores than first-year ($Mdn=24.00$)($Rq=13.3$) and second-year students ($Mdn=30.00$)($Rq=13.0$) (11). This lower emotional exhaustion (fifth year) observed in our study could paradoxically be due to distance education itself, as there was no direct supervision by teachers in the classroom, nor teacher-student interaction. Additionally, the fact that evaluations were also virtual, with the possibility of direct consultation with notes, reduced the emotional

pressure conditions associated with these activities in person, as well as the increased free time associated with other losses described previously. Moreover, first and second-year students present higher indices of emotional exhaustion, possibly due to the uncertainty associated with distance education; these courses require fewer laboratories and clinical practices, so the pressure associated with theoretical subjects was not felt. All this could lead to a lack of enthusiasm and concentration in the course, leading to inappropriate behaviors such as playing with mobile phones, falling asleep, and being absent from learning (19). This inevitably influences psycho-affective experiences and high ABS indices, associated with the new pandemic and DE scenario.

Regarding AE and its dimensions, it is noteworthy that 25% of the sample presents vigor with 14 points, dedication with 23 points, and 17 points for absorption. Concerning the levels obtained according to total AE, it indicates that 75% present it with 76 points, similar to another study in a similar population, where dedication obtained a higher development score than the others (30). The results are concurrent with a recent study, where more than 53% of the population qualified in the high category and 43% in the medium category (31).

These results identified an influence on AE dimensions; both vigor and absorption, and total AE; all variables on the year students are enrolled. Post-hoc analyses showed that first-year students, for vigor, scored higher ($Mdn=23.00$)($Rq=6.5$) than fifth-year students ($Mdn=16.00$)($Rq=8.8$). This scenario is consistent with another study, where AE showed high levels in the first and last semesters (31). However, our study differs from the latter, as in absorption and years of study, fifth-year students scored lower in these dimensions compared to both years of study ($Mdn=19.00$)($Rq=8.0$) than first-year students ($Mdn=25.00$)($Rq=6.5$), and also for total AE first-year students ($Mdn=73.50$)($Rq=17.8$) compared to fifth-year students ($Mdn=58.50$)($Rq=17.8$). This situation is not new, as expectations for learning in the first semesters are high, leading to a desire to continue with the teaching process, as shown in the mentioned study (31).

The lower absorption scores of fifth-year students may be associated with the uncertainty experienced during the pandemic, in addition to being recruited for technical work in hospitals, and experiencing insecurity about finishing their studies, as there was no clarity on how to reintegrate both into simulated laboratories and clinical practices, extending their years of study, generating a significant decrease in academic commitment. These results differ from those presented by Chávez et al. (30), which state that the level of school advancement does not influence their display of commitment and academic performance. However, this study was conducted in pre-pandemic times in a different university population, so it is expected to contrast with the

high-stress levels experienced by NE (10–12), as subjects were affected not only academically but also occupationally.

Regarding the study's limitations, data collection through virtual surveys during the pandemic did not reach the entire population. Additionally, the descriptive-correlational study does not allow for observing the causality of variables. Longitudinal studies are recommended to examine causality and visualize changes over the years of study. Finally, as this is a predominantly female field, it is difficult to have a heterogeneous vision of the phenomenon concerning gender; studies in more homogeneous samples are suggested.

Conclusions

The findings indicate that in NE during the pandemic and distance education, there was a statistically significant relationship (moderate and negative) between the ABS and AE variables, without any associations in all dimensions, so the hypothesis was partially accepted.

Students experienced ABS with varying levels of severity. The AE expresses its cushioning component against the ABS, the pressures of the DE and the pandemic confinement. 5th-grade students experienced greater depersonalization; However, they suffered less emotional exhaustion compared to lower grades. Considering this, it is important that universities develop emotional resources for students that help increase AE and thus avoid other conditions associated with MH in education.

Finally, it is relevant that students can be permanently motivated, as well as managing student commitment, self-learning and self-motivation. In relation to this, it is urgent that universities find prevention strategies, such as self-knowledge resources, early screening, etc. in a population susceptible to MH diseases in DE in pandemic and post-pandemic.

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Conflicts of interest

The authors declare that they have no conflicts of interest.

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Ethical responsibilities

Protection of people: The present study is considered research without risk, given its nature. It was approved by the Institutional “Ethics and Scientific Research Committee” (Folio: 239/2019).

Confidentiality of data: The authors declare they have followed their work center's protocols on the publication of patient data.

Right to privacy and informed consent: The authors have obtained the informed consent of patients and/or subjects mentioned in the article. This document is in the possession of the corresponding author referred to in the article.

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